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Foreword

We have the pleasure to present to you the second issue of **'$GO_2$50'**, a publication of the National Centre for Emissions Management at the Institute of Environmental Protection – National Research Institute.

The omnipresent COVID-19 pandemic has strongly affected the economy of the European Union and, in consequence, the greenhouse gas emissions, involving, on the one hand, large decreases in emissions in recent years and, on the other hand, the recently seen economic rebound and a substantial increase in the demand for commodities the manufacture of which was stopped due to temporary lockdowns. This rebound has resulted, among others, in a surge in the global fuel prices, which has led to an unprecedented increase in the wholesale electricity prices in the EU. To a large extent, it has been an effect of the growing prices of natural gas, which is a transition fuel. The EU depends on natural gas imports; therefore, its global price increases have affected to such a large extent the economies of particular Member States, particularly, those that have already managed to shift away from coal towards RES and gas. It is exactly in such an environment of the growing prices of energy carriers and emission allowances that the last COP26 climate summit took place in Glasgow. At EU level, work has been underway on the "Fit for 55" package which was presented by the European Commission in July 2021 and its particular elements of a regulatory nature.

Bearing all this in mind, we have the pleasure to present to you several topics which we consider interesting and which are and will continue to be extensively discussed in the nearest future. These issues are related to both the evaluation of the present situation on the stage of the international climate negotiations, including the role of EU diplomacy, and the assessment of what will be of significant importance at the levels of the EU and Poland for the implementation of the European Green Deal strategy and the "Fit for 55" package, i.e. the situation on the carbon market in the EU ETS, equitable burden sharing in respect of increased climate policy targets, the role of new low-and zero-emission energy technologies, the transition of the road transport sector and the issues related to the financing of climate action projects.

We wish you an enjoyable read!

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The EUA market and price developments in the EU ETS in 2021 and the further prospects

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The EUA market and price developments in the EU ETS in 2021 and the further prospects

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Abstract

The aim of this article is to discuss the current situation on the emission allowance market in the EU ETS, to identify the factors which affected to the greatest extent the prices of emission allowances (EUAs)[1] in 2021 and to attempt to estimate the effect of the changes in the EU ETS as proposed by the European Commission as part of the "Fit for 55 package"[2] on the EUA prices in the nearest months and years.

The EUA prices repeatedly broke records. In December 2021, they reached a level of about EUR 90, whereas still in January they amounted to about EUR 33 per allowance. This meant their increase of more than 170% in that period. In turn, from November 2020 when a strong uptrend began, this increase was even more spectacular and reached out about 280%. This increase was comparable to the one achieved for Bitcoin, far higher than that of other popular classes of assets, such as the stock market in the USA, coal, crude oil or real estate. The only popular asset which grew more was natural gas. And it was exactly to this commodity that the allowances owed their spectacular rally. The extremely high gas prices brought about the situation where energy producers switched to twice as carbon-intensive, relatively cheaper coal. This, in turn generated higher demand for EUAs which needed to be purchased to surrender higher emissions within a EU ETS compliance obligation. At the same time, the increase in the demand for the allowances and coal raised their prices. As the current observations show, in order to make gas use cost-effective, the allowance price would have to grow three times, to levels of about EUR 220-300.

The EUA price rises in 2021 also was as a result of the publication of the "Fit for 55" package which would drastically reduce the number of allowances available until 2030 in the EU ETS. This will result not only from the increase LRF[3] from 2024 and the introduction of so-called rebasing[4], but also in a consequence of the strengthening of the MSR[5]. The latter mechanism is a very effective instrument to eliminate the surplus of allowances on the market; it operates in such a way that the higher the emission reductions are in the scheme, the higher reductions of auction volumes. The changes proposed by the European Commission to the MSR are expected to accelerate even further the pace of diminishing the surplus; hence, even more allowances will be reduced at auctions.

[1] European Union Allowances.

[2] The package of legislative proposals "Fit for 55", which is a part of the European Green Deal, intended to strengthen the position of the EU the global climate leader. The aim of the package is to amend the existing legislation in line with the EU climate target for 2030, which will help implement the transformations in the economy, society and industry so as to achieve climate neutrality by 2050 and to reduce net emissions by at least 55% until 2030 (compared with 1990).

[3] The Linear Reduction Factor, consisting in an annual reduction of the cap of allowances in the EU ETS.

[4] A one-off reduction in allowances in the EU ETS. The number of allowances removed on a one-off basis from the market will reflect in a linear manner the reduction of allowances from 2021 with a new LRF of 4.2%. The new LRF of 4.2% corresponds to the emission reduction target of 61% for the EU ETS in 2030 compared with the emissions in 2005.

[5] Market Stability Reserve.

A change in the key elements of the EU ETS has been discerned by financial institutions whose involvement has grown on the market. This is demonstrated by an increase in the number of these entities, their market shares, trading volumes and cash inflows to new ETF funds, which also open access to this market for retail investors. All this takes place in the absence of safeguard which would ensure the real protection of the market against surges in allowance prices.

Given the expected entry into effect of the "Fit for 55" package in 2024, that year can be of key importance for the allowance prices. However, the participants in this scheme may perhaps discount its effects in prices much earlier, e.g. in 2022 and 2023. This might flatten out the prices in the period until 2030 without any visible surges in their values. This scenario is suggested by the available price projections. Vertis has projected that in the period from 2022 to 2030 the allowance prices can rise on average within the range from EUR 89 to 141[6]. This is somehow consistent with the technical picture of the market, where the next key resistance zone for investors should occur at a level of about EUR 133. In contrast, it is difficult to say exactly when the allowance prices can reach these levels.

Dynamic increases in the EUA prices in 2021

At the beginning of December 2021, the EUA prices reached a high level of EUR 90 for a tonne of CO_2 emitted, whereas still in January they amounted to about EUR 33. This means that over 11 months the value of the allowances increased by more than 170%[7]. Recently their increases were exponential – just to give the example of November when over 15 days their prices reached all time high levels as many as 12 times. At the beginning of the year, practically no-one expected such a large growth rate of prices in 2021. The market observers who projected such high increases in EUA prices represented the overwhelming minority. At the beginning of January, the Carbon Reporter carried out an interesting poll among the users of the Twitter service, asking them what the allowance price would be at the end of 2021 r. Only two persons (2%) out of 105 who were polled projected that at that time the prices would be higher than EUR 75. In turn, the average price from the poll was about EUR 41.5. How does this relate to the actual results? When calculating until 8 December 2021, the arithmetic average price from the ICE and EEX exchanges on the spot market was about EUR 51.77 (the weighted one was EUR 55.75). Well-known analytical institutions[8], which give average prices in their projections, predicted the prices in 2021 (of about EUR 40) resembling those of the poll cited above. This means that these institutions also slightly exaggerated in their projections and that it is not unlikely to change by the end of the year. Interestingly, in January of this year, the analytical institutions did not expect the present price levels (EUR 80) until 2030. Not so long ago, the European Commission itself presented very similar projections; in the so-called "impact assessment" of the "Fit for 55" package, it was expected that they would be EUR 85 in 2030. This is significant insomuch as, if the present very strong growing trend persists, the levels projected by the analytical institutions and the EC (or ones even exceeding them substantially), they are most likely to occur already in 2022.

[6] The arbitrary values adopted on the basis of the presentation at an open webinar organised by the company Vertis, entitled "EU ETS for shipping: getting ready to ride the wave" (the mean prices under the "bearish" and "bullish" scenarios were calculated).

[7] Calculating from 2 January to 8 December 2021.

[8] Raport z rynku CO_2 [The Carbon Market Report – in Polish], January 2021 (No. 106)], p. 5 (accessed on: 8 December 2021).

In December 2021, EUA prices reached a level of about EUR 90, whereas still in January they amounted to about EUR 33 per allowance. This means that over that period the value of the allowances increased by more than 170%. In turn, when calculating from November 2020 when a strong growing trend began, this increase was even more spectacular and amounted to about 280%.

However, a very strong growing trend began already in November 2020 and, if one were to calculate from that date, the price increase would be even more imposing, amounting to +280%[9]. It all began with the price breakout from the almost 1.5 years long consolidation limited by a level of EUR 30 in November 2020, which was a special month since in September and October on all the financial markets, including equities and energy commodities, a deep falling correction had taken place. It ended after positive information appeared about vaccines against COVID-19 (from Pfizer or Astra Zeneca) and the gradual unlocking of lockdowns previously imposed on the economies in Europe. At that time, it was a very positive signal for the markets suggesting that the epidemic could be stopped and that, as a result, the economies should be fully unlocked and the demand which had broken down earlier would be restored. The business environment was additionally favoured by the ultra-loose monetary policy of the central banks in the USA and Europe, oriented on maintaining low interest rates and resulting in that a large amount of "cheap" money remained on the market which investors had to locate somewhere. Therefore, from November 2020 increases began on almost all the financial markets – of equities, commodities, real estate and cryptocurrencies.

In December 2021, EUA prices reached a level of about EUR 90, whereas still in January they amounted to about EUR 33 per allowance. This means that over that period the value of the allowances increased by more than 170%. In turn, when calculating from November 2020 when a strong growing trend began, this increase was even more spectacular and amounted to about 280%.

Table 1 shows the percentage increases in the abovementioned assets from November 2020 to December 2021. It can be seen that in most cases they were three-digit increases (for energy commoditiesand cryptocurrencies and only precious metals (gold) brought losses.

TABLE 1. PERCENTAGE PRICE GROWTH RATES FOR DIFFERENT CLASSES OF ASSETS IN THE PERIOD FROM 2 NOVEMBER 2020 TO 2 DECEMBER 2021.

Equities	Commodities						Real estate	Cryptocurrencies
S&P500	Gas	Coal I	EUA	Brent crude oil	Copper	Gold	ETF	Bitcoin
38.28%	568.39%	119.31%	235.49%	78.78%	39.06%	-7.79%	18.54%	310.70%

(*) The above prices represent: S&P500 (an index in the USA, futures), gas (TTF Dutch futures), coal (API2 Rotterdam futures), EUAs (futures from the ICE), Brent crude oil (futures), copper (futures), gold (futures), ETF (Xtrackers International Real Estate ETF) and Bitcoin.

Source: Own elaboration by the KOBiZE based on investing.com and ICE Futures Europe.

[9] Calculating until 8 December 2021.

Extremely high gas and coal prices in Europe

In the context of the growing allowance prices, it is particularly important to consider the gas and coal prices which have grown since November 2020 by about 568% and 119%, respectively. They are key energy fuels which are constantly correlated with the EUA prices. This primarily results from the possibility of replacing a more carbon-intensive fuel by a less carbon-intensive one or conversely (e.g. replacing coal by gas), depending on which option is more cost-effective for energy producers (so-called fuel switching) and from the substantial decline in windiness in Europe in 2021, which caused higher consumption of fossil fuels for electricity production[10]. High gas prices resulted, among others, from the lowest for many years reserves in the European gas storage facilities (to which the Gazprom policy contributed) and the growing demand in Asia for that commodity as a result of post-Covid recovery. In turn, in the case of coal, the high prices of this commodity resulted from the growing demand caused by the closure of many mines during the pandemic and a quick upturn in the demand for this commodity produced by the growing demand for electricity.

The extremely high gas prices brought about the situation where energy producers returned to twice as carbon-intensive, relatively cheaper coal sources. This, in turn generated higher demand for EUAs which needed to be purchased to account for higher emissions. At the same time, the increase in the demand for the allowances and coal raised their prices.

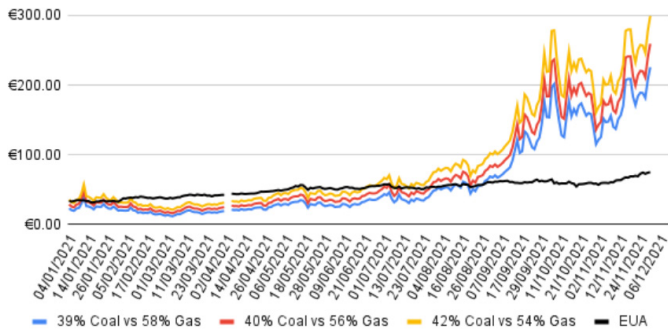
The extremely high gas prices brought about the situation where energy producers returned to twice as carbon-intensive coal sources. This phenomenon became particularly conspicuous in the case of Poland where long-term contracts for coal purchases dominate, with prices much lower than those now to be seen on the world markets.

The extremely high gas prices brought about the situation where energy producers returned to twice as carbon-intensive, relatively cheaper coal sources. This, in turn generated higher demand for EUAs which needed to be purchased to account for higher emissions. At the same time, the increase in the demand for the allowances and coal raised their prices.

In the period from January to October 2021, Poland diminished its net imports from 11.5 TWh to 1.8 TWh, increasing its hard coal-based electricity production by more than 31% and lignite-based production by more 15% year on year[11]. This, in turn, generated higher demand for EUAs which needed to be bought to surrender higher emissions. At the same time, the increased demand for the allowances and coal raised their prices. Chart 1 shows the fuel switching price at which it is cost-effective to change from coal to gas. It can be seen that it would have to grow three times compared with its present levels, i.e. to about EUR 220-300, to make the coal to gas switch cost-effective. In this context, it is interesting to note the statement of the European Commission that the allowance prices would have to reach about EUR 90 until 2030 to enable green hydrogen to replace fossil fuels in certain industrial applications and that they would have to be much higher to introduce hydrogen into clean energy applications[12].

[10] https://biznesalert.pl/wiatr-spowalnia-w-europie-moze-sie-to-odbic-na-transformacji-energetycznej/ (accessed on: 8 December 2021).
[11] https://wysokienapiecie.pl/40615-eksportujemy-najwiecej-pradu-od-lat-dzieki-tanszemu-weglowi/ (accessed on: 8 December 2021).
[12] https://www.carbonreporter.com/post/what-does-the-current-price-of-euas-actually-represent (accessed on: 8 December 2021).

CHART 1. THE FUEL SWITCHING PRICE AT WHICH IT IS COST-EFFECTIVE FOR COMPANIES TO CHANGE FROM COAL TO GAS, DEPENDING ON THE EFFICIENCY OF THE TWO FUELS AND EUA PRICES.



Source: Carbon Reporter

The "Fit for 55" package, i.e. the strengthening of the EU climate policy and the effectiveness of the MSR reserve

In addition to recovery and large increases on other markets, as well as high gas prices, a key price driver was primarily the strengthening of the EU climate policy, about which the EC had begun to speak already much earlier than 2020. On 11 December 2019, the EC Communication (COM(2019)640) presented the European Green Deal[13]. It is a plan for strategic and legislative measures for a sustainable EU economy the purpose of which is to achieve climate neutrality in 2050. Along with the publication of the European Green Deal, Ursula von der Leyen, President of the European Commission, undertook to present a plan for increasing the EU emission reduction target by 2030. Already a year later (in December 2020) specific proposals appeared and the European Council approved the strengthening of the target by at least 55% compared with 1990 (from the existing 40%).

In light of these actions of the European Commission, in order to implement the proposals under the European Green Deal, i.e. to reduce EU emissions by at least 55% in 2030 and to achieve EU climate neutrality in 2050, among others, the EC will have to reform the EU ETS scheme. In this case, this will mainly involve an increase in the reduction target and a revision of the MSR. For the participants in the scheme, the reform will mean a drastic limitation of the allowance supply on the market in the period after 2024, among others, through enhancing the Linear Reduction Factor (LRF), limiting the free allocation and strengthening the parameters of the MSR reserve (resulting in a larger transfer of auctioned allowances to the MSR).

[13] The European Green Deal.

The EUA prices in 2021 also grew as a result of the publication of the "Fit for 55" package which would drastically reduce until 2030 the number of allowances available in the EU ETS scheme. This will result not only from the increase in the LRF factor from 2024 and the introduction of so-called rebasing, but also in consequence of the strengthening of the MSR reserve.

Going into details, the increase in the GHG emission reduction target for the EU from 40% to 55% translates, at the same time, into the strengthening of the reduction target in the EU ETS from the present 43% to 61% in 2030 vs. emissions in 2005. This means that, in order to achieve the assumed target, starting from 2021 the annual reductions should fall by 4.2% instead of 2.2%, as current LRF). In absolute values, this means the doubling of the annual emission reduction rate from 43 million to about 82 million allowances. Moreover, the implementation of the "Fit for 55" package can last even for 2 years, whilst the real date when it can enter into force is only 2024. In order to compensate for this delay, it was decided that a one-off emission reduction (the so-called one-off mechanism" or "rebasing") of about 117 million would be applied in 2024 to stationary installations in the EU ETS. In such a case, the LRF would be 4.2% and apply from 2024. In the case of a revision of the MSR reserve, the percentage rate of the allowance transfer to the MSR (i.e. the co-called "intake rate") would grow from 12% to 24% in the period from 2024 to 2030. It should be recalled that, in accordance with the existing regulations, after 2023 the intake rate was supposed to be lowered to 12%. The aim of the continued maintaining the intake rate at a 24% level is to reduce the allowance surplus; in consequence, it would accelerate the pace of reducing allowances sold at auctions.

The EUA prices in 2021 also grew as a result of the publication of the "Fit for 55" package which would drastically reduce until 2030 the number of allowances available in the EU ETS scheme. This will result not only from the increase in the LRF factor from 2024 and the introduction of so-called rebasing, but also in consequence of the strengthening of the MSR reserve.

The effect of reducing the surplus to the upper reserve threshold (833 million) can be halted by the introduction by the European Commission of an additional threshold of 1,096-833 million, which, at the same, is associated with a different intake rate[14].

The MSR reserve as a tool for supporting the maintenance of high allowance prices

At this point, it is important to mention the effectiveness of the tool which is the MSR. Despite the fact that for several years now the annual emissions have fallen in the EU ETS, this has not contributed to a significant extent to stop rising allowance prices. Emissions can fall due to the reduction actions taken by operators (e.g. fuel switching) or as a result of limiting production because of different types of crises (e. g. the crisis in 2008 and 2009, or the market shocks caused by COViD-19). An emission reduction generates an allowance surplus on the market; given the very

[14] This threshold was introduced to prevent the so-called threshold effect. The mechanism of the additional threshold consists in that when the surplus (the TNAC) falls below 1,096 million the difference between the allowance surplus and the upper threshold places into the MSR. For instance, when the TNAC in a given year is 1,000 million EUAs, only 167 million allowances is transferred to the MSR (instead of 240 million in the absence of the additional threshold), which means that the intake rate in that year will not be 24%, but 16.7% (167 million/1,000 million). The effect of this can be such that, as the surplus comes closer to the upper threshold of 833 million, this will increasingly reduce the EUA transfer to the MSR. Thus, it can represent a very significant mitigation of the effects of a higher intake rate, which at some point can actually reach values which are substantially lower than 24%.

high MSR intake rate (of 24%), it is very effectively eliminated (by reducing auctioned volumes). It can be interpreted that each emission reduction has a direct effect of a greater limitation of the allowances available on the market. Therefore, this mechanism is perfectly designed to prevent allowance prices from falling and for maintaining EUA'sat high levels. This is confirmed by statistical data: in 2019 and 2020 the emissions in the EU ETS fell as a total by about 20%, whilst in 2020 and 2021 (due to the fact that the MSR operates with some delay) the auctioned volumes were reduced, respectively, by 35%[15] and 40%[16] (375 million and 320 million), whilst the allowance prices in those years increased by about 250%[17].

The structure of the EU ETS market and the growing role of the market speculation

The year 2021 saw increasingly large market activity of entities buying allowances for profit. For them the allowance market had become a very attractive investment opportunity, in light of the very strong fundamentals (including the strengthening of EU climate policy or the growing gas prices), the absence of any restrictions on the participation in that market or the practically nonexistent chances for any EC intervention in that market. This is reflected in numbers: in accordance with the data of the European Securities and Markets Authority (ESMA) since 2018 the number of investment funds and investment institutions has grown by about 85% and 133%, respectively; moreover, the growth rate of these increases clearly sped up in 2021.

TABLE 2. NUMBER OF ENTITIES BROKEN DOWN INTO OPERATORS PARTICIPATING IN THE EU ETS AND THE OTHER ENTITIES (DATA FROM THE EEX AND ICE EXCHANGES).

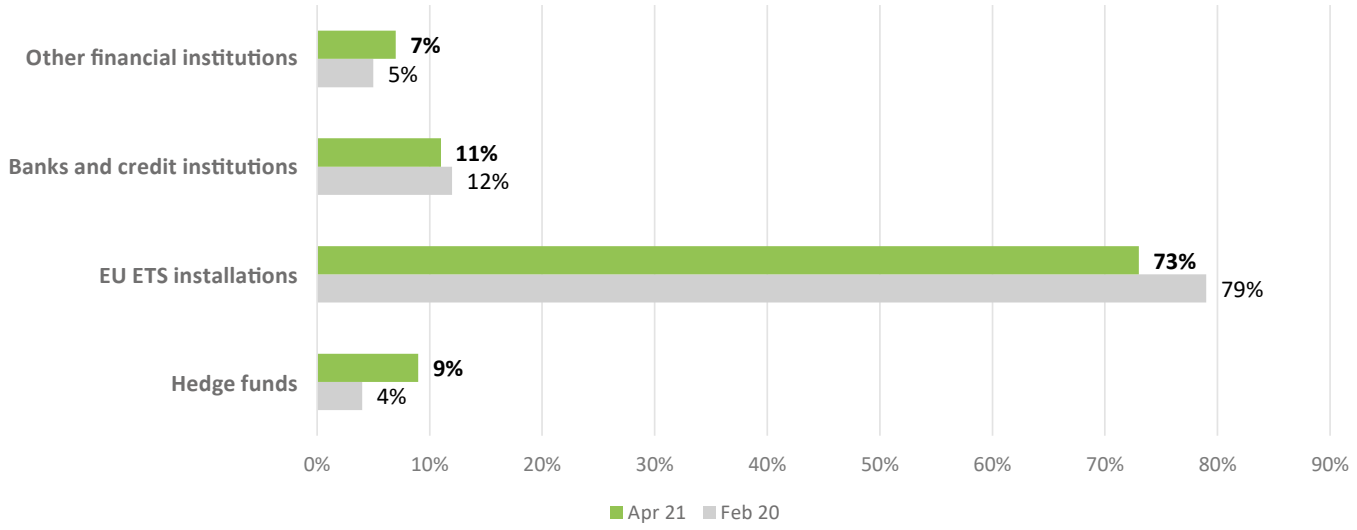
Year/Category	EU ETS operators + nonfinancial companies (involved in hedging)	Percentage increase vs. 2018	Investment funds	Percent age increase vs. 2018	Investment institutions	Percentage increase vs. 2018 r.
2018	178	x	206	x	48	x
2019	200	12.36%	248	20.39%	57	18.75%
2020	221	24.16%	278	34.95%	59	22.92%
2021	333	87.08%	381	84.95%	112	133.33%

Source: ESMA data.

[15] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020DC0740&from=EN (accessed on: 8 December 2021).
[16] https://ec.europa.eu/clima/system/files/2021-10/com_2021_962_en.pdf (accessed on: 8 December 2021).
[17] Calculating until 7 December 2021.

As for the number of allowances exchanged on the carbon market (i.e. the so-called traded volume) is concerned, according to the Refnitiv data, in 2020 it increased by about 19% compared with 2019 (from 6.78 to 8.1 billion allowances)[18]. The percentage value of transactions was the same and their value in 2020 was about EUR 201.4 billion; in these terms, the European emission allowance market takes the first place (with its 88% share in all the carbon markets in the world). The data on the value of the EU ETS market are even lower than those presented by the ESMA, which estimates that the value of this market in 2020 was about EUR 687.5 billion (vs. EUR 599 billion in 2019, i.e. it grew by 15%). The difference between the numbers cited above can result from the fact that in its estimates Refinitiv did not include options on EUA's. Interesting data were also provided by Refinitiv concerning the number of net open positions on the futures market[19] (i.e. the difference between the value of contracts on the purchase and sales of allowances). From November 2020 to April 2021, when the allowance prices doubled, the number of these positions on the part of investment funds increased by 240%. From February 2020 and April 2021, this enabled these funds to increase their market share from 4% to 9%. Refinitiv also gave overall statistical data on the market shares (Fig. 1), which indicated that in the same period the share of installation operators decreased from 79% to 73%, whilst the share of all financial institutions grew from 21% to 27%[20]. In turn, the ESMA presented slightly different results.

FIG. 1. AN INCREASE IN THE ACTIVITY OF FINANCIAL INSTITUTIONS (THEIR SHARE IN LONG POSITION THE FUTURES MARKET) FROM 21% TO 27%, INCLUDING THAT OF HEDGE FUNDS FROM 4% TO 9%, IN THE PERIOD FROM FEBRUARY 2020 TO APRIL 2021.



Source: Own elaboration of the KOBiZE based on Refinitive data.

[18] Refinitiv, Carbon Market Year in review 2020, 26 January 2021.
[19] Refinitiv, Investment funds rocking the European carbon market, 30 April 2021.
[20] Ibidem.

In its report on the functioning of the emission allowance market[21], the ESMA stated that in the period from 2018 to 2021 the number of participants generally remained at a constant level: the EU ETS operators (and nonfinancial companies) represented about 45-50%, investment institutions from 40 to 47% and investment funds about 6-8%. It should be recalled that both institutions (the ESMA and Refinitiv) used the same transaction data (the weekly Commitment of Trade (CoT) reports). The ESMA drew a surprising suggestion that only investment funds bought allowances for profit, whilst the other financial entities purchased allowances acting as intermediaries for the EU ETS operators. Moreover, it seems that the ESMA is not aware on whose behalf allowances are bought (of buyers themselves, third parties or the EU ETS operators). It seems that as the body exercising supervision over the financial markets in Europe, the ESMA should have such knowledge.

A change in the key elements of the EU ETS scheme has been discerned by financial institutions whose involvement has grown on the CO_2 market. This is demonstrated by an increase in the number of these entities, their market shares, the trading volumes and the cash inflows to the ETF funds, which also open access to this market for individual investors.

As regards the investment funds themselves, a very interesting phenomenon are the increasingly large inflows of resources to the funds of the ETF type. Although in Europe no funds of this type operate yet, but there are four of them in the United States and one was recently set up in New Zealand. The largest fund of this type, i.e. the KraneShares' KRBN ETF in the USA, can boast of assets worth about USD 1.4 billion, whilst at the beginning of this year it had only 17 million.

A change in the key elements of the EU ETS scheme has been discerned by financial institutions whose involvement has grown on the CO_2 market. This is demonstrated by an increase in the number of these entities, their market shares, the trading volumes and the cash inflows to the ETF funds, which also open access to this market for individual investors.

It is interesting to note that recently this fund was distinguished in the category of "the ETF of the week"[22].

The problem of no market safeguard against EUA price spikes

Recently, the cash inflows to the funds of this type were enhanced by the positive outcome of COP26 in Glasgow or the publication of the ESMA report on the allowance market as cited earlier, which clearly demonstrated that there was no evidence to abuse on the carbon market, thus suggesting that no intervention on the market would be necessary. Such an intervention could be launched if the EC had designed a better mechanism under Article 29a of the EU ETS Directive[23]. Indeed, the present form of this mechanism practically prevents its introduction. Firstly, because the provisions establishing this mechanism are not completely clear and for a long time there has been no consensus on its interpretation and the satisfaction

[21] ESMA Report "Preliminary report Emission Allowances and derivatives thereof"; 18 November 2021.

[22] ETF of the Week: KraneShares Global Carbon ETF (KRBN) | ETF Trends (accessed on: 8 December 2021).

[23] It is important to recall its wording: " If, for more than six consecutive months, the allowance price is more than three times the average price of allowances during the two preceding years on the European carbon market" the EC immediately convenes a meeting of the Climate Change Committee (CCC).

of this condition itself. A scientific article which was recently published by the Institute of Environmental Protection - NRI[24] attempted to analyse several interpretations of this provision and for its most "lenient" variant it found that the average EUA price in the period from July to December 2021 would have had to be about EUR 75, whereas the current average calculated from July to 2 December 2021 was barely about 60 EUR, i.e. EUR 15 less. Secondly, even if the price-related condition is satisfied it cannot be ensured that an intervention by the European Commission would ever take place at all. All this is caused by the provision of the EU ETS Directive indicating that the measures can be launched if the observed price evaluation does not correspond to changing "market fundamentals". And looking at the continuous evaluation, the question arises as to what change does not "fundamentally" affect the market. Realising the vagueness of the provisions and the unwillingness of the EU to launch an intervention to reduce the price, investors enter this market with no fear and invest in it expecting high profits. Table 3 sums up all the potential market factors which could contribute to increases in the allowance prices in 2021.

TABLE 3. PRICE-DETERMINING FACTORS WHICH COULD HAVE HAD THE LARGEST EFFECT ON THE EUA PRICE DEVELOPMENTS IN THE PERIOD FROM NOVEMBER 2020 TO DECEMBER 2021.

	Factors
Systemic	• The strengthening of the EU reduction target until 2030 from 40% to 55% as part of the "Fit for 55%" package (which will significantly reduce the allowance supply, i.e. the so-called cap in the EU ETS). • The operation of the MSR reserve additionally limiting the allowance supply on the market. • The need for the EU ETS installations to surrender emissions in 2020 (until 30 April 2021). • The increased activity of institutions which are not obliged to surrender emissions in the EU ETS (investment funds). • A delay in the process of the free allocation to operators in the EU ETS. • A positive outcome of COP26 in Glasgow. • The publication of a preliminary ESMA report on the allowance market, which clearly demonstrated that there was no evidence to abuse on the carbon market (there is no need for intervention on the market). • Growing allowance prices in the UK ETS scheme[25].
Market-related	• The economic recovery following the COVID-19 crisis in 2020 and the adoption of successive stimulus packages (in the USA) which helped other markets – particularly, stock markets (positively correlated with the allowance market) – achieve new record highs. • Record high increases in the prices of energy raw materials (e.g. coal, gas and energy) in Europe. • A substantial decline in windiness in Europe in 2021 causing an increase in the consumption of fossil fuels for electricity production.

Source: Own elaboration by the KOBiZE.

[24] R. Jeszke, S. Lizak, Reflections on the Mechanisms to Protect Against Formation of Price Bubble in the EU ETS Market, https://www.sciendo.com/article/10.2478/oszn-2021-0005 (accessed on: 8 December 2021).

[25] The British equivalent to the European emissions trading scheme – the EU ETS.

Prospects for EUA price developments in the future years: including the key year 2024, i.e. the year when the "Fit for 55" package is to enter into force

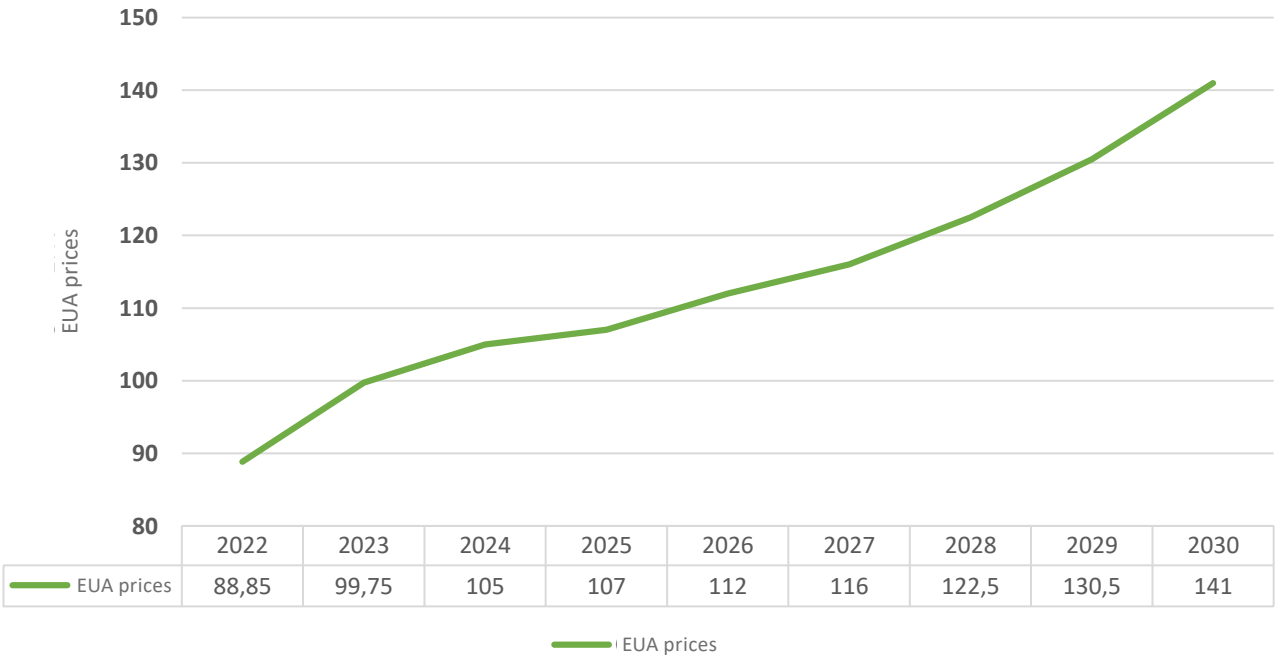
As said above, the entry into force if the "Fit for 55" package, the main element of which is the strengthening of the EU reduction target from 40% to 55% in 2030 (compared with 1990 levels), will have a very large effect on a change in the allowance supply in the EU ETS scheme and the supply demand, the amount of which should adapt to a change in supply. The allowance supply is determined by the share of allowances available in the EU ETS which are subject to free allocation or can be bought at auctions. In addition, this supply can be adjusted by the operation of the MSR mechanism, which will also be reformed.

It follows from KOBiZE estimates that as a result of the strengthening of the LRF factor (and the simultaneous introduction of rebasing) and the parameters of the MSR mechanism, as proposed in the "Fit for 55", there will be about 12% fewer allowances available than now.

From the market point of view, 2024 will be particularly important, since in that year the limit of allowances available in the EU ETS to stationary installations in light of the LRF and rebasing will decrease by about 156 million allowances relative to the current emission reduction trajectory (117 million of rebasing + 39 million produced by the difference in the LRF between 4.2% and 2.2%). In addition, the MSR reserve will have an exceptionally strong effect in both 2024 and 2025, given an increase in the MSR intake rate to 24%. It will absorb into the MSR about twice as many allowances as it would under the regulations now in effect, thus leading to a very quick surplus reduction in those years around the upper MSR threshold (833 million). Following the reform the operation of the MSR will also contribute to a significant reduction in the number of allowances available at auctions. All this should exert a greater pressure on the allowance prices. The EU ETS operators will face two options: either reduce their emissions or buy very expensive allowances on the market. Taking into account the fact that emission reductions can be a process lasting several years, there will be no option left other than buying allowances on the market. Perhaps for this reason operators will start hedging them much earlier and the effect of this can be seen already in 2022 and 2023. The hedge funds can respond in the same way; when they see the stronger demand on the market, they can join the "race" for allowances at the same time when the operators will. In psychological terms, the changes proposed as part of the so-called invalidation mechanism, should also be very significant for investors; they provide that from 2023 a constant amount of 400 million allowances is to remain in the MSR (whilst the other part of it is to be cancelled). Earlier this mechanism consisted in the cancellation of allowances down to the allowance volume sold at auctions in the previous year. These changes should have a similar effect on the amount of the share of allowances invalidated in the MSR; however, for investors the information of the greatest importance which will reach the market in 2023 will be the one that more than 3 billion EUAs will vanish for good from the market. As a result of enhanced purchases earlier than in 2024 and 2025, the allowance prices can flatten out in the period until 2030, e.g. in the way shown in Chart 2, where the allowance prices projected by Vertis are presented. In the opinion

of this analytical company, the allowance prices should reach levels of about EUR 89 to about EUR 141 in the period from 2022 to 2030. Self-evidently, substantial price fluctuations are possible in particular years, since the variability on this market is very large, but the annual average EUA price should systematically grow.

CHART 2. THE EUA PRICES PROJECTED BY VERTIS FOR THE PERIOD FROM 2022 TO 2030 [IN EUR].



	2022	2023	2024	2025	2026	2027	2028	2029	2030
EUA prices	88,85	99,75	105	107	112	116	122,5	130,5	141

Source: Own elaboration by the KOBiZE based on the presentation at an open webinar organised by the company Vertis, entitled "EU ETS for shipping: getting ready to ride the wave" (the average prices under the "bearish" and "bullish" scenarios are shown).

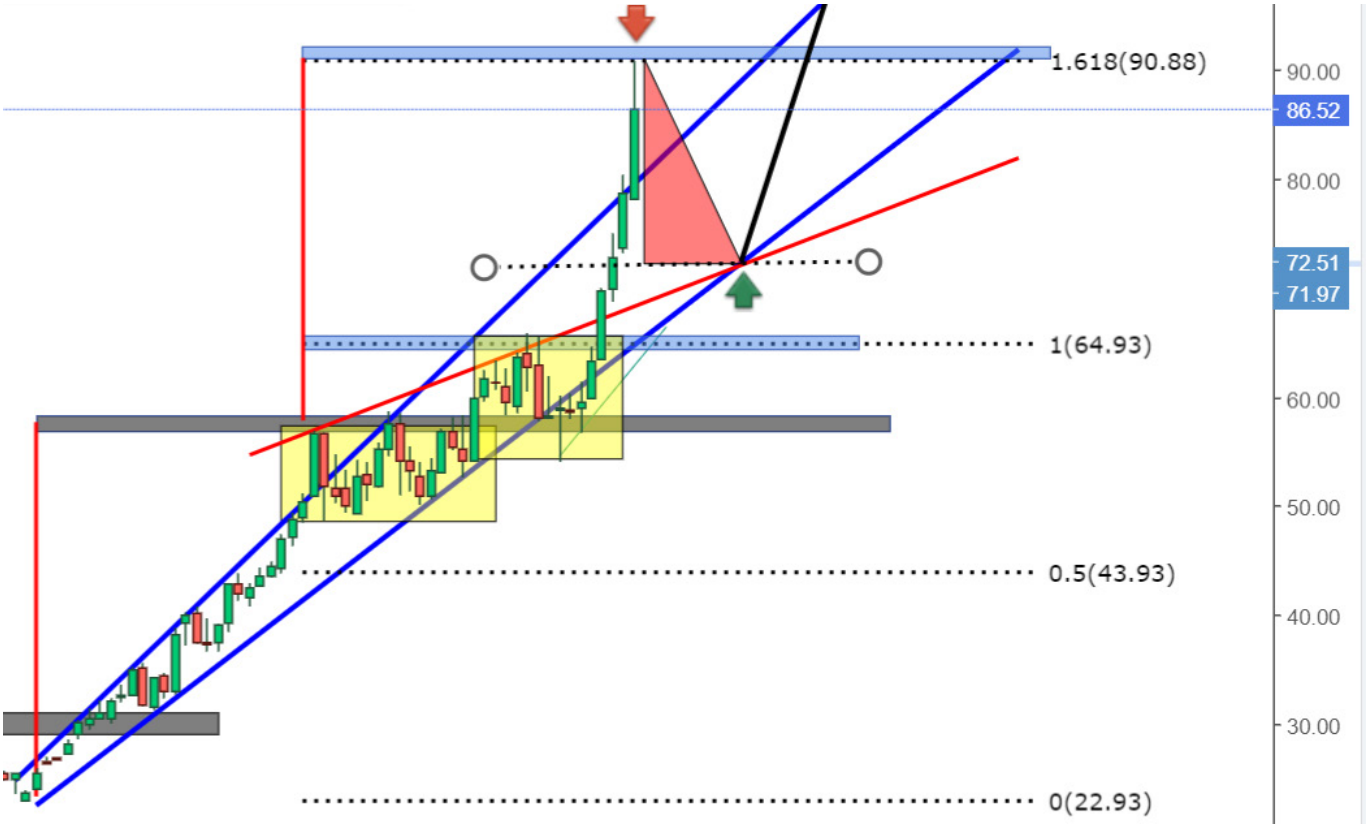
A technical outlook at the allowance market – the growth potential[26]

The increase in the EUA prices by 280% from November 2020 to December 2021 can essentially be divided into two phases. In the first one, the allowance values increased from about EUR 23 to about EUR 57.5, to stop afterwards for a few months, falling into a several months long consolidation (lasting from May to August 2021). If the range of the whole increase in the first were measured, it would be about EUR 34.5. The consolidation set the resistance line at about EUR 57.5 at which the prices stopped. At the end of August, the line was broken and positively tested from above. At that moment, a level of EUR 57.5 provided support for the prices which suggested further increases in October of this year. It was exactly at that time that the second phase of increases started. Given the fact that the EUA price has systematically set new all time high, it is extremely difficult to determine the potential price range. This can be done in two ways. The first one is to measure the range of the previous increase and refer it to the increase in the second phase. Thus, if this assumption is adopted, the extent of the increases in the second wave should be about EUR 91. So, in theory, the allowance prices should

[26] It is exclusively the Author's subjective vision and it should not be treated as a recommendation of investments in the assets which the emission allowances constitute.

stop at this level. The second way is to measure the range on the basis of Fibonacci numbers (the so-called Fibo levels[27]), which, in the absence of support and resistance lines, set the levels at which the allowance prices can stop. When measuring this range up to the highest resistance created at EUR 64.93, the successive lines of the Fibo levels are situated at prices of EUR 90.88 (the 1.618 level) and EUR 132.88 (the 2.618 level). Interestingly, the former Fibo level comes roughly at the point where the range of price increases in the first phase turns into that of the second phase (a level of about EUR 91). Thus, this confirms that this level can be significant enough for the prices respond at this point.

FIG. 3. THE EUA PRICE DEVELOPMENTS IN THE PERIOD FROM NOVEMBER 2020 TO 8 DECEMBER 2021*.



** (futures contracts for December 2021 (symbol CKZ on a monthly basis) with marked important support and resistance lines (black and blue lines), important consolidation zones (areas marked in yellow), a long-term rising .*

Source: Own elaboration by KOBiZE in a special programme for technical analysis at ivesting.com (accessed on: 8 December 2021).

[27] The Fibonacci levels (the Fibonacci retracement levels, commonly called "Fibo levels") is one of the technical analysis methods based on the golden ratio rule expressed with Fibonacci ratios (e.g. 0.382; 0.5; 0.618; 1.618).

Analysts' projections indicate that the allowance prices in the period from 2022 to 2030 can fall on average into the range of EUR 89 to 141. This is somehow consistent with the technical picture of the market, where the next key resistance zone for investors should occur at a level of about EUR 133.

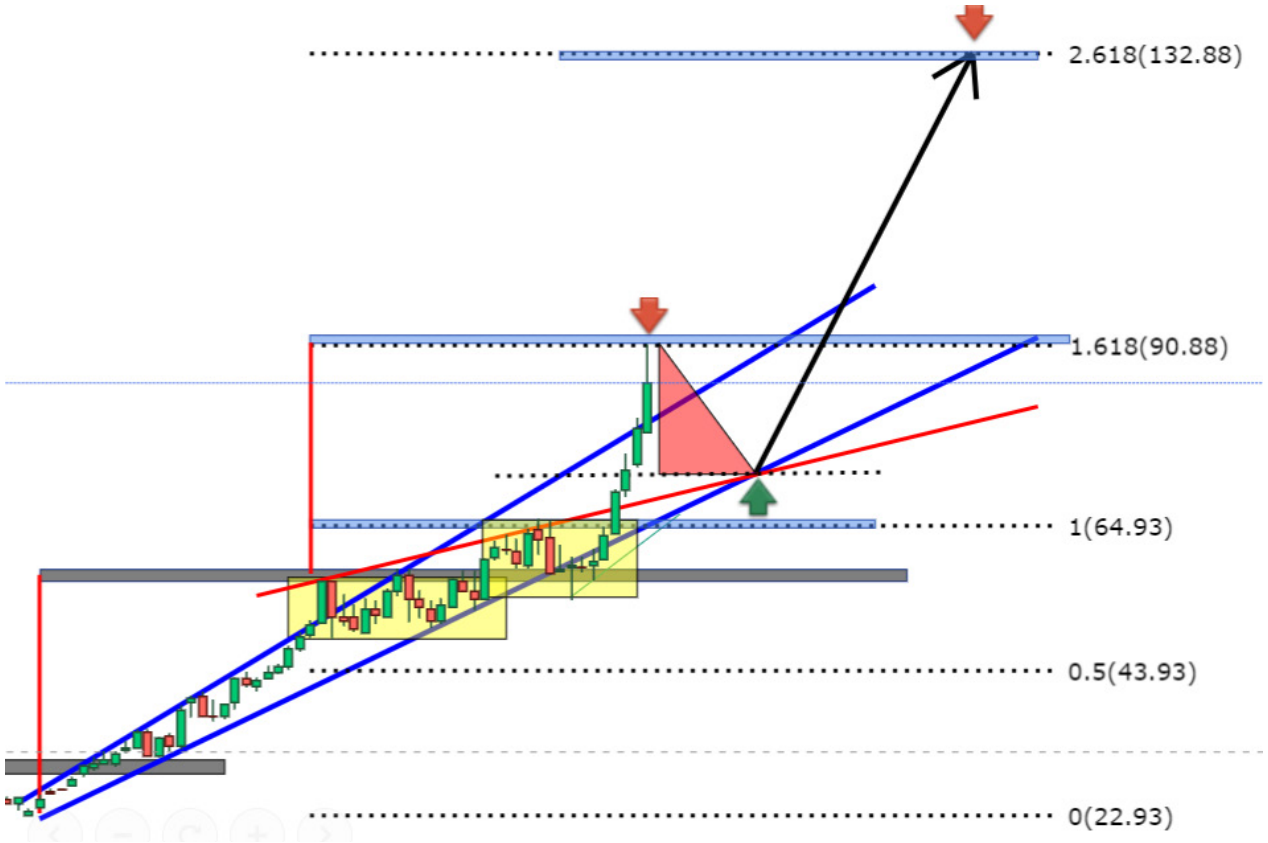
Following such sharp, even exponential increases, it should be assumed that investors will want to realise profits; this is suggested by the relative strength index (RSI) of the market, which is extremely overbought (with the RSI of more than 80). Usually, after such increases the decreases of asset prices can look equally spectacular. It seems, therefore, that the prices can be corrected even to a level of EUR 72.5, which is a 50% retracement of uninterrupted price increases[28] between levels of about EUR 54 and 91 EUR (so it is in the middle of this rising movement).

It seems this scenario is somehow confirmed by the intersection of the red resistance line and the lower limit to the long-term rising channel (the blue line) exactly at this point (at a price of EUR 72.5), which is clearly shown in Fig. 2. The investors should treat this price level as a "trampoline" for further increases.

Analysts' projections indicate that the allowance prices in the period from 2022 to 2030 can fall on average into the range of EUR 89 to 141. This is somehow consistent with the technical picture of the market, where the next key resistance zone for investors should occur at a level of about EUR 133.

The condition for this is a breakout through the resistance at a level of about EUR 91 EUR. Later the prices are able to reach the next Fibo level set out at a level of about EUR 133.

FIG. 4. A TECHNICAL SCENARIO SHOWING THE POTENTIAL POSSIBILITIES OF EUA'S INCREASES FROM A LEVEL OF ABOUT EUR 72.51 TO THAT OF ABOUT EUR 133.



Source: Own elaboration by the KOBiZE in a special programme for technical analysis at ivesting.com (accessed on: 8 December 2021).

[28] During a correction the assets often lose about 50 to 61.8% of last increases which are consistent with the Fibonacci levels.

TABLE 4. THE MOST IMPORTANT FUNDAMENTAL AND TECHNICAL FACTORS WHICH CAN AFFECT THE EUA PRICES IN THE NEAREST YEARS.

Category	Growth factors	Decline factors
Fundamental factors	• The persistent high gas prices and relatively lower coal prices. • A higher increase in the activity of investment funds than the present one. • The implementation of the "Fit For 55" package. • The post-COVID-19 economic recovery contributing to increased electricity consumption and production.	• The risk of word equities market crash due to the growing inflation pressure and the need to raise the interest rates (increased prices of commodietes and higher operating costs of enterprises, decreased consumer demand and decreased demand for energy). • Decreases in the gas prices. • The mitigation of the particular elements of the "Fit for 55" package. • The risk of an intervention on the market (e.g. under Article 29a) or the limitation of access to the market for speculators.
Technical factors	• The continuation of a strong uptrend with a potential for reaching about EUR 133 in 2022.	• The risk of a short-term correction to a level of about EUR 72, indicating that this market is strongly oversold (with the RSI of more than 80).

Source: Own elaboration by the KOBiZE.

References

1. Decision (EU) 2015/1814 of the European Parliament and of the Council of 6 October 2015 concerning the establishment and operation of a market stability reserve for the Union greenhouse gas emission trading scheme and amending Directive 2003/87/EC (OJ L 264/1).

2. Directive 2003/87/EC of the European Parliament and of the Council establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC (OJ L 275/32, as amended).

3. Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community (OJ L 140/63).

4. ESMA, Preliminary report Emission Allowances and derivatives thereof, published on 18 November 2021.

5. Jeszke, R., Lizak, S., Reflections on the Mechanisms to Protect Against Formation of Price Bubble in the EU ETS Market, Institute of Environmental Protection – National Research Institute, Warsaw, 2021. Vol. 32, No 2, 2021, pp. 8-17., DOI 10.2478/oszn-2021-0005.

6. KOBiZE, Raport z rynku CO_2 (The Carbon Market report – in Polish), January 2021 (No. 106).

7. European Commission, Report on the functioning of the European carbon market (the report for 2019), 18 November 2020.

8. European Commission, Report on the functioning of the European carbon market (the report for 2020), 26 October 2021.

9. Murphy John J., Technical Analysis of the Financial Markets, 1999.

10. Refinitiv, Investment funds rocking the European carbon market, 30 April 2021.

11. Refinitiv, Carbon Market Year in review 2020, 26 January 2021.

12. Vertis, the presentation "EU ETS for shipping: getting ready to ride the wave", 27 October 2021.

13. Vitelli A. What does the current price of EUAs actually represent? 15 September 2021.

The role of EU climate diplomacy in the promotion of global climate action

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The role of EU climate diplomacy in the promotion of global climate action

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Abstract

EU climate diplomacy is committed to strengthening the implementation of global climate policy in the context of the economic recovery following the COVID-19 pandemic, promoting the delivery of the 2030 Agenda and the Sustainable Development Goals (SDGs) and supporting the national climate policy programmes in the partner countries of key importance for the success of the Paris Agreement. The EU cooperates, on the one hand, with countries which are major non-EU economies and are responsible for substantial emissions and, on the other hand, with the Least Developed Countries and Small Island Developing States which are particularly vulnerable to the adverse impacts of climate change but are not large emitters.

The purpose of this article is to bring EU climate diplomacy closer to the reader, to look at its actions and achievements to date and, at the same time, to describe its present challenges and the context in which it needs to act in light of the suspension of international climate negotiations from the beginning of 2020 to November 2021, slow climate actions taken by many Signatories to the Paris Agreement and the threats to the achievement of the objectives of the Agreement posed by the economic recovery following the COVID-19 pandemic.

The article assesses the challenges facing EU climate diplomacy in its bilateral relations with other countries of key importance for the achievement of the long-term goal of the Paris Agreement. The term "long-term goal" is quickly becoming outdated: according to the Intergovernmental Panel on Climate Change (IPCC), the United Nations Environment Programme (UNEP), the International Energy Agency (IEA) and other credible sources, the chance for holding the emission increase below the level enabling the growth of the average global temperature to be kept at about 1.5°C is rapidly diminishing.

In order to achieve the 1.5°C target, action needs to be taken by both developed and developing countries. However, it is developed countries and emerging economies that are responsible for past or present emissions. The Small Island Developing States, the African countries, except for the Republic of South Africa, are responsible for negligible emissions. More than 75% of greenhouse gas emissions are generated in the G20 states.

> In order to achieve the 1.5°C target, action needs to be taken by both developed and developing countries.

The article also analyses how the COVID-19 and the need to substantially support the recovery affect EU internal policies and the directions taken by EU climate policy.

Finally, consideration is given to the actions taken by the major economies and other countries of key importance for the success of Paris Agreement how the current situation may become an opportunity to alleviate the economic aftermath of the COVID-19 while decarbonising the economy and how the EU plans to couple the European Green Deal with the post-COVID recovery so that it can become an example for other countries to follow in the green transition of their economies. The task of EU climate diplomacy is to encourage other counties to follow suit and to support the negotiations to ensure a quick end to the financing of investments in fossil fuel-based energy production in third countries.

Climate diplomacy as a tool for supporting ambitious climate action at a global level

The need for the EU to become involved in climate diplomacy results from the internally reached consensus where the EU Member States agree that the European Union can lead global efforts to halt climate change by giving example, i.e. effectively reducing its greenhouse gas emissions and adapting to the inevitable effects of climate change, whilst, at the same time, decoupling its economic growth from its greenhouse gas emissions, transforming its economy in an equitable manner and leaving no one behind. The Conclusions of the European Council on climate diplomacy of 25 January 2021, just as the previous Conclusions of the European Council on climate diplomacy of 18 February 2019, declared that the European Union considered climate action to be a key element of its foreign policy and attributed large importance to encouraging third countries to join the EU in its efforts to close a global gap in the ambition of climate actions and its commitment to achieving climate neutrality as soon as possible.[1]

Countries can often become more ambitious and act faster outside the UN context. This is due to the fact that the decision-making in international climate negotiations requires consensus. It takes much time to reach an agreement by way of consensus and it often means that the level of the ambition of decisions thus adopted is, to put it diplomatically, a conservative one. The slow pace of the international negotiations irritates many observers who do not understand this process.

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At the international level, for the past 30 years the EU has played the role of a consensus builder and a leader demonstrating that everything can be done if it is done in the right way. The EU played a key role in the adoption of the Kyoto Protocol in 1997 and was of key importance for building trust and understanding after the climate talks nearly collapsed in Copenhagen in 2009 when the developing countries believed that the rich countries wanted to impose their agenda on the climate negotiations irrespective of the need to reach consensus.

[1] EU Council Conclusions on Climate and Energy Diplomacy - Delivering on the external dimension of the European Green Deal – 25 January 2021. Foreign Affairs Council - Consilium (europa.eu); (accessed on: 24.11.2021). EU Council conclusions on Climate Diplomacy adopted at the 3742nd meeting of the Council on 20 January 2020, pdf (europa.eu); (accessed on: 24.11.2021). EU Council Conclusions on Climate Diplomacy, 18 February 2019, 6153/19. https://data.consilium.europa.eu/doc/document/ST-6153-2019-INIT/en/pdf; (accessed on: 24.11.2021).

However, the need to reach consensus in the UNFCCC negotiations means that the level of ambition of the outcome agreed by all the parties is not consistent with the highest indispensable level, but rather represents what all the parties can accept.

Since 1992 the international community sovereign states could have done much more to tackle climate change. The world is now in an exceptional situation and, recognising the need to sustain the international climate negotiations to keep all the countries on board and to leave no one behind, the EU promotes the view that real, immediate actions by all the parties, including both developed and developing countries, are needed. All the Parties must make their fair contribution to reduction actions to ensure that in the middle of this century all the states reach net-zero emissions, thus making it possible to avoid the worst effects of climate change which would be painful to everyone.

International engagement is a key priority of the European Union which builds on the EU's own serious ambition. However, bilateral engagement is also important, especially with the key partners of the EU. Thus, on the one hand, the EU is committed to reaching as high a level of its ambition as possible, whilst, on the other hand, using, at the same time, its climate diplomacy, it encourages other countries to take similar actions and provides support to those that need it the most. Taking into account the benefits arising from joint actions, the EU also encourages other countries to engage in international and regional cooperation to tackle climate change and promotes approaches that will quickly bring the greatest climate benefits, in line with its own EU policy, such as e.g. a shift away from fossil fuels, the implementation of renewable energy and quick investments in energy efficiency.

International engagement is a key priority of the European Union which builds on the EU's own serious ambition. However, bilateral engagement is also important, especially with the key partners of the EU.

The period when effective actions can be taken to tackle climate change and to prevent the related global threats is coming to an end. According to the IPCC[2], an international expert body advising the Parties to the UNFCCC, it is still possible to limit the rise of the global average temperature to 1.5°C but the window of opportunity is closing. The UNEP report on the gaps in the mitigation ambition of states (the UNEP GAP Report), published annually before the Conference of the Parties to the UNFCCC (COP), provides information on the difference between the cumulative results of the officially announced efforts of the Parties and the level of the reduction effort needed for the long-term goal to be jointly achieved. This difference remains a significant one since global emissions continue to grow despite the actions taken to limit greenhouse gas emissions.

The 2020 UNEP GAP Report highlighted that in 2019 both the concentrations of greenhouse gases (GHGs) and their emissions still continued to grow and, whilst the emissions fell in the OECD countries, the greenhouse gas emissions continuously increased in non-OECD countries. There is

[2] Intergovernmental Panel on Climate Change, https://www.ipcc.ch/; (accessed on: 24.11.2021).

a considerable imbalance in responsibility for GHG emissions between the largest emitters and the remaining countries. In 2019, the seven largest emitters were responsible for 65% of global GHG emissions, whilst the G20 members accounted for 78% of GHG emissions.[3] There are 197 parties to the UNFCCC, meanwhile.

In this context, the EU is committed to enhancing its engagement and dialogue with the largest emitters to encourage them to enhance their ambition and do more, whilst, at the same time, sustaining the international climate talks as an open channel via which all the countries can engage on equal terms.

The cooperation in the practical implementation of policies and practices to mitigate climate change and adapt to it is important in the light of the extensive consequences of the international climate change framework for investment and trade. The measures to mitigate climate change and the adaptation actions entail obligations, commitments to reduce greenhouse gases, actions to protect societies against the adverse effects of climate change, and a wide range of monitoring and reporting obligations. Climate action needs policies and a regulatory framework affecting enterprises, investment flows and trade, which calls for equitable treatment and fair competition. The cooperation in the climate action can pave the way for harmonisation of policies and a regulatory framework in the cooperating countries, ensuring fair competition for them and supporting their economic growth.

The intensive cooperation between the signatories to the Paris Agreement is of key importance for achieving the goal of the Agreement which is to hold the global temperature rise in this century to below 2°C compared with the pre-industrial levels and to pursue efforts to limit it to 1.5°C so as to avoid catastrophic effects of climate change. The cooperation via climate diplomacy also contributes to the implementation of the 2030 Agenda and its Sustainable Development Goals of which climate action is an important pillar. The vision is a comprehensive and ambitious one: climate diplomacy is expected to lead to cooperation to strengthen the implementation of the Paris Agreement, the further development of the multilateral framework, and progress in the implementation of the 2030 Agenda.

> The assumption of EU climate diplomacy is that all the participants in the global climate dialogue will benefit from a multidirectional dialogue and technological exchange.

The EU is committed to sharing its positive experience in tackling climate change, supporting a political dialogue, improving the investment climate, and further educating the public on the vulnerability to climate change, the associated threats, and the ways of mitigating them. Sharing of experience, an exchange of climate-friendly technologies and practices must be mutual and voluntary to be successful.

The assumption of EU climate diplomacy is that all the participants in the global climate dialogue will benefit from a multidirectional dialogue and technological exchange. Therefore, stimulating the international engagement of sovereign states in climate action, the EU also supports the involvement of non-state stakeholders which are

[3] UNEP Emissions Gap Report 2020, Executive Summary, EGR20ESE.pdf (unep.org) ; (accessed on: 24.11.2021).

not Parties to the Convention (non-state actors) in the adoption of low-emission strategies and it encourages the submission by these actors of their own commitments to mitigate or reduce emissions, irrespective of what their governments do at the national level. This type of dialogue with the state administration in the United States was promoted after the US administration had withdrawn from the Paris Agreement.

In the context of the UNFCCC negotiations, the non-state actors are involved in climate action via the **Marrakech Partnership**, a global alliance of stakeholders, built around the negotiation process and supported by the involvement of high-level climate action champions[4], representing since COP20 the current and upcoming COP presidencies, i.e. the states hosting the climate negotiations and moderating the process with support from the UNFCCC Secretariat.

In 2019, at the Climate Summit organised by the United Nations Secretary-General, the President of Chile, the country then expected to host COP25, the Conference of the Parties to the Convention which was later transferred to Madrid, invited the countries which wanted to increase their climate ambition to join the Global Climate Alliance, uniting states and other stakeholders in climate action. All the members of the Alliance envision to reach climate neutrality by 2050.

In order to strengthen the efforts of the Alliance, the 2021 champions, Gonzalo Munoz from Chile and Nigel Topping representing Great Britain, launched the "Race to Zero" campaign, calling on non-state actors to increase their involvement in climate action and to make their contributions to achieving climate neutrality before 2050. "Race to Zero" includes voluntary commitments to achieve climate neutrality submitted by 733 cities, 31 regions, 3,067 enterprises, 173 major investors and 622 higher education institutions, as well as 120 countries declaring their intent or plans to achieve net-zero emissions.[5] A number of these states are natural allies of the EU in promoting low-emission development and green recovery after COVID-19; in favourable conditions, this could bring about a quick drop in global emissions and, at the same, a change in the approach to the global development paradigm.

There are alliances of cities, such as C40, or initiatives of cities and local governments, such as the ICLEI or the Covenant of Mayors, which are involved in ambitious climate action at local or regional levels. Certain regional organisations, such as the UCLG Africa, have set up dedicated channels targeting climate change, such as the UCLG Africa Climate Task Force.

Many regular events in the different parts of the world, which are included in the calendar of international meetings supporting the climate negotiations, are also used as platforms for promoting more ambitious climate action. In several recent years the UNFCCC Secretariat has organised **Regional Climate Weeks** for the regions of Africa, Latin America and the Caribbean and Asia-Pacific as well as, recently, for MENA (the Mediterranean region), to support the regional preparations for COPs and to speed up the implementation of the Paris Agreement.

The Regional Climate Weeks provide platforms for cooperation among governments and other

[4] The representatives of the current COP Presidency (the COP host country) and the future Presidency manage the international actions of stakeholders which are not Parties to the UNFCCC and the Agreement as High-level Champions, i.e. the climate action champions or leaders, supporting bottom-up initiatives of businesses and other private entities.

[5] Race To Zero Campaign | UNFCCC; https://unfccc.int/climate-action/race-to-zero-campaign (accessed on: 25.11.2021).

stakeholders, the opportunities for sharing knowledge and experience, engaging in cooperation and building new initiatives. Many alliances and initiative teams convene regular meetings on climate issues, often linked to periodic climate negotiations, such as side events or thematic days, or weeks.

The international climate diplomacy framework

In the period before the COVID-19 pandemic, climate diplomacy consisted in the participation in dozens of informal meetings in the different parts of the word, with regular annual conferences distributed over the calendar year, among others, in Abu Dhabi, Davos, Tokyo, Berlin (the Petersberg Dialogue), in New York and Bonn, which were always concluded by the annual Conference of the Parties to the UNFCCC (COP), hosted by countries representing particular regional groups in a specific order.

In addition to these cyclical events, the climate negotiations entailed numerous ad hoc meetings, convened to prepare actual negotiations, in the context of both bilateral and multilateral talks, to specify the arrangements made at high-level meetings, or to break an impasse in talks. This changed as the pandemic broke out. In 2020, the UNFCCC negotiations practically came to a standstill. During the summer session and then the autumn session of the "climate dialogues" last year many negotiators stressed that an online exchange of views could not substitute for formal talks and any preliminary arrangements had to be confirmed during the negotiations in the course of COP26 in Glasgow.

Nevertheless in 2020 and 2021 many different online meetings and several hybrid ones (online and "in person") took place, enabling EU diplomats and negotiators to exchange views with their counterparts from other countries.

> The world leaders use several international forums, in addition to the climate negotiations under the UNFCCC, to develop the climate agenda.

The **international climate negotiations** are the largest multilateral negotiation process, involving the participation of 196 countries and the European Union as a Party to the United Nations Framework Convention on Climate Change (UNFCCC). Since COP21 adopted the Paris Agreement in December 2015, 191 out of 197 Parties to the Convention have ratified the Agreement or acceded to it, thus recognising that climate change poses a global existential threat to mankind and biodiversity and that there is an urgent need to take collective action to remedy it.

The world leaders use several international forums, in addition to the climate negotiations under the UNFCCC, to develop the climate agenda. The Conferences of the Parties (COP), which are essentially convened to approve the results of technical negotiations and political arrangements during the so-called high-level week with the participation of Ministers, recently provided, too, an opportunity for the heads of state and government to meet for a day or two to discuss the challenges related to climate change and to deliver relevant statements, In contrast, the events organised by the world leaders for other world leaders are more exclusive and usually engage only the key players on the geopolitical stage. Since 2009 (the failed COP in Copenhagen) these politicised events have also

attracted greater attention of both, the public and the media.

Such high-level meetings became more frequent in the period preceding the adoption of the Paris Agreement in 2015. Ever since they have almost become a standard. The United Nations Secretary-General and, to an increasingly large extent, other world leaders regularly invite each other to talk about global climate action. Before 2014 the aim of their efforts was to ensure the success of the Paris Agreement by mobilising general support for it. The Climate Summit convened by Ban Ki-moon, the United Nations Secretary-General, in September 2014 was recognised to be an important step towards the adoption of the Agreement during COP21.

After the ceremony of signing the Paris Agreement in New York on 22 April 2016, the successive UN Climate Summits on the entry into force of the Paris Agreement and intended to mobilise world leaders to increase the Nationally Determined Contributions (NDCs) were held in September 2016 and again in September 2019.

The purpose of high-level events is to mobilise engagement at the highest political level to intensity global transition actions. After the entry into force of the Agreement, another aim of such meetings is to shift attention from the negotiations to its implementation, primarily, to support the global increase in ambition and convince the heads of states to enhance the efforts at the national level.

The aim of the Summit co-convened by the United Kingdom, Italy, Chile and France in December 2020 on the occasion of the fifth anniversary of the Paris Agreement was to create a stimulus for global climate action by offering governments and nongovernmental leaders a platform for demonstrating their involvement in the implementation of the Paris Agreement and the multilateral process. The Summit was convened instead of COP26, which was postponed to 2021, to symbolically signal that the COVID-19 pandemic had not stopped climate action completely.

At the meeting, which took place online due to COVID-19, 70 heads of state, heads of government, the representatives of regional organisations and cities, as well as the presidents of large companies announced their new and more ambitious commitments, policies, plans and actions to halt the rise in the mean global temperature at a level of 1.5°C (i.e. to achieve the long-term goal of the Climate Convention). At least 24 countries announced their new commitments, strategies or plans to achieve climate neutrality by 2050, whilst several states defined how they would go further by presenting ambitious timetables for reaching net zero emissions: Finland until 2035, Austria until 2040, Sweden until 2045, and the European Union undertook to reduce its emissions until 2030 by at least 55% compared with the baseline level in 1990s.

After the USA had rejoined the Paris Agreement one of the first actions of the new US President was to restore the formula of the Major Economies Forum (MEF). The summits of the MEF countries had been regular events at the time of President Obama and were abandoned by the next US administration. The MEF Summit on climate was convened in 2008 in the context of the G7 Summit in Japan with the participation of 17 leaders representing 17 countries of the G20, except for Turkey, Argentina and Saudi Arabia which were absent at that meeting.

The 17 members of the MEF include: Australia, Brazil, Canada, China, the EU, France, Germany, India, Indonesia, Italy, Japan, South Korea, Mexico, Russia, South Africa, the UK and the USA, i.e. the states which are jointly responsible for about 80% of global greenhouse gas emissions. From the first MEF meeting on climate change, these meetings were held cyclically from 2009 to 2016 and then, after the withdrawal of Trump's administration from the Paris Agreement and the suspension of the MEF meetings, they were replaced by a forum provided by the MoCA.

The Ministerial on Climate Action (MoCA) is a meeting of ministers and high-level representatives of more than 30 countries, including G20 ministers and the chairs of key regional groupings in the UN climate negotiations. The meeting is convened annually by the EU, Canada and China. The first MoCA meeting was held in September 2017 in Montreal, Quebec, and another two meetings took place in other locations, except for the fourth MoCA in July 2020 organised by the EU, which was only virtual.

The first ministerial meeting in 2021 (taking place both virtually and in person) on international actions on the road to COP26 was the fifth MoCA session convened in Shanghai, China, on 15-16 April 2021. During that meeting, John Kerry, the U.S. Special Presidential Envoy for Climate, and Xie Zhenhua, China's Special Envoy for Climate Change, issued a joint statement on the strengthened bilateral cooperation on climate action, announcing their plans to intensify these actions, expressing their support for multilateralism in tackling climate change and promising cooperation with other countries.

The Petersberg Climate Dialogue (PCD) is another international forum which is held annually and deserves to be mentioned in this context. It was initiated in 2010 and co- convened ever since by the German Government and each successive COP Presidency. The Dialogue takes place at the ministerial level and its purpose is to create a space for discussion on the key issues of the negotiations. The 12th Petersberg Climate Dialogue, which was held online on 6-7 May 2021, focused on the political preparations for the next Conference of the Parties (COP26) in Glasgow, which had been postponed from November 2020 to November 2021 and which was planned to be launched on 30 October 2021.

> In 2021, climate change emerged as a key issue in considerations on **international security.**

The international meetings addressing the issues of climate change include the regular G20 summits. The EU declares its readiness to cooperate on climate change mitigation actions with the G20 states from outside the EU and other major economies. It emphasises the need for all those that have not done so to date to ratify the Paris Agreement. Turkey is the last G20 state to ratify the Paris Agreement. It submitted its instruments of ratification on 11 October 2021, to become a Party to the Agreement on 10 November, on the last days of COP26.[6]

In 2021, climate change emerged as a key issue in considerations on international security. As the **UN Security Council** has recognised, it is a threat to international peace and security which should be addressed jointly by the

[6] Since in the course of COP26, the Paris Agreement was also ratified by Iraq (this state became Party to the Agreement on 1 December 2021). On the last day of COP26 193 states were Parties to the Agreement.

international community. The EU shares this view, recognising that there are indirect links between climate change, natural disasters and the outbreak of armed conflicts. The EU proposes that the UN Security Council should fully take into account the short- and long drivers of climate and environmental risks in the assessment and management of threats for global and regional peace and security.

According to this theory, climate change multiplies threats to international stability and security, affecting, in particular, disadvantaged persons, reinforcing environmental pressures and the risk of natural disasters and contributing to the loss of livelihoods and forcing displacements. On the international level, the EU supports the view that climate change has been confirmed by studies and evidence[7] and that the negative long-term consequences of climate change can lead to an increase in tensions within and among particular countries. In its Conclusions of 26 February 2018, the Foreign Affairs Council noted the links between climate change and security, recognising that climate change multiplied threats which directly and indirectly affected security and stability of the international situation. In line with that position, in its 2018 report the European Parliament recognised that climate change posed a threat resulting in an increase in regional crises and putting a strain on international relations.[8]

In January 2021, the Foreign Affairs Council emphasised again the importance of environmental and climate change issues for security and defence and welcomed the "Climate Change and Defence Roadmap: EU actions addressing the links between Climate Change and Defence", including in the context of Common Security and Defence Policy, contributing to the wider climate-security nexus. Committed to promoting just transition and building resilience to climate change and supporting disaster prevention and risk management, the EU believes that in this way it also contributes to global peace and security.

The Foreign Affairs Council recognised that climate change and environmental degradation, including biodiversity and forest loss, are a threat to international stability and security, increasing disaster risk and pressures on ecosystems, posing challenges to food and water security, provoking local and regional conflicts, whilst, at the same time, exacerbating the risk of displacements and population migration, thereby constituting a major driver of the threats posed by emerging humanitarian crises and threatening the effective enjoyment of human rights by the victims of such events. During the same meeting of the Foreign Affairs Council the EU and its Member States confirmed that they would cooperate with their partners, including the UN, to develop conflict prevention measures, such as early warning systems, and support relevant international instruments, such as the **Sendai Framework for Disaster Risk Reduction**[9].

The issues of security and peace are not the only climate change-related subjects with which the EU Foreign Affairs Council deals. As this body stated in January 2021, in the context of energy diplomacy the EU should aim at accelerating the global energy transition, whilst, at the same time, ensuring energy affordability, protecting the environment and achieving the Sustainable Development Goals.

[7] E.g. the conflicts around Lake Chad.

[8] European Parliament, Report on Climate Diplomacy, (2017/2272 (INI), 26.06.2018, A8-0221/2018.

[9] Sendai Framework for Disaster Risk Reduction 2015 - 2030 (preventionweb.net); accessed on: 24.11.2021).

> The issues of security and peace are not the only climate change-related subjects with which the EU Foreign Affairs Council deals. As this body stated in January 2021, in the context of energy diplomacy the EU should aim at accelerating the global energy transition, whilst, at the same time, ensuring energy affordability, protecting the environment and achieving the Sustainable Development Goals.

In light of the need for the international community to quickly move to the level of climate neutrality, the tasks of EU energy diplomacy include the promotion of energy efficiency, the implementation of safe and sustainable low-emission technologies, the increasingly large uptake and systemic integration – including through enhanced interconnections – of renewable energy and the highest standards of environmental protection, nuclear safety and transparency.[10]

The status of the international negotiations on climate change: "On the Road to Glasgow". The preparations of the Parties to the UNFCCC prior to COP26

In consequence of the suspension of the international climate negotiations due to the COVID pandemic and since the negotiation sessions of the SBI and SBSTA in Bonn in 2020 and 2021 were replaced by an online climate dialogue and the COP in Glasgow was postponed from November 2020 to November 2021, the world leaders recognised that it was their duty to mobilise other heads of government, the CEOs and shareholders of major enterprises and nongovernmental stakeholders to demonstrate their higher ambition and engagement in climate action.

The MoCA meeting in March was followed by the "Leaders Summit on Climate" convened in April 2021 by President Biden. That event was expected to provide an opportunity for heads of state and government to submit their political declarations on how they intended to cope with the challenges posed by their higher climate ambition. In February 2021, the UN Security Council discussed the threats posed by climate change to global stability and peace.

A much needed impetus for the implementation of the Paris Agreement came in February 2021, too, as the United States rejoined the game, but this does not resolve the issue of the almost universal absence of the ambition to take decisive actions outside the EU. What is needed are real actions with the participation of a wide range of stakeholders at regional, national and local levels so as to ensure that GHG emissions are really reduced already now, with the voluntary additional actions by non-state actors contributing to filling in the global gap in ambition caused by the fact that emissions are growing in most states outside the EU.

In its article published in the printed edition of "The World in 2021", Antonio Gutierres, the current UN Secretary-General, not only called on the leaders of all the countries, particularly those of the G20, to commit to carbon neutrality by 2050 and to take action to achieve it, but also appealed to all the cities, companies and banks to establish their own plans and reference levels for the shift to net zero emissions.

[10] EU Foreign Affairs Council, 21.01.2021 r.

On 11-13 June 2021, the leaders of the G-7 (USA, United Kingdom, France, Germany, Italy, Canada and Japan) met in Cornwall, UK, to discuss, among others, their involvement in the implementation of the Paris Agreement, the efforts to limit the global temperature rise to 1.5°C and to achieve net zero emissions as soon as possible and at the latest by 2050. On the pathway to climate neutrality in 2050, the leaders of the G-7 countries also undertook to halve their present emissions over not more than 20 years, by 2030, to increase their funding of climate action (in developing countries) by 2025 and to preserve and to extend protection to at least 30% of land and oceans by 2030. Importantly, the leaders of the G-7 also discussed the WTO reform which would take into account the need to accelerate global climate action and the necessity of confirming free trade commitments, whilst, at the same time, addressing the risk of carbon leakage. The actions to prevent carbon leakage are expected to provide an additional argument with regard to the states which are not sufficiently serious about the need to reduce their emissions.

In order to keep the pace, ensuring another impetus for the international negotiations and encouraging the major emitters to adopt a policy leading to zero emissions in the middle of this century and, importantly, to implement it, in the last weeks before the opening of COP26, several political meetings were planned "On the Road to Glasgow".

In its diplomatic efforts to mobilise climate action, the EU is supported by certain Member States ad also other large states outside the EU. On September 17, a virtual meeting of the Major Economies Forum (MEF) was convened with the participation of heads of state. The climate event accompanying the 76th Session of the UN General Assembly in September 2021 which was convened by the UN Secretary-General in New York produced two interesting statements: by President Biden on a significant increase in climate aid and by the President of China on its intention to stop investments in coal-fired power plants abroad.

"In its diplomatic efforts to mobilise climate action, the EU is supported by certain Member States ad also other large states outside the EU.

The Pre-COP meeting hosted by Italy was attended by more than 50 Ministers representing the Parties to the Paris Agreement, providing the Parties with an opportunity for making progress in the scope of ambition, Article 6, adaptation, loss and damage, finance, transparency and Common Reporting Format). In a way, in parallel to the Pre-COP, Italy undertook to organise a large, three-day event for youth, with about 400 of its participants representing 186 countries, designed to work out joint recommendations of young people for the negotiators who would take part in COP26.

Finally, on 30 and 31 October 2021, Italy also hosted a summit of the heads of state and government of the G20 in Rome, convened to create a forum for a discussion to address the issues which had not been resolved at the ministerial level during the High-Level Week at the last pre-pandemic COP in Madrid. The matters addressed at that meeting included, among others, the issue of the agreement on a shift away from fossil fuels and the declaration of the dates when particular G20 states would reach zero emissions. To date, such

an intention has been announced by 11 of the G20 states and the EU[11]. During the summit of the G20 leaders in Rome, they adopted a declaration on their commitment to limit the global temperature rise to 1.5°C. It is an important declaration, provided that it translates into specific actions enabling its implementation.[12] Both Russia and China were opposed to the commitment by the G20 states to reach zero emissions by 2050, which was supported by the G7 states, and, as a result of this, the final communiqué of the meeting in Rome include a reference to the need to achieve zero emissions on the global scale "by or around mid-century".[13]

On 31 October – 12 November, in Glasgow the Parties to the UN Climate Convention and the Paris Agreement met at the already 26th Conference of the Parties to the UNFCCC (COP26). The political themes promoted by the COP Presidency, i.e. the United Kingdom, included the reduction of global methane emissions, the conservation and restoration of forests, a shift away from fossil fuels, especially coal, and the funding of investments in coal-based energy production.

On 31 October – 12 November, in Glasgow the Parties to the UN Climate Convention and the Paris Agreement met at the already 26th Conference of the Parties to the UNFCCC (COP26).

In the course of arduous negotiations, a compromise was reached on the operationalisation of Article 6 of the Paris Agreement, making the Agreement now fully operational. The EU delegation played a leading role in presenting robust proposals on the manner of implementing Article 6 of the Agreement with regard to market-based approaches and finding a compromise on several other elements of the architecture of the Agreement which were not agreed by the Parties in Katowice (2018) and Madrid (2019). In Glasgow, too, the Parties to the Paris Agreement also discussed the ambition of the revised and updated NDCs in the context of the Synthesis Report prepared by the UNFCCC Secretariat on the basis of the NDCs submitted prior to 31 July 2021 and, in the next phase, until 12 October 2021. In line with the experts' expectations, the successive NDCs were submitted just before COP26. As a total, 151 contributions to the Agreement were updated and all the states declared an increase in their ambition. According to the International Energy Agency (IEA), the cumulative ambition of the NDCs updated prior to COP26 will be enough to hold the average cumulative temperature rise to a level of about 1.8°C.[14] In the opinion of the UN, the cumulative ambition of the Parties to the Agreement, as expressed by the NCS submitted prior to the start of COP26, would still cause the average global temperature to rise by 2.5°C.[15] Therefore, an important outcome of COP26 was the agreed Ministerial Statement on the resubmission of more ambitious NDCs in 2022 to limit the global temperature rise to 1.5°. The Paris Agreement allows for the submission of successive NDCs at any time, irrespective of the timetable adopted, provided that the new contribution is more ambitious than the previous one.

[11] France, United Kingdom, Germany, Canada, RSA, Japan, China, Russia, South Korea, Brazil and Argentina.

[12] As mentioned, the G20 states are jointly responsible for more than 75% of global emissions.

[13] "acknowledging the key relevance of achieving global net-zero greenhouse gas emissions or carbon neutrality by or around mid-century".

[14] https://www.iea.org/commentaries/cop26-climate-pledges-could-help-limit-global-warming-to-1-8-c-but-implementing-them-will-be-the-key (accessed on: 24.11.2021).

[15] https://www.wri.org/insights/cop26-key-outcomes-un-climate-talks-glasgow (accessed on: 24.11.2021).

A pledge to cut methane emissions was also adopted, already on the first days of the COP; however, such significant emitters of this gas Russia, China and India did not join the pledge. India, which is now the third largest global emitter, following China and USA, announced its (nonbinding) intention to achieve zero emissions by 2070.

Setting a path towards zero emissions requires the long-term planning of low-carbon development and transition of the economy. In the context of the Agreement, the states present their paths for reaching zero emissions in their long-term low emissions development strategies (LTS). The EU promotes the view that the long-term strategies should be submitted by all the countries which have not done it yet, as a step which is logically related to the review and update of NDC. In addition to a re-update of their NDCs, countries have to prepare for the first round of submitting their biennial transparency reports, in the case of which it has been necessary to complete the work, to adopt the arrangements on the transparency and to strengthen reporting by adopting common reporting formats and tables. Other important issues addressed by the negotiators in Glasgow included climate finance, the global adaptation target and loss and damage. Several periodical processes, such as e.g. a review of the capacity-building framework, were completed with a decision in line with their timetables.

In order to effectively work with the diplomats of third parties, first the EU agrees its negotiation position in intra-Union negotiations among its Member States. Although many countries involve professional diplomats in the UNFCCC process, the decisions which directly affect the outcomes of the negotiations are taken mainly by technical experts.

Abroad, the EU is represented by the European External Action Service (EEAS) only in certain predetermined areas of EU foreign policy.

Although the EEAS does not play any role in the UNFCCC negotiations and the lead negotiators acting on behalf of the European team include the representatives of the current EU Presidency, DG Clima and technical experts from EU Member States, European diplomats participate in other international events and actions in such contexts as UN summits, bilateral meetings and information actions in which diplomats from EU Member States are also very often involved.

The EEAS closely works with the Commission and EU Member States to ensure coherence of the actions implementing the climate agenda. The cooperation among the national diplomatic services and the EU in the scope of international relations and climate change is facilitated by a regular exchange of views and information within the Green Diplomacy Network (GDN)[16], which was established in 2003 on the initiative of the European Council. The members of the GDN usually include professional diplomats working at Foreign Affairs Ministries of EU Member States and, in many cases, the members of the EU negotiation team participating in the UNFCCC negotiations, delegated to the GDN by the relevant administration. Reports on the GDN meetings are presented to the members of the Working Party on International Environment Issues (WPIEI) of the Council and expert groups supporting the rotating EU Presidency and the European Commission in preparing the EU negotiation position and tactics.

[16] In accordance with the Treaty of Lisbon, the EU delegations and the representations of Member States support one another through an exchange of information, joint statements and cooperation in the external representation of the EU.

The members of the GDN meet to discuss the possibilities of organising joint diplomatic actions to support the EU position on specific issues related to the environment or climate change. They also prepare a démarche, if they consider it necessary in order to strengthen the international EU initiatives through bilateral action and subsequently undertake to forward the message to the countries outside the EU. They also collect information on other countries, their climate policies and their positions on the issues which can also be useful during the UNFCCC negotiations.

As stated in the joint strategic document of the EEAS and DG Clima opening the debate on EU climate diplomacy for 2015 and beyond[17], EU climate diplomacy pays special attention in bilateral contacts to the activities of the largest emitters and other key actors or groupings, as well as to the middle-income countries and neighbours of the EU. Climate change should be included as a priority area in all the EU strategies targeting third countries.

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After almost eight years since it was formulated, this recommendation has not become outdated in any way. The document argued for the need for extensive, coordinated outreach activities and intelligence gathering to be implemented by respective diplomatic networks of EU Member States with coherent messages using EU channels on the spot. It also proposed that EU Delegations and national diplomatic networks could jointly assess national climate policies and politics in the host country in question, identify priority levers for influence, tailor narratives and recommend climate diplomacy initiatives to engage partner country government and civil society. Within the framework of the support, various financial instruments, such as the Partnership Instrument, should be used.

The Conclusions of the European Council of 20 January 2020 called on the High Representative of the EU for Foreign Affairs, the Commission and Member States to work urgently towards a strategic approach to climate diplomacy by June 2020 which would identify concrete, operational ways forward. In accordance with the Conclusions of 20 January 2020 the task was to be supported by the GDN, ensuring full synergy with EU energy diplomacy and mobilising the combined resources of the European Union's delegations and Member States' embassies in third countries. Within the framework of the GDN focal points were designated at the EU Delegations to strengthen the necessary coordination with the resources of Member States[18].

The cooperation among the EU Delegations and the representatives of Member States led to the establishment of Team Europe, a tool designed to help EU Delegations work better with EU Member States, like-minded partner countries and other country stakeholders through joint programming and implementation. Team Europe was launched as part of the EU's global response to the COVID-19 pandemic in April 2020.

[17] "EU climate diplomacy for 2015 and beyond. Reflection paper", https://ec.europa.eu › docs › eeas_26062013_en (accessed on: 24.11.2021).
[18] https://europa.eu/capacity4dev/wbt-team-europe (accessed on: 24.11.2021)

Its core members include the representatives of the Commission, EU Member States, including their implementing agencies and public development banks, the European Investment Bank (EIB) and the European Bank for Reconstruction and Development (EBRD). Team Europe can enter into cooperation with partners having similar profiles, internationally or in a specific country, depending on the situation and needs identified.

> In a changing geopolitical context, Team Europe will support EU institutions and Member States in building a leading role of the EU at the global level, protecting EU interests and promoting European values.

The concept of Team Europe was incorporated into the "working better together" approach, in order to further improve the coherence and coordination of EU efforts, notably at the partner country level, by pulling resources together and exploring synergies of activities on the spot.

In a changing geopolitical context, Team Europe will support EU institutions and Member States in building a leading role of the EU at the global level, protecting EU interests and promoting European values. It is also a brand, including a visual identity package designed to better showcase EU interventions.[19] The establishment of Team Europe will substantially facilitate the intra-European cooperation between the EEAS and the diplomats representing the EU Member States.

EU leadership in climate action

In recent years, the efforts of EU climate diplomacy prevented stagnation in international climate action and often produced a stimulus needed to push the climate agenda forward. In the period from 2017 to 2021, during Donald Trump's term as the 45th President of the United States of America, the EU was a leading force in the international efforts to tackle climate change through joint actions of all the States-Parties to the Paris Agreement.

The European Union influenced to a large extent the agenda of international meetings where climate action was considered. After the United States was led back by Biden to the Paris Agreement, the EU is not the only major promoter of ambition on the internationals stage.

The United States, represented by John Kerry, the U.S. Special Presidential Envoy for Climate, carries out a diplomatic offensive targeting the main rival of the USA, i.e. China, other major emitters and also its allies, with a view to influencing their policies and pushing them towards halting greenhouse gas emission increases and reducing them as soon as possible so as to manage to limit the average global temperature rise to 1.5°C before this target becomes unattainable.

Moreover, the United States shares with the EU the ambition to be the global driver of climate action and uses its diplomacy all over the world and the projection of its strength (soft one in this case).

In 2021, the situation which we face is an unequivocal one. China is the largest emitter of greenhouse gas emitter which is responsible for more greenhouse gases released into the atmosphere than all the OECD countries taken together. The United States comes second with its emissions representing less than half of those of China. Pretending to the position of the global

[19] https://europa.eu/capacity4dev/wbt-team-europe (accessed on: 24.11.2021).

economic superpower which China has won recently, with its fast growing economy and rising population, which gives this country an advantage over China's aging population, India takes a third place, whilst the EU comes fourth, mostly due to German emissions which are significant on the global scale. Several developing countries, as well as Canada and Russia, are also included in the list of 10 largest emitters. Those emissions that now reach the atmosphere increase the pool of historical emissions of developed countries, albeit at a decreasing rate. The EU and now the USA, too, want to mobilise all those significant greenhouse gas emitters to take action and align their policies with the target of mid-century climate neutrality.

Science has found that even the immediate complete cessation of anthropogenic emissions will not halt climate change. With their impact exacerbated by the present releases into the atmosphere, the past emissions will still continue to affect the climate for a long time in the future.

Since 1992, the year of the Rio Summit and the creation of the UNFCCC, the European Union has sought to assume global "leadership by example" in order to strengthen joint efforts to raise the level of global climate ambition. The EU is credible as it keeps its pledges. In 1997, the EU-15 states undertook to reduce their greenhouse emissions in the first commitment period of the Kyoto Protocol (2008-2012) by 8% compared with the reference level (business-as-usual, BAU) and managed to achieve that target. It was only the developed countries that adopted the reduction target under the Kyoto Protocol (KP) and some of them even failed to meet their international commitments which they had voluntarily made. Canada withdrew from the Protocol in 2012 and the United States never ratified it. Other developed countries: Japan, Russia and New Zealand withdrew from the second commitment period of the KP (2013-2020).

Since 1992, the year of the Rio Summit and the creation of the UNFCCC, the European Union has sought to assume global "leadership by example" in order to strengthen joint efforts to raise the level of global climate ambition.

In contrast, the EU not only achieved its reduction target in the first commitment period of the KP, but also exceeded its target set for 2020. By 2019, the EU had reduced its greenhouse gas emissions by 24% compared with their 1990 levels, i.e. by much more that 20% laid down as the target of the second commitment period of the KP and the EU emission reduction target of "at least 20%". At the same time, in the period from 1990 to 2019, the total GDP of EU Member States grew by about 60%. The emission intensity of the economy, defined as the ratio between GHG emissions and GDP, fell to 282 g CO_2eq./EUR 2015, i.e. below half the 1990 level.[20]

In 2005, the EU launched the pilot phase of its Emissions Trading Scheme, a flagship project in CO_2 emission reductions. The first trading phase of the ETS (2008-2012) was aligned with the first commitment period of the Kyoto Protocol (2008-2012). If the EU had not opened the emission allowance trading to offset carbon emissions by means of units from flexible mechanisms, the Kyoto mechanisms would have played a negligible role, instead of resulting in the implementation

[20] "Kick-starting the journey towards a climate-neutral Europe by 2050", EU Climate Action Progress Report 2020, SWD (2020) 298 final. (accessed on 24.11.2021).

of a large number of projects, at least some of which produced an important stimulus for climate action in developing countries.

The EU also demonstrated flexibility and ability to increase its ambition in response to scientific findings. In 2009, the EU proposed an unconditional shift to a greenhouse gas emission reduction by at least 20% compared with 1990 levels and announced that target, making it mandatory for Member States, still before the COP in Copenhagen in December 2009. At that time, the announced EU target included a conditional component of the option of raising the ambition of reduction efforts provided that other developed countries as a group would take similar actions at comparable levels. This did not happen, but the EU met its targets with a surplus, demonstrating to its international partners that it was able to take over the initiative. In December 2019, before the COP in Madrid, the European Council approved the target of EU climate neutrality by 2050 in line with the Paris Agreement. The European Parliament approved this target in its resolution of March 2019 on climate change.

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Indicating the path for the EU to reach climate neutrality by 2050, in November 2019 the European Commission presented the European Green Deal – a comprehensive, multisectoral action plan for a green and just transition, approved by the resolution of the European Parliament of December 2019 on the European Green Deal. The Green Deal was publicly announced before COP25 in Madrid by Ursula von der Leyen, President of the Commission. It contains an action plan to improve resource efficiency through a shift to the clean circular economy, to restore biodiversity and to reduce pollution. It presents the necessary investments and financial instruments available. Within the framework of the European Green Deal, the Commission proposed a deep transition of the European economy on its path to climate neutrality by 2050, through enhancing the resilience to climate change and implementing this transition in a just and inclusive manner, leaving no one behind, saving natural resources and promoting a shift to the circular economy.

The European Green Deal envisaged resources to support the transition of all the industrial sectors, as well as agriculture, transport and buildings. It also proposed the adoption of a Regulation that would introduce the first **European Climate Law** at the EU level, thus ensuring that by 2050 Europe would become the first climate-neutral continent. The European Commission proposed the European climate law to transform this political commitment to a legal obligation.

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The achievement of net zero emissions will require a transition of all the sectors of the economy, including investments in environmentally friendly technologies, support for industry in the scope of innovation, the development of cleaner, cheaper and healthier forms of private and public transport, decarbonisation

of the energy sector, the improvement of energy efficiency of buildings and the strengthening of cooperation with international partners of the EU to enhance the global environmental standards. Recognising the global nature of climate change drivers, the European Green Deal emphasises the need to step up international cooperation on climate change mitigation and adaptation, sharing experiences and knowledge, as well as providing support for developing countries.

In order to finance this deep transition and to satisfy the investment needs, in January 2020 the Commission proposed the Sustainable Europe Investment Plan. The European Investment Bank is expected to provide additional support for climate-related investments.

With the adoption of the Taxonomy Regulation on climate change mitigation and adaptation in 2020, the EU gained a common system for classifying sustainable economic activities which would provide clear definitions and certainty for investors and the public, assisting them in taking decisions to commit resources to the implementation of projects which are consistent with the EU climate targets.[21] The internal measures reflect the international commitments made by the EU in the context of the global agreement specified in the UNFCC climate negotiations.

The amendments proposed in mid-2021 to the European regulations on the climate, energy and transport as presented by the Commission in the "Fit for 55" package will lead to the alignment of the regulations in effect on emission allowance trading, LULUCF, energy efficiency, energy management, the Effort Sharing Regulation and many other Regulations and Directives with the EU ambition for 2030 and 2050, also proposing the Carbon Border Adjustment Mechanism (CBAM), expected to ensure a level playing field for the European industry and the industry of the states which have not regulated their greenhouse gas emission levels from industry or do not do much to mitigate these emissions. In this way, the EU intends to achieve by 2030 the indirect reduction target of at least 55% compared with the 1990 emission levels.

This is the experience which the EU wants to share with other countries and the achievements expected to build the credibility of the diplomatic efforts of the EU to enhance the climate ambition of other countries. Pointing out its internal climate policy, the EU calls on all the other countries to align their financial strategies, State aid, promotion of trade and foreign investments with their climate commitments and their nationally determined contributions to the Paris Agreement and to implement sustainable and climate-resilient economic recovery policies, in response to the COVID-19 pandemic. Abandoning the conditionality of its reduction efforts, the EU wants to move forward and hopes to convince its partners that the EU path is the best one possible.

Bilateral and multilateral climate dialogues mean communication and cooperation to reach mutual understanding and support. They also mean an exchange of information and identification of the partners' situation, political objectives and ambition, whilst, at the same time, presenting the EU's own situation, objectives and ambition. Support for climate diplomacy in the relations between the EU and

[21] Sustainable finance taxonomy - Regulation (EU) 2020/852 | European Commission (europa.eu), https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/; (accessed on: 24.11.2021).

[22] The deadline for the completion of a review of NDCs before 2021 was February 2020 – 9 months prior to the (then) planned start of COP26.

the key partner countries must lead to the mutual knowledge of the partners' motivation and to a dialogue on harmonised actions in the spirit of joint responsibility for overcoming the climate change-related global challenge.

The COVID pandemic in 2020 not only stopped the international negotiations under the UNFCCC, but also disturbed the NDC review process in many countries; as a result of which, by the end of 2020 only 37 updated NDCs had been forwarded to the UNFCCC Secretariat.[22] The number of NDCs submitted to the Convention Secretariat continuously grew in 2021, since many developing countries received technical support in the NDC review process from the UNDP, the NDC Partnership, the European Union and several of its Member States. At the end of August 2021, 112 new or updated NDCs were recorded in the interim NDC registry compared with 192s NDC communicated before the entry into force of the Paris Agreement.[23] It can be expected that the remaining updated NDCs will be submitted to the Secretariat still before COP26, which begins on 31 October 2021. Given the delays in the submission of updates, the Convention Secretariat called on the states which had not submitted their updated NDCs yet to do it before 12 October, thus allowing for the NDC Synthesis Report to be updated.

The EU consistently calls on the Parties to the Paris Agreement to update their NDCs in line with the long-term of the Agreement and to increase the clarity, transparency and understanding of NDCs, as well as to provide the UNFCCC with information on long-term low emissions development strategies (LTS), reflecting as high ambition as possible in response to the need to take urgent action to halt climate change.[24] In accordance with Article 4.19 of the Paris Agreement, all the countries should communicate their long-term low emissions development strategies (LTS) to the other Parties to the Agreement. Decision 1/CP.21, adopted as an implementing decision of the Paris Agreement, invites countries to communicate their strategies by 2020. However, to date only 29 Parties have submitted their LTS to the UNFCCC Secretariat[25] and some of them had been formulated and communicated before the newest reduction targets were set for their countries and they are not always consistent with their new or updated NDCs.

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They should also guide national actions towards achieving net zero emissions, in line with the global efforts to jointly hold the increase in the global average temperature to below 2°C, seeking to limit this increase to 1.5°C as much as possible. LTS

[23] NDCs are recorded in the interim NDC registry managed by the UNFCCC Secretariat https://unfccc.int/process-and-meetings/the-paris-agreement/nationally-determined-contributions-ndcs/nationally-determined-contributions-ndcs; (accessed on: 24.11.2021 r.).

[24] Council Conclusions on Climate Diplomacy of 20 January 2020, 5033/20. https://data.consilium.europa.eu/doc/document/ST-5033-2020-INIT/en/pdf; (accessed on: 24.11.2021).

[25] https://unfccc.int/process/the-paris-agreement/long-term-strategies, accessed on: 10/06/2021. Including the EU and 14 Member States.

can also become strategies for ensuring green recovery after the COVID-19 pandemics. They could make it easier for countries to plan, whilst, at the same time, providing other countries with information on their efforts planned in the longer term.

Global post-COVID recovery: challenges and opportunities

The lockdowns during the COVID-19 pandemic slowed down the economic growth, at times putting countries on the edge of recession, and caused a decrease in global emissions from fossil fuel combustion in 2020 by 7% (about 2.4 billion tonnes).[26]

This was the highest decrease on record, which was caused by worldwide COVID-19 lockdowns. However, the decrease was a temporary one. The governments all over the world try to provide their economies with a so very much needed stimulus, mobilising substantial resources to support recovery after economic losses. At the same time, the climate-related global crisis is as serious as always and needs to be resolved with increasingly urgent global action. The challenge has become more complex, since these two global threats must be resolved at the same time and quickly. The post-pandemic recovery involves the risk of incorrectly targeted support for industries and sectors, which should be reinvented so as to shift to net zero greenhouse gases by 2050 and to mitigate the substantial risk of stranded assets. Thus, the COVID-19 pandemic causes mitigation and adaptation to become more difficult than before.

However, the post-COVID recovery also provides an opportunity for governments to present their policies and measures and to direct the flow of state funds to support green recovery and to change the economic growth paradigm towards renewable energy sources, the circular economy and digitisation. Unfortunately, the recovery packages implemented in many countries are not sufficiently "green" so as to halt the rebound of greenhouse gas emissions from fossil fuels. Resources are used to support traditional economic practices leading to the continuation of the activities carried out to date. In consequence of this, it will be difficult, or sometimes even unlikely, to achieve the communicated NDC targets. In order to support the green transition and speed up the shift to the long-term global goal of the Paris Agreement, the recovery must be based on environmentally friendly principles, a transition of the energy sector, a shift away from fossil fuels and low-emission growth.

Each country must internally mobilise its political will. A international level, the political will must be supported by diplomatic efforts.

From the outbreak of the pandemic to the end of August 2021, 42% of public funds all over the world was spent on, or allocated to, energy from fossil fuels. In the same period, 34% of public resources were allocated to clean energy. An independent analysis of the stimulus packages in the G-20 countries carried by Energy Policy Tracker demonstrates that several governments of G-20 economies did not align the stimulus expenditures with the climate objectives which they had officially signed up to.[27] As a total, the G-20 governments spent as much

[26] Global Carbon Project.

[27] https://www.energypolicytracker.org/region/g20/; (accessed on: 24.11.2021).

as USD 296.67 billion to support energy from fossil fuels and only USD 228.60 billion on clean energy.

The EU believes that it plays the role of a signpost for the green recovery of Member States' economies by providing partner countries with examples of policies and measures of transformative nature. In their joint call, 17 EU Environment Ministers also emphasised that the European Green Deal "must be central to a resilient recovery after COVID-19".

The EU believes that it plays the role of a signpost for the green recovery of Member States' economies by providing partner countries with examples of policies and measures of transformative nature.

The Next Generation EU recovery instrument and the Green Recovery Plan are also subordinated to the strategic EU objectives under the European Green Deal. In her State of the Union Address, Ursula von der Leyen stressed that in the future 37% of the recovery fund should be allocated to the objectives of the European Green Dean, whilst 30% of the fund should be financed with green bonds. In this scope, it is also particularly important to take into account the climate ambition in the EU processes.

Recognising the need for a strong economic stimulus, the EU adopted a funding package known as the Recovery Fund. Its backbone is NextGenerationEU (NGEU), a temporary instrument designed to accelerate recovery. Together with the current long-term EU budget, it will be biggest European stimulus package in history, with a total value of EUR 2.018 trillion in current prices (EUR 1.8 trillion in 2018 prices), placing an emphasis on low-emission, green growth, renovation of buildings and digitization. The Next Generation EU recovery instrument and the Green Recovery Plan are also subordinated to the strategic EU objectives under the European Green Deal.

In July 2020, the European Council decided to strictly link the European Green Deal to the Multiannual Financial Framework and Next Generation EU (NGEU), in particular by increasing the climate amount to 30% (with the NDICI target of 50%). The budget for 2021 to 2027, adopted in December 2020, was prepared with a view to helping the EU recover from the COVID-19 crisis and supporting investments in a green and digital transition.

In 2020, the European Council also agreed that 30% of the EU funds, amounting to EUR 1.8 trillion, should be allocated to speed up the climate transition in the EU Member States, to meet the challenges related to sustainable development and to increase green jobs and competitiveness.

The global recovery after the COVID-19 pandemic provides an important opportunity for mainstreaming climate again in other countries. Given that substantial resources are mobilised to recover from economic losses caused by restrictions imposed during the pandemic, there is a huge chance to ensure preferential funding for climate-friendly technologies and practices. The risk has also arisen, as confirmed in many cases on the ground in several emerging economies and other developing countries, that the resources earmarked for recovery will be used to support traditional branches of the economy and practices leading to the continuation of activities carried out to date. In certain countries, there is also a good chance that these resources will be used to green their economies.

The race to zero and the climate ambition of the key international partners of the EU

According to the data from the Energy and Climate Intelligence Unit, to date 137 countries have committed to carbon neutrality.[28] Most of these pledges focus on achieving this target in about 2050. According to the Climate Action Tracker, 73% of global emissions are not covered by net zero targets.[29] 124 out of 137 countries with a net zero target plan to achieve this target by 2050. To a large extent, this is an effect of the membership in the Climate Neutrality Coalition, which requires its Member States to set the target for 2050 r.

However, the real results of actions most often indicate that it will be difficult or expensive for many of these countries which have publicly communicated their zero net commitment to fulfil this pledge, since as a result of the post-COVID turmoil this target is moving away.

Many NDCs are also inconsistent with the long-term goal of the Paris Agreement. Several G20 countries self-evidently delay their climate actions. Just looking at several of them, e.g. Argentina, it becomes clear that the joint ambition of climate action are moving away from the target.

In 2020, Argentina, a G20 country, submitted its updated NDC to the UNFCCC Secretariat, with seemingly higher ambition than the previous NDC.[30] The updated NDC sets the absolute and unconditional target of limiting greenhouse gas emissions to 313 $MtCO_2eq.$ (excluding LULUCF) by 2030. This new target means represents an increase in emissions of 35% above 1990 levels and a 2% decrease below 2010 levels. The CAT rating of the unconditional target of the Argentine NDC changed from the "critically insufficient" to "insufficient".[3]

However, the real results of actions most often indicate that it will be difficult or expensive for many of these countries which have publicly communicated their zero net commitment to fulfil this pledge, since as a result of the post-COVID turmoil this target is moving away.

Argentina plans to present its long-term strategy (LTS) at COP26 in Glasgow. The NDC provides that the LTS will include the target of carbon neutrality by 2050. Although the new target shows higher ambition in the scope of climate change mitigation, the targets of both the NDC and the LTS must be reflected in short-term actions and specific sectoral plans, such as support for low-emission development measures in response to the COVID-19 pandemic and the phase out of the exploration and extraction of fossil fuels.

Brazil, one of the five major economies associated in the BRICS group, with its sixth highest greenhouse gas (GHG) emissions in the world, presented its second NDC with targets weakened by a change of the reference level. Brazil's targets to reduce emissions by 37% and 43% from 2005 levels by 2025 and 2030 look unchanged, but an increase in the base year emissions used as a reference means that Brazil can continue to increase its emissions and still meet its targets, increasing its emissions by about 27% in 2030 from the previous level prior to the change of the baseline. The country also plans to achieve climate neutrality

[28] https://eciu.net/netzerotracker/map; (accessed on: 24.11.2021).
[29] https://climateactiontracker.org/; (accessed on: 24.11.2021).
[30] https://www4.unfccc.int/sites/NDCStaging/pages/Party.aspx?party=ARG; (accessed on: 24.11.2021).
[31] https://climateactiontracker.org/climate-target-update-tracker/; (accessed on: 24.11.2021).

by 2060, but this target depends on external support. Deforestation remains the main driver of its greenhouse gas emissions.

Canada is not only a G20 country, but also one of the ten largest greenhouse gas emitters. Its greenhouse gas emissions come mainly from transport and fossil fuel extraction. Canada repeatedly failed to meet its climate commitments, withdrew from the Kyoto Protocol and is not on the right track to achieve its 2030 targets. Canada's updated NDC is short of ambition, although it represents an improvement on the first NDC.

According to the Carbon Brief profile, by 2030 Canada would have to reduce its greenhouse gas emissions by at least 54% below 2005 levels to be on the path to the global goal of 1.5°C, whilst its proposed target for 2030 is "at least" 40-45% below 2005 levels. Canada also lags behind other developed countries in terms of financial assistance for climate action in developing countries. Just as Brazil and Australia, Canada has changed the previous directions of its climate policy. At present, under Trudeau's rule, Canada promotes itself as a progressive and green, pledging to achieve net zero emissions by 2050. In June 2021, Canada adopted the Canadian Net-Zero Emissions Accountability Act – with the target of zero greenhouse gas emissions, which was already included in the submission of the Canadian NDC. In order to achieve this goal, Canada will have either to increase its direct target or do much more, at a higher cost, closer to 2050.

Alongside the United States, Canada is not the only developed country with mixed climate results. Australia, a G20 country, too, and one of the 20 largest global emitters in absolute terms, with per capita emissions about three times as high as the global average (23 $tCO_2eq.$ per capita in 2015) is also such a country. In December 2020, the Australian government communicated its previous NDC, without increasing its insufficient target. The goal of the NDC is to reduce greenhouse gas emissions by 26-28% from 2005 levels by 2030, including LULUCF, or by 11-15% from 2005 by 2030, excluding LULUCF.

Australia is also the second largest coal exporter in the world and, recently, it became the largest exporter of liquefied natural gas (LNG). Its electricity system depends to a large extent on coal, despite its increased use of gas and renewable energy sources, in particular, solar panels. It is expected that the decrease in economic activity in Australia caused by the COVID-19 pandemic will cut greenhouse gas (GHG) emissions by 2030. The present government does not plan to adopt the target of net zero emissions. When an affluent developed country does so little, other countries feel justified to look first at short-term economic prospects and to postpone reforms.

Over the last few years, the United States has been the second largest greenhouse gas emitter, but in the past it produced as a total more CO_2 than any other country (about 2,035 $tCO_2eq.$), whilst its citizens have three times as large a carbon footprint than the global average. Climate change is a very divisive issue in the US politics and the government's comprehensive actions are routinely blocked by members of the Republican Party.

The re-accession to the Paris Agreement was one of the first decisions taken by John Joe Biden after he took office in January 2021. The United

States launched intensive climate diplomacy led by John Kerry, the U.S. Special Presidential Envoy for Climate. Kerry talks with China and US allies in Asia, with Russia, the EU and other Western countries on achieving net zero in 2050. This would be a significant step forward and reduce the global emission gap by 5-10% in 2030. The present US pledge is twice as large as that of Barack Obama in 2015, but, according to the CAT, it is still inconsistent with the goal of 1.5°C. The emission reduction target of the United States by 57-63% from 2005 levels by 2030 would be consistent with the 1.5°C path. It is also expected that the United States will increase its climate assistance to developing countries.

China is the largest greenhouse gas emitter, the largest economy and a G20 country. However, it has not officially communicated its updated NDC to the UNFCCC yet. The information about what could be expected is based on the statement of the Chinese President Xi Jinping on the principles of the updated NDC of 12 December 2020 at the Climate Ambition Summit in 2020, but this NDC has not been officially communicated to the UNFCCC yet.

This also concerns the net zero target "before 2060", communicated in September 2020. It is not clear whether the neutrality target refers to GHG neutrality or carbon neutrality.[32]

The ambition of the new NDC will be only slightly raised compared with the current policy. This means that China will probably reach or exceed new targets without considerably increasing its mitigation actions. Since China has not pledged yet either to peak its emissions by 2030 or set a specific or absolute emission target, the emission trajectories until 2030 are uncertain and it is difficult to assess the target. It is important, since without China it will not be possible to achieve the long-term goal of the Paris Agreement.

According to the statements by Chinese politicians, China plans to achieve the following targets by 2030:

- Peak its carbon dioxide emissions "before 2030", up from "around 2030 and making efforts to peak earlier";
- Lower carbon intensity by "over 65%" in 2030 compared to 2005 levels (which means higher ambition than "by 60–65%");
- Increase the share of non-fossil fuels in primary energy consumption to "around 25%" in 2030 (up from "around 20%"), which leaves the other fossil fuel share of about 75% in primary energy consumption;
- Increase forest stock volume by around 6 billion cubic metres in 2030 (previously 4.5 billion cubic metres);
- Bring its total installed capacity of wind and solar power to over 1,200 GW by 2030.

It should be noted that China's plan to start decarbonisation only after 2030 depends to a large extent on a substantial increase in removals by forests and also on the large-scale implementation of CCS and CCUS technologies, which have not been commercialised yet. The inadequacy of Chinese climate action will discourage other countries and provide them with an excuse not to take action.

[32] According to the CAT analysis, the adoption of the neutrality for the emissions of all the GHGs could put China on a path consistent with the 1.5°C, depending on the pace of its actions.

[33] According to the CarbonBrief Country Profile: India - Carbon Copy; (accessed on: 24.11.2021).

India, the third, or, according to some calculations, the fourth global GHG emitter, with its growing emissions and, under its current plans, probably emitting more and more, is one of the brakemen of the global decarbonisation process. India communicated its NDC only in October 2016. India's present pledge provides for a decrease in its energy intensity by 30-35% from 2005 levels by 2030. The pledge includes a 33-35% reduction of the emission intensity per unit of economic output from 2005 levels by 2030. 40% of installed capacity in energy production in 2030 is to be provided by renewable or nuclear sources. The greenhouse gas emissions in India can still rise in the period from 2014 to 2030 by 70%[33], even if this commitment is met. India has still to translate its pledged external commitments into national measures to implement them. By 2030, in order to implement its climate policy, it will need at least USD 2.5 trillion, from both national and international resources. During COP26 India pledged to achieve net zero emissions by 2070.

In spite of this, the emissions in India can grow even by 70% in the period from 2014 to 2030.[34] At present, India takes a fifth place in the world in terms of car sales. It is expected that they will grow with increasing incomes and rapid urbanisation, which will greatly affect the global demand for oil and transport emissions in India. The Indian government promotes the dissemination of electric vehicles (EV), although in India there are so far only 260 000 EVs – including mopeds and hybrid vehicles – and electric vehicles represent only 0.6% of sales. There is a small number of charging stations.

India is the second largest coal consumer in the world, after China and ahead of the USA since 2015. Its coal consumption grows and can soon overtake that of China, which means that India can to a large extent determine the global coal trajectory. Many analysts expect that the fast growth in India will drive an increase in the global demand over the next few years. At present, it is the second largest coal producer (after China) and, in spite of this, it imports coal from Australia, West Africa and Indonesia.

The continued coal expansion in India essentially undermines its low-emission development projections. Given the 1.5°C limit under the Paris Agreement, India must phase out coal from its power sector by 2040. However, in 2018 the National Electricity Plan (NEP) covered more than 90 GW of planned capacity, which would unnecessarily increase emissions and risk stranded assets. Therefore, India was opposed to the inclusion of the intention of the Parties to the Agreement to phase out coal in a COP26 decision, agreeing only to phase it down.

Iran is another country posing a challenge to EU climate diplomacy, as it is a large greenhouse gas emitter and, at the same time, a country which has not ratified the Paris Agreement to date and whose emissions grow. Iran is one of the 10 largest emitters. However, its suffers from the impacts of international global sanctions which aggravate its economic and COVID-related problems and makes its ratification conditional on the lifting of the economic sanctions.

Iraq ratified the Agreement only on 1 November 2021 and will become a Party to it on 1 December 2021. In an article published on the IEA website and in the British news paper "Guardian", Faith Birol, the Executive Director of the International

[34] CarbonBrief Country Profile: India - Carbon Copy; (accessed on: 24.11.2021)

Energy Agency and Ali Allawi, the Iraqi Deputy Prime Minister, stated that without help for oil-producing countries, such as Iraq, the transition away from fossil fuels and the net zero target by 2050 would become "a distant dream".[35] The same also applies to Iran on which economic sanctions have been imposed and which, just as Iraq, suffers from severe climate effects, such as prolonged drought.

Both countries face problems with water supplies to the population and both could easily reduce their emissions by resolving the problem of methane combustion and reducing methane leakage from pipelines. In Iraq, oil and gas extraction generates 40% of its total emissions even before any use of fuels for transport or energy production.

Energy efficiency instead of energy wastage and cessation of fuel subsidies to limit the growing demand would bring additional benefits in several oil-producing countries. Action on transport emissions and coal combustion would help combat air pollution affecting megacities. The abatement of methane emissions not only from fossil fuel production but also from agriculture would bring immediate results in the form of reduced global emissions. Many national data centres contain plans to move towards these solutions, but it is only the first round of biennial transparency reports in 2024 and perhaps the global stocktake that will make it possible to check if these plans are implemented.

The actions taken by the majority of large emitters in response to the COVID pandemic did not resolve many problems and focused instead on providing support for dismissed employees and SMEs. Such differentiated countries as Argentina, Brazil or Australia did not take any action to support the green recovery. Instead, the Australian government uses the pandemic as its rationale for backing an expansion of the gas industry and further support for the coal industry.

The Australian government claims that it supports a "technologically neutral" approach, whilst actually supporting gas. In the period from 2017 to 2020, renewable energy investments fell due to the uncertainty about the directions of the government's policy. No climate action is taken, despite the growing climate impacts, such as catastrophic bush fires.

There was also a clear decrease in economic activity in Brazil, but there are no signs of a green recovery plan. Instead, deforestation substantially increased under President Bolsonaro's rule.

China was one of the few countries which were relatively unhurt by the pandemic. Its economy rebounded very quickly. In the first quarter of 2020, the Chinese economy contracted 6.8% due to nationwide lockdowns at the peak of the COVID-19 pandemic. Nevertheless, in 2020, China was the only economy to see growth, although the growth rate was the weakest over dozens of years, i.e. 2.3%. For 2021 China set the target of the economic growth rate of 6%. In the first quarter of 2021, the Chinese economy grew by a record 18.3% compared with the same quarter of last year. This was the largest leap in its gross domestic product (GDP) from 1992 when China started to keep quarterly records.

India's government responded to the economic crisis with one of the largest stimulus packages in the world when expressed as a share of the GDP. Although there is no clear green recovery

[35] Without help for oil-producing countries, net zero by 2050 is a distant dream – Analysis - IEA (accessed on: 23.11.2021).

programme, discussions are underway on using part of the stimulus package to support the development of the renewable energy industry and the electric vehicle production.

Many countries lacked a vision needed to transform the threats posed by the COVID pandemic for their economies into opportunities for stimulating a low-emission transition and green growth.

The post-COVID crisis provides an opportunity for India to accelerate its shift from coal to renewable energy and also to speed up the dissemination of electric mobility. However, there are no clear signs that India uses this chance. Although no coal power plants were built in 2020, the government encourages greater coal extraction and higher coal-based energy production, which is inconsistent with the green recovery. India needs to draft a just transition strategy in order to withdraw coal for energy production before 2040.

It is estimated that Turkey's emissions in 2020 were lower by 3-5% than in 2019 as a result of the global pandemic, but already in 2021 they returned to 2019 levels. The Turkish government did not initiate green recovery: ensuring jobs – particularly, for persons aged less than 25 years – and export and output-oriented upturn. Turkey continues to depend on coal.

Many countries lacked a vision needed to transform the threats posed by the COVID pandemic for their economies into opportunities for stimulating a low-emission transition and green growth. It seems that the EU found itself again in the forefront of change, deciding to use the post-COVID recovery as a chance for transforming Member States' economies and supporting green recovery.

The EU as a global player supporting third countries in their implementation of the Paris Agreement

The EU emphasises the importance of individualised approaches to cooperation with other countries, taking into account the need for a just transition and sustainable development. This means supporting concrete measures in partner countries and showing by example that many environmental and economic benefits can be gained by commitments to green recovery and sustainable development, supporting the halting of the global temperature rise.

The EU strongly advocates actions to achieve the Sustainable Development Goals set out in the 2030 Agenda through its firm commitment to implementing climate policy. The acceleration of climate action in partner countries requires the involvement of all the sectors of the economy and the engagement of stakeholders in that action at national and local levels. It is also indispensable to mainstream intersectoral issues which are of importance for reaching long-term climate goals and reflect EU values, such as gender equality, human rights and the rights of indigenous people.

In order to achieve these outcomes, the EU seeks to strengthen the existing bilateral dialogues and technical cooperation with partner countries in the EU neighbourhood. The EU also offers cooperation to other countries, especially, the G20 states, the Persian Gulf countries, the countries in the Asia-Pacific region and those in Latin America, in order for them to make quick progress towards carbon neutrality and the achievement of the goals of the Paris Agreement and the UNFCCC.

The EU actively seeks to influence energy policy in developing countries, advocating an energy transition patterned on its own climate and energy policy.[36] Promoting the European Green Deal via climate diplomacy and clarifying its principles and objectives, the EU will able to show its partners how to deliver the energy transition, whilst, at the same time, maintaining economic growth, creating new jobs, protecting the environment and saving resources, as well as conserving biodiversity and improving the citizen's quality of life.

> Another EU priority is the promotion of the establishment of, and the launch of action by, international initiatives for methane emission reductions.

The EU very actively advocates the energy transition, the shift to green energy and the departure from the dependence on fossil fuels all over the world. It also proposes stopping subsidies to fossil fuels in developing countries and immediately ending the financing of investments in fossil fuels, even discouraging investments in energy infrastructure based on fossil fuels in third countries and calling for the immediate cessation of any funding for new coal-based infrastructure.

Another EU priority is the promotion of the establishment of, and the launch of action by, international initiatives for methane emission reductions. Methane is a short-lived, but powerful greenhouse gas, with about 85 times higher global warming potential than that of CO_2, and an ozone precursor harmful to human health and the environment. Anthropogenic methane emissions represent about 60% of the methane released into the atmosphere. There are also natural methane emissions which grow as a result of climate change, as e.g. the methane released during the permafrost thaw in the Arctic.

Anthropogenic methane emissions come from such sectors as agriculture and waste (landfills, but also wastewater), as well as the extraction, transport and consumption of coal, oil and gas. However, methane decomposes within about 12 years; therefore, compared with the 100 years long presence of CO_2 in the atmosphere, it can have a short-lived effect. Nevertheless, anthropogenic methane emissions can contribute to global warming by about 0.5°C before 2050; hence, the EU attributes large importance to the immediate launch of the global elimination of methane emission sources.

Another reason for addressing methane emissions is improving air quality by reducing the ozone concentration in the air. Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action requested the Commission to prepare a strategic methane reduction plan. The need to address energy-related methane emissions was pointed out in the Communication on the European Green Deal. The EU is now working on the improvement of the monitoring, reporting and verification (MRV) of methane emissions and seeks to determine how this problem can be resolved on the path to climate neutrality by 2050.

The Communication on the European Green Deal also emphasises that the EU should work with third countries on cross-cutting climate and environmental issues, such as tackling methane emissions. In order to really influence at international level the policy solutions to reduce methane emissions, the EU must focus its diplomatic actions on the largest global methane

[36] Josep Borrell's statement at a press conference after the meeting of the Foreign Affairs Council on 26.01.2021.

emitters: China, India, United States, Russia and Brazil.

> In order to really influence at international level the policy solutions to reduce methane emissions, the EU must focus its diplomatic actions on the largest global methane emitters: China, India, United States, Russia and Brazil.

Climate action will to an increasingly large extent influence the discourse on free trade and trade agreements. In January 2021, the Foreign Affairs Council supported the Commission's proposal to make the respect of to the Paris Agreement an essential part of the future comprehensive trade agreements. The Council welcomed the Commission's initiative in the WTO context to ensure that multilateral trade relations reflect the climate policy principles and support progress in the implementation of the long-term global goal of the Paris Agreement and the Climate Convention. In this context, the views promoted by the EU are also shared by the United States which contemplates a similar approach to the promotion of international climate action.

The COVID-19 pandemic exacerbated the economic challenges facing developing countries and Economies in Transition[37]. Still, it can provide a promising starting point for targeted support (e.g. by the EU and its Member States) intended to help the countries prepare and implement, at the same time, the urgently needed economic recovery and an opportunity for a socially just transition of their economies towards decarbonisation and environmentally friendly production models.

Many countries of key importance for achieving quick progress towards mid-century net zero emissions focused more on saving jobs and ensuring support for entrepreneurs and other citizens than on "building back better" their economies after the COVID pandemic, by introducing "climate friendly" changes in them.

As a regional bloc, the European Union is the largest official development assistance (ODA) donor in the world and the first foreign investor in almost all the countries in the world. In 2019, the largest climate-related ODA donors included Germany (USD 8.3 billion), Japan (USDD 6.3 billion), EU institutions (USD 5.6 billion), France (USD 4.7 billion) and the United Kingdom (USD (2.0 billion).[38]

Information on the assistance provided to developing countries by the EU and its Member States is presented in their biennial reports (BRs) for the UNFCCC. To date, the EU and its Member States have submitted four such reports each. The financial support provided by the EU to developing countries helps them achieve their development goals, whilst, at the same time, supporting green growth policy and decarbonisation.

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In the last year before the outbreak of the COVID-19 pandemic, the bilateral foreign development assistance contributing to the implementation

[37] In the 1990s, this term was used to denote the countries which emerged after the breakup of the Soviet Union and the states of the former Soviet bloc. Now it is commonly understood to refer to Russia, Ukraine and Belarus, although the Central European states which joined the EU in 2004 and 2008 have not lost this status under the UNFCCC.

[38] In relative terms, the largest donors included Japan (46%), France (44%), Germany (43%), Iceland (41%) and the Netherlands (35%). Cf. https://donortracker.org/sector/climate (accessed on: 24.11.2021).

of climate objectives and provided by the donors of the OECD Development Assistance Committee (DAC) amounted to USD 34.4 billion. 43% of that amount was allocated for climate change mitigation actions, 33% for climate change adaptation and 24% for projects targeting both climate change mitigation and adaptation. In 2019, the total amount of the financing for projects focusing on climate objectives was USD 12.3 billion, i.e. slightly more than in 2015 (USD 12.0 billion).

The Working Party on Development Cooperation and International Partnerships (CODEV-PI), one of the preparatory bodies of the Council of the EU, discusses policy principles, objectives and modalities of the EU's action in relation to development cooperation with third countries, in accordance with Articles 208-212 of the TFEU. This Party prepares the Foreign Affairs Council (Development).

In the framework of the EU's development cooperation policy, the CODEV-PI prepares Council strategic guidance on a range of topics, including:

- sustainable economic, social and environmental development, with the objective of eradicating poverty;
- the coordination of development policies amongst member states, including possible joint action;
- commitments taken by the EU and its member states at international fora;
- measures necessary for the implementation of the EU's development cooperation policy.[39]

The EU budget for the period from 2021 to 2027 will increase the effectiveness and visibility of the EU's external policies, strengthen their coordination with internal policies and give the EU the necessary flexibility to provide a faster response to new crises and challenges. In this context, the Neighbourhood, Development and International Cooperation Instrument – Global Europe[40] will allocate the largest part of the resources for external actions, with its budget of EUR 79.5 billion. It will be the EU's main financing tool to contribute to eradicating poverty and promoting sustainable development, prosperity, peace and stability, in line with the pledges of the Commission. It is twice as much as the total amount spent on climate action by all the donors in 2019.

Conclusion

The EU not only takes reduction actions seriously and has committed to achieve net zero emissions in 2050, but also seeks to influence third countries, encouraging them to step up their efforts at the same time when the EU does and supporting them by means of all the external policy instruments at its disposal. Seeing poor outcomes of international meetings and incentives, the EU takes bilateral diplomatic actions, without resigning from influencing, at the same time, at international for and together with like-minded partners, those states that fail to take actions which would be adequate to their position in increasing global emissions. The EU emphasises the importance of intensifying information actions as part of the cooperation with other countries and regional organisations, including in the context of the international negotiations. In

[39] https://www.consilium.europa.eu/en/council-eu/preparatory-bodies/working-party-on-development-cooperation-and-international-partnerships-codev-pi/ (accessed on: 24.11.2021).

[40] https://ec.europa.eu/info/funding-tenders/find-funding/eu-funding-programmes/global-europe-neighbourhood-development-and-international-cooperation-instrument_en; (accessed on: 24.11.2021).

order to better align the coordination of climate action and diplomacy, the EU has established Team Europe – a coordinating body ensuring the everyday cooperation of the EEAS, EU delegations, EIB, EBRD and several other institutions.

The aim of EU climate diplomacy, engaged in bilateral and multilateral talks with third countries, is to strengthen the implementation of the Paris Agreement in the context of the economic recovery following the COVID-19 pandemic, to promote the delivery of the 2030 Agenda and the Sustainable Development Goals (SDGs) and to support the national climate policy implementation programmes of those partner countries that are major non-EU economies and, at the same time, the largest greenhouse gas emissions.

The multilateral and bilateral cooperation in the implementation of the Paris Agreement can result in stronger and more durable outcomes of the actions taken for all the partners. A political dialogue can be used to build and promote trust, ensuring a solid basis for joint climate action. Cooperation via climate diplomacy also contributes to the implementation of the 2030 Agenda and the Sustainable Development Goals (SDGs) for which climate action constitutes an important pillar.

“

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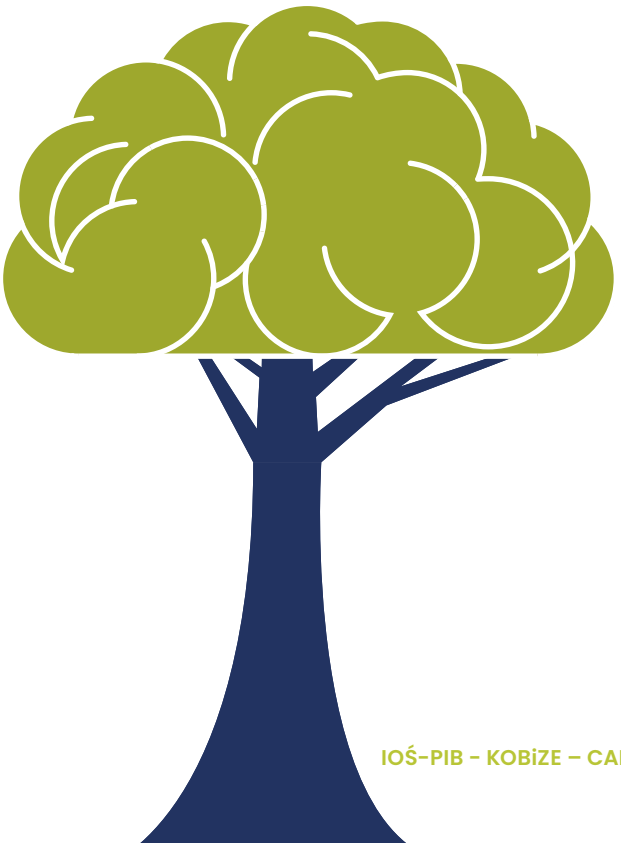
Climate diplomacy can also promote common understanding and cooperation in the further development of an international framework in the area of climate policy. Therefore, the international negotiations can also benefit from joint and harmonised political action. Alliances are indispensable in the implementation of an important international agreement, such as the Paris Agreement, and climate diplomacy is a way of establishing them.

Finally, a political dialogue means communication and cooperation to reach mutual understanding and support. It assumes information and identification of the partners' situation, political objectives and ambition, whilst, at the same time, presenting the EU's own situation, objectives and ambition. In Brussels, it is believed that EU climate diplomacy between the EU and other countries should lead to mutual understanding of partners' climate policy and result in a dialogue on possible harmonised action.

References

1. EU Council Conclusions on Climate and Energy Diplomacy - Delivering on the external dimension of the European Green Deal – 25 January 2021. Foreign Affairs Council - Consilium (europa.eu); (accessed on: 24.11.2021)
2. EU Council conclusions on Climate Diplomacy adopted at the 3742nd meeting of the Council on 20 January 2020, pdf (europa.eu); (accessed on: 24.11.2021)
3. EU Council Conclusions on Climate Diplomacy, 18 February 2019, 6153/19. https://data.consilium.europa.eu/doc/document/ST-6153-2019-INIT/en/pdf; (accessed on: 24.11.2021)
4. UNEP Emissions Gap Report 2020, Executive Summary; EGR20ESE.pdf (unep.org); (accessed on: 24.11.2021)
5. European Parliament, Report on Climate Diplomacy, (2017/2272 (INI), 26.06.2018, A8-0221/2018; (accessed on: 24.11.2021)
6. Sendai Framework for Disaster Risk Reduction 2015 - 2030 (preventionweb.net); (accessed on: 24.11.2021)
7. https://www.iea.org/commentaries/cop26-climate-pledges-could-help-limit-global-warming-to-1-8-c-but-implementing-them-will-be-the-key; (accessed on: 24.11.2021)
8. https://www.wri.org/insights/cop26-key-outcomes-un-climate-talks-glasgow; (accessed on: 24.11.2021)
9. "EU climate diplomacy for 2015 and beyond. Reflection paper", https://ec.europa.eu › docs › eeas_26062013_en; (accessed on: 24.11.2021)
10. "Kick-starting the journey towards a climate-neutral Europe Diplomacy of 20 January 2020, 5033/20 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020DC0777
11. https://www.energypolicytracker.org/region/g20/; (accessed on: 24.11.2021)
12. https://eciu.net/netzerotracker/map; (accessed on: 24.11.2021)
13. https://climateactiontracker.org/; (accessed on: 24.11.2021)
14. CarbonBrief Country Profile: India - Carbon Copy; (accessed on: 24.11.2021)
15. Without help for oil-producing countries, net zero by 2050 is a distant dream – Analysis - IEA; (accessed on: 24.11.2021)
16. https://donortracker.org/sector/climate; (accessed on: 24.11.2021)



Does the “Fit for 55” package introduce a “fair” allocation of emission allowances in the EU ETS in EU Member States in the period until 2030?

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Does the "Fit for 55" package introduce a "fair" allocation of emission allowances in the EU ETS in EU Member States in the period until 2030?


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Abstract

The purpose of the present article is to estimate the effect of the EU ETS revision as proposed by the European Commission as part of the "Fit for 55" package, in particular, that of the linear reduction factor (LRF)[1] and the market stability reserve (MSR)[2] on the allowance volumes at the disposal of EU-27 Member States, and to analyse the emission allowance balance in the Member States in the period from 2008 to 2020 and in the period until 2030.

The first part of the article presents an estimate of the number of allowances to be available as part of the auction pool and the Modernisation Fund in the current trading period, i.e. 2021-2030. The analysis was carried out on the basis of the proposed amendments to the EU ETS Directive which had been presented by the European Commission as part of the "Fit for 55" package, by comparing the results with the present situation, i.e. under the EU ETS Directive now in effect. The analysis was carried out on the basis of the CarbonPIE simulation model[3].

The task of the model was to map the quantity of the supply of emission allowances, whilst keeping as many details as possible on the functioning of the EU ETS, including the operation in the Market Stability Reserve (MSR)[4].

The second part of the article presents the historical levels of the deficit / surplus of emission allowances from 2008 to 2020 and the projections for the current trading period of the EU ETS, i.e. 2021-2030. The aim of this comparison is to explore whether the amendment to the EU ETS Directive as proposed by the European Commission sufficiently ensures the implementation of the provisions of item 18 of the Conclusions of the European Council which addresses the need to solve the problem of allowance deficits relative to the emission levels in the Member States which are beneficiaries of the Modernisation Fund (MF). Importantly, it is exactly the cited Conclusions of the European Council (of 11 December 2020) that mandated the European Commission to work on the amendment to the EU ETS Directive.

[1] The linear reduction factor determines by how much the number of allowances in the EU ETS is reduced each year.

[2] By adapting the supply of allowances to be auctioned, the task of the Market Stability Reserve is to stabilise the quantity of the current surplus in the EU ETS and increase the resilience of the scheme to emission variations caused e.g. by an economic crisis.

[3] Carbon Policy Implementation Evaluation Tool (CarbonPIE) – a simulation model for analyses of changes in the EU ETS scheme which has been developed at the CAKE/KOBiZE.

[4] The part of the model which maps the behaviour of the actors in the EU ETS market has been prepared on the basis of the equations and assumptions adopted for the Zephyr module (Trotignon R., 2015).

An analysis of historical data indicates that the reduction efforts of Member States do not necessarily correspond with their positive balance or a slight deficit of allowances. This can indicate that the deficit problem is a serious one and has a structural character resulting from the method for the allocation of allowances within the EU ETS and it is not necessarily an effect of deficiencies in the reduction efforts of particular Member States in the past. An analysis of the solutions presented by the European Commission in the EU ETS indicates that this imbalance can also be seen in the period until 2030. The analysis presented in the article demonstrates that Poland can be most strongly affected by a deficit of allowances among the States with the lowest GDP (i.e. those covered by the Modernisation Fund). The increase in the MF as proposed by the European Fund, even when including the national resources from the sales of emission allowances as part of the national Energy Transformation Fund (FTE) being launched will be far from sufficient to be able to finance the key changes in the energy sector. Therefore, it will be necessary to use other sources of financial support. The assessment which was carried out indicated that the deficit problem should be addressed in greater detail in the proposed amendment to the EU ETS Directive so as to minimise the need to transfer the financial resources for the purchase of emission allowances outside the borders of the poorest states. If the number of emission allowances allocated to a Member State[5] does not cover its emissions, then the remaining part of its allowances needed for its settlement in the EU ETS must be bought on the market, which causes the transfer of financial resources, whereas these resources should be used for its internal transformation, particularly, in the poorest Member States.

Introduction

The revision of Directive 2003/87/EC (hereinafter referred to as the EU ETS Directive), as presented by the European Commission (EC), which is one of the key elements of the "Fit for 55" package, proposed an increase in the GHG emission reduction target in the EU ETS from 43% now in effect to 61% in 2030 compared with 2005. The consequence of the proposed change in the reduction target will be a faster decrease in the number of allowances available for installations in the EU ETS, which will affect the allowance volumes at the disposal of both the EU-27 Member States and the EU ETS compliance operators. At the same time, in line with the Conclusions of the European Council of 11 December 2020[6], this change should be considered in the context of the need to resolve the problem of historical disproportions and allowance deficits of the Member States which are the beneficiaries of the Modernisation Fund (MF). It is all the more important as the disparities in the distribution of allowances among Member States additionally increase the transition costs, in particular, in the States which must incur the high costs of climate policy. As the climate policy targets are strengthened, the need to accelerate the expenditures on investments grows, particularly, in the energy sector. First, these resources will come from the EU ETS, including the Modernisation Fund dedicated for this purpose. These resources should be adequately scaled and immediately released so as to eliminate

[5] The allowances allocated to a given Member State as part of the auction pool, awarded free of charge to installations in the territory of that State and available in the Modernisation Fund.

[6] https://www.consilium.europa.eu/media/47337/1011-12-20-euco-conclusions-pl.pdf (accessed on: 30.11.2021 r.).

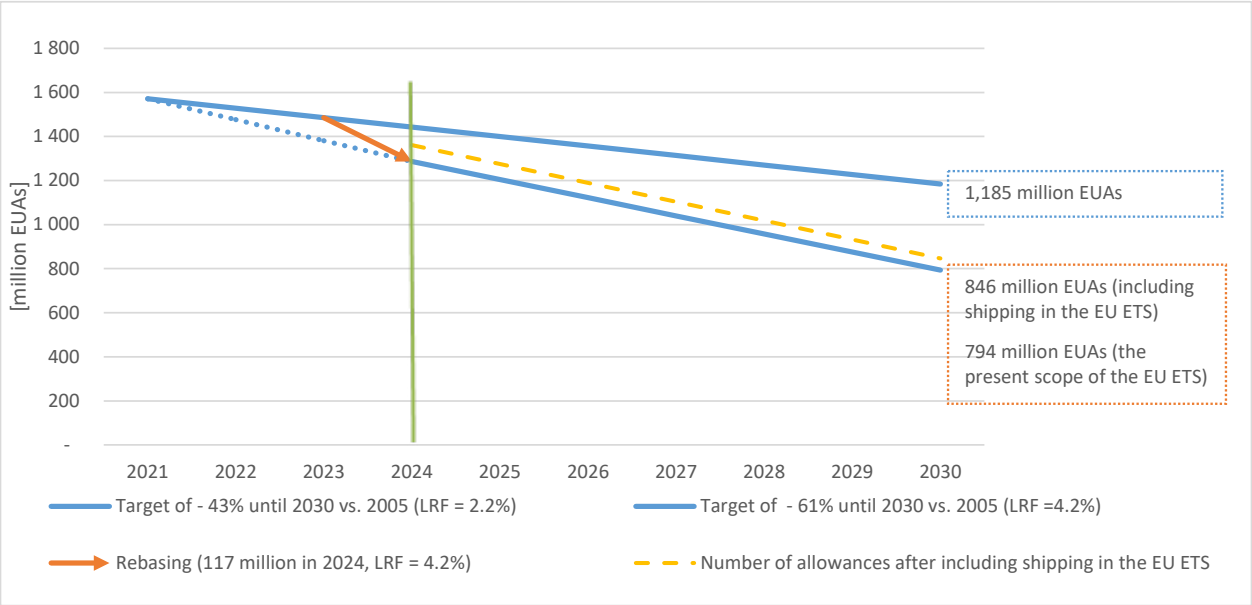
a long-term burden on the whole economy and society caused by high energy prices.

The present article and the analysis which was carried out estimated the effect of the changes in the EU ETS as proposed by the European Commission as part of the "Fit for 55" package, in particular, those including the LRF and MSR, on the allowance volumes at the disposal of the EU-27 Member States and analysed the balances of emission allowances within the EU ETS in EU Member States in the historical period from 2008 to 2020 and in the future period until 2030.

Changes in the total number of allowances in the EU ETS

In accordance with the provisions now in effect in the EU ETS, the total number of allowances is calculated on the basis of data from 2013, with the quantity of allowances determined for that year reduced annually, in a linear manner, by a constant value set out by the linear reduction factor (LRF). The LRF factor of 2.2% came into effect in 2021. Its value translates into an annual reduction of allowances by about 43 million. In order to achieve the new reduction as proposed in the "Fit for 55" package for the EU ETS, i.e. 61% in 2030 compared with 2005, the number of allowances will be reduced annually by the LRF factor of 4.2%. The increase in the LRF factor from 2.2% to 4.2% means that, instead of 43 million EUAs, about 82 million EUAs will be reduced annually. If shipping is taken into account as an additional sector incorporated into the EU ETS under the "Fit for 55" package, the LRF value of 4.2% will represent a reduction by about 86 million EUAs. Account should also be taken of so-called "rebasing" (or "a one-off mechanism") as proposed by the European Commission, i.e. a one-off reduction of allowances in the EU ETS. Assuming that the new regulations come into effect from 2024, the rebasing will be about 117 million (the reduction

CHART 1. THE REDUCTION IN ALLOWANCES IN THE EU ETS (EU-27 + EFTA) RESULTING FROM A CHANGE IN THE LRF FACTOR FROM 2.2% TO 4.2%, IN ACCORDANCE WITH THE "FIT FOR 55" PACKAGE (EXCLUDING AVIATION).



Source: Own elaboration by KOBiZE.

level is expected to represent linearly the emission reduction from 2021 with the new LRF of 4.2%). In turn, after shipping is incorporated into the EU ETS, the rebasing would be about 122 million EUAs.

All the allowances available in the EU ETS in the period from 2021 to 2030 are divided into: the auction pool, the free allocation and the Funds, including the Modernisation Fund (MF) and the Innovation Fund (IF). The allowances which were not used in the previous trading period can be banked to the current period. This applies to both the allowances kept in the installation accounts and the allowances distributed as part of the so-called primary market by the States covered by the EU ETS or on behalf of these States. The New Entrants Reserve (NER[7]) can be given here as an example of this; it is supplied with unused free allowances from the 2013 – 2020 period.

In practice, the rules governing the allocation of allowances are very complicated and, as a final effect, the determination of the auction pool primarily entails the need to project the operation of the MSR.

Increase in the Modernisation Fund (MF)

In addition to a change in the LRF itself, the revision of the EU ETS Directive as proposed by the European Commission provides, in addition, for a number of other modifications, such as an increase in the MF (by an additional 2.5%) or the revision of the functioning of the MSR.

It seems that from the point of view of less affluent EU Member States, an increase in the MF is a positive amendment. The changes proposed in the MF consist in that, in addition to 2% of the total number of allowances available in the period from 2021 to 2030, the Fund will additionally be supplied with 2.5% of the total number of allowances (including the new sector in the EU ETS, i.e. shipping) in the period calculated from the year following the entry into effect of the EU ETS Directive (probably 2024) until 2030. It should be noted that Poland's share in the present 2% MF pool is 43.41% (10 Member States participates with a GDP per capita below 60% of the EU average in 2013). In turn, this share will be smaller in the additional 2.5% pool and amount to 34.8% (12 Member States participates including, in addition, Greece and Portugal), since the new part of the Fund is distributed among Member States with a GDP per capita below 65% of the EU average in the period from 2016 to 2018. It should be noted that the increase in the MF itself does not cause an increase in the total number of allowances available for installations in the EU ETS, but only affects the manner of their redistribution among States. The MF is increased by decreasing the auction pool.

[7] The New Entrants Reserve (NER) is the pool of emission allowances intended for new installations and installations increasing their operations or extended which are covered by the scope of the EU ETS and eligible for an additional free allocation.

TABLE 1. SHARES OF MEMBER STATES IN THE 2% AND 2.5% COMPONENTS OF THE MF UNDER THE "FIT FOR 55" PACKAGE.*

Member State	Share in 2%	Additional 2.5% in 2024 to 2030	Effective share in MF 4.5%
BG	5.84%	5.00%	5.47%
CZ	15.59%	12.90%	14.41%
EE	2.78%	2.20%	2.52%
HR	3.14%	2.30%	2.77%
LV	1.44%	1.10%	1.29%
LT	2.57%	1.90%	2.27%
HU	7.12%	5.90%	6.58%
PL	**43.41%**	**34.80%**	**39.63%**
RO	11.98%	9.90%	11.07%
SK	6.13%	4.90%	5.59%
EL	0.00%	10.30%	4.53%
PT	0.00%	8.80%	3.87%
EU+EFTA	100%	100.00%	100.00%

** Excluding the voluntary transfer of allowances of certain Member States to the MF from their auction pools.*

Source: Own elaboration by KOBiZE.

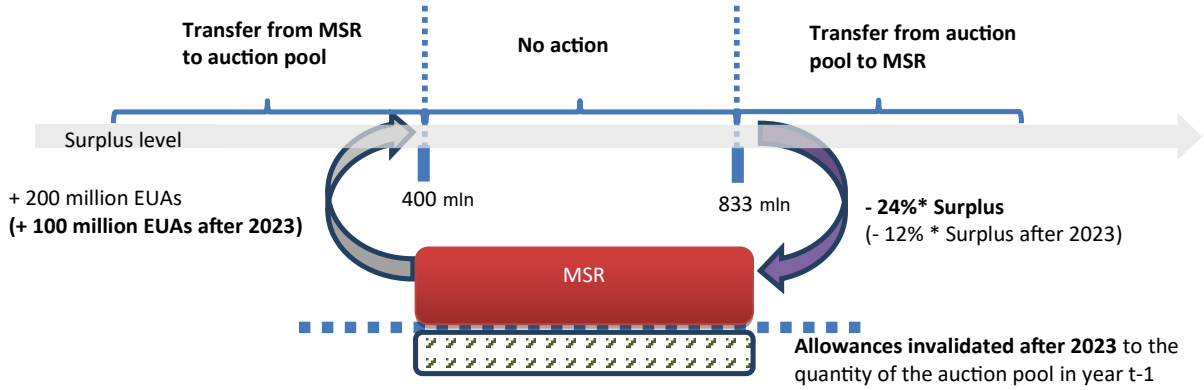
Member States can also voluntarily increase their shares in the MF. In accordance with the EU ETS Directive, the States can transfer to the MF a part of their auction allowances volumes resulting from their shares in the so-called solidarity component of the key to the allocation of the auction pool (i.e. from the "10% component") and 40% of the part allocated on the basis of historical emissions (the "90% component"). Such an opportunity has now been used by the Czech Republic, Latvia, Lithuania, Romania and Slovenia which have transferred to the MF, as a total, about 370 million auction allowances. It can be expected that after the auction pool is decreased as a result of the revision of the EU ETS Directive (in line with the "Fit for 55" package) their additional contribution to the MF will also diminish proportionately; this was taken into account in the further estimates presented in this article.

Changes in the Market Stability Reserve (MSR)

The MSR revision as proposed in the "Fit for 55" package can have a very large effect on the Member States's auctioned volumes. It should be recalled that the MSR is designed to automatically adjust the number of allowances sold at auctions on the primary market depending on the so-

called total number of allowances in circulation (TNAC), or simply the allowance surplus in the EU ETS. Given the fact that more allowances than the upper reserve threshold defined as 833 million are in circulation, starting in 2019 the auctioned volumes have been successively reduced resulting from the 24% intake rate[8] (the rate of the transfer of allowances to the MSR). Originally, this rate applied only to the 2019-2023 period, to be subsequently reduced to 12% in 2024-2030 period. For the 24% intake rate and a surplus of less than 400 million (the lower threshold of the MSR), 200 million allowances would be transferred from the MSR to the auction pool, whereas for of a rate of 12% only 100 million would return to the auction pool. In addition, from 2023 if the volume of allowances held in the MSR exceeds the total volume of allowances auctioned in the previous year any excess allowances will be permanently invalidated. Fig. 1 shows the present operation of the MSR.

FIG 1. OPERATION OF THE MARKET STABILITY RESERVE (MSR) EXCLUDING THE CHANGES UNDER THE "FIT FOR 55" PACKAGE.



Source: Own elaboration by KOBiZE.

The proposal for an amendment to the ETS Directive as presented by the European Commission provides, among others, for the strengthening of the operation of the MSR, i.e. for faster and more effective reduction of the surplus by decreasing the number of allowances available on auction pool. A list of changes in the MSR as proposed by the European Commission is shown below, the first two of them can significantly affect the EUA prices:

1) Leaving MSR intake rate at the level of 24% until the end of 2030 r. (previously it was applied until 2023, to be subsequently reduced to 12%).

2) The invalidation mechanism in the MSR from 2023 would change in such a way that that 400 million EUAs would remain in the Reserve. All the allowances excessing this number will be invalidated.

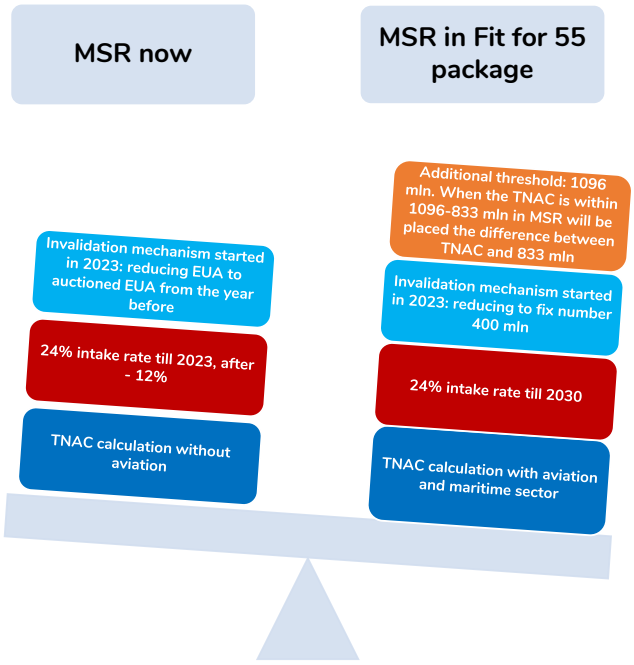
[8] A rate applied to the number of allowances in circulation (TNAC).

3) Leaving the main MSR thresholds unchanged (833-400 million); however, the new provisions would introduce an additional MSR threshold (1,096- 833 million) to prevent the so-called "threshold effect", i.e. the situation where the surplus level would fluctuate just around the upper MSR threshold (833 million). The additional threshold means that when the surplus falls between 1,096 million and 833 million, the difference between the surplus level and the 833 million threshold will go to the Reserve. It is worth noting that, in practice, the additional threshold can mean a mitigation of the effect of the increased 24% intake rate (less than 24% of the allowance surplus can go to the Reserve when the surplus is smaller than 1,096 million EUAs).

4) Changing the manner of calculating the number of allowances in circulation (TNAC) by taking into account the aviation and maritime sector newly incorporated into the EU ETS. Failure to take the aviation sector into account at present has led to the situation where the allowance surplus determined annually and published by the EC was different from the real one. All the more so as the airline operators could after all use the allowances for stationary installations to account for their own emissions; this is now not taken into account when calculating this surplus.

Fig. 2 illustrates comparatively the changes in the MSR resulting from the amendment to the EU ETS Directive as proposed by the EC in the "Fit for 55" package.

FIG 2. CHANGES IN THE MSR PROPOSED IN THE "FIT FOR 55" PACKAGE.



Source: Own elaboration by KOBiZE.

Analysed scenarios of changes in the EU ETS

The analysis of the quantity of the auction pool (taking into account the operation of the MSR) and the assessment of the amount of the Modernisation Fund were carried out for the following scenarios:

Baseline – reflecting the present provisions of the EU ETS Directive (among others, the 43% reduction target in the EU ETS until 2030, LRF of 2.2%, MF of 2%, the MSR as now). **The projections of emissions in the EU ETS for EU Member States were adopted after the publication *"EU reference scenario 2020, Energy, transport and GHG emissions – trends to 2050"* (De Vita, A., et al., 2021).** In turn, the projections of emissions for States outside the EU which are covered by the EU ETS (i.e. Iceland, Lichtenstein and Norway) come from their National Communications prepared for the purposes of the United Nations Framework Convention on Climate Change (UNFCCC).

Fit for 55 – reflecting the amendments to the EU ETS Directive, in accordance with the published "Fit for 55" package (the reduction target in the EU ETS until 2030 – 61%, LRF from 2024 – 4.2% and rebasing of 117.28 million, MSR intake rate – 24% until 2030, the additional threshold of 1,096-833 million, leaving 400 million allowances in the MSR as part of the allowance invalidation mechanism from 2023, aviation and maritime transport taken into account in the calculation of the TNAC. An additional increase in the MF (in addition to 2% of the pool of 2021-2030) with 2.5% of the pool of 2024-2030, an increase in the Innovation Fund by 50 million. The necessary scale of a change (reduction) in emissions relative to the baseline scenario as determined for the Fit for 55 scenario, resulting from a change in the supply of allowances in the EU ETS, came from the CarbonPIE model and amounted, respectively, to - 10% in 2025 and -24% in 2035.

TABLE 2. ANALYSED SCENARIOS IN THE EU ETS UNTIL 2030.

Scenario	Reduction target in the EU ETS	LRF	FM	MSR	FI
Baseline	43%	2.2%	2% of the pool of 2021-2030	• MSR intake rate – 24% (until 2023) and 12% (2024-2030); • Thresholds of 833-400 million	400 million + 50 million sold in 2020
Fit for 55	61%	• rebasing of 117.28 million (stationary installations) + 5.03 million (shipping) ; • 4.2% (from 2024)	• 2% of the pool of 2021-2030; • 2.5% of the pool of 2024-2030.	• MSR intake rate – 24% (the whole period); • Thresholds of 833-400 million + the additional threshold of 1,096-833 million TNAC (including aviation and maritime transport).	• 400 million + 50 million sold in 2020. • Additional 50 million from the allowance pool in the EU ETS[9]

Source: Own elaboration by KOBiZE.

[9] No account was taken of the 150 million allowances from the additional ETS for road transport and households, given that in the present EU ETS it is impossible to account for allowances in the new scheme.

What do the changes proposed in the EU ETS mean?

a. Modernisation Fund

Although the 2%-based MF was increased by additional 2.5% (of the total allowance pool[10]) in the scenario providing for the implementation of the "Fit for 55" package, the real number of allowances available as part of this mechanism grew only by about 52% from 276 to 439 million EUAs. The main reason for this is the diminishing number of allowances in the EU ETS scheme from 2024 as the result of an adjustment of the LRF and the introduction of rebasing mechanism. Chart 2 shows the shares of the particular Member States in the MF. In the MF components representing 2% and 2.5% of the total number of allowances, Poland remains the main beneficiary, increasing its number of allowances in the MF from about 120 million to 174 million after the implementation of the "Fit for 55" package. However, Poland's relative share in the proposed increased Fund diminishes from 43.41% to about 39.63% (Table 1), since additional States, i.e. Greece and Portugal, join the 2.5% component.

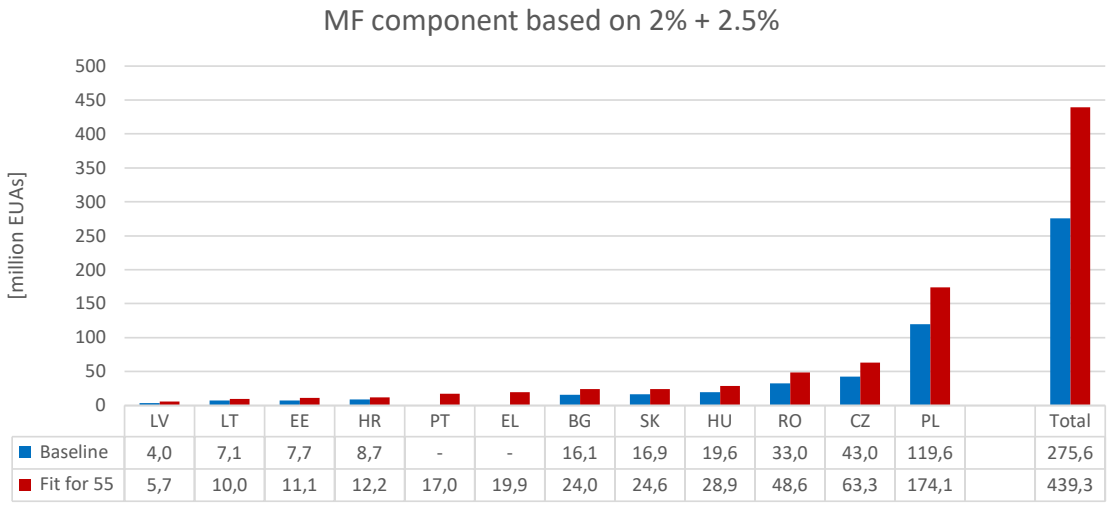
An analysis of the total amount of the MF, taking into account the voluntary transfers of certain Member States, indicates that Romania and the Czech Republic have the largest shares in it. In the case of these two States, a voluntary transfer is a very significant part of their shares in the MF. Although the MF would be increased after the implementation of the "Fit for 55" package by an additional 2.5%, Poland takes only a third place in terms of the total size of the MF (given the lack of a voluntary transfer of allowances). A voluntary transfer of allowances from the auction pool to the MF causes a decrease in the revenues to the state budget from the sales of auction allowances.

In the MF components representing 2% and 2.5% of the total number of allowances, Poland remains the main beneficiary, increasing its number of allowances in the MF from about 120 million to 174 million after the implementation of the "Fit for 55" package. However, Poland's relative share in the proposed increased Fund diminishes from 43.41% to about 39.63% (Table 1), since additional States, i.e. Greece and Portugal, join the 2.5% component.

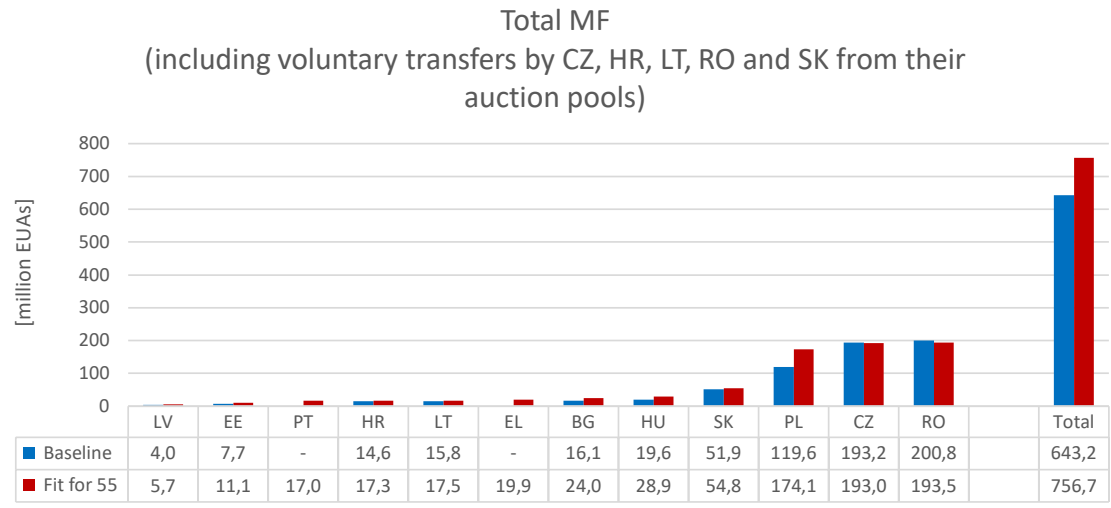
It should be noted that at present each Member State controls the spending of auction allowances, whereas the financial resources available in the MF must be earmarked for the implementation of investments defined in the EU ETS Directive (Article 10d). Although, in accordance with the EU ETS Directive, already now 50% of the resources (and 100% of the resources in accordance with the proposal under the "Fit for 55" package) from the sales of auction allowances must also be spent on specific climate objectives, still in this case there is greater flexibility of disposing of them.

[10] The MF share in the 2% component is calculated from the total number of allowances in the EU ETS in the period from 2021 to 2030. In turn, the additional 2.5% component of the MF relates to the period from the assumed entry into effect of the "Fit for 55" package, i.e. 2024 to 2030.

CHART 2. MF SHARES BY MEMBER STATE.



	LV	LT	EE	HR	PT	EL	BG	SK	HU	RO	CZ	PL		Total
Baseline	4,0	7,1	7,7	8,7	-	-	16,1	16,9	19,6	33,0	43,0	119,6		275,6
Fit for 55	5,7	10,0	11,1	12,2	17,0	19,9	24,0	24,6	28,9	48,6	63,3	174,1		439,3



	LV	EE	PT	HR	LT	EL	BG	HU	SK	PL	CZ	RO		Total
Baseline	4,0	7,7	-	14,6	15,8	-	16,1	19,6	51,9	119,6	193,2	200,8		643,2
Fit for 55	5,7	11,1	17,0	17,3	17,5	19,9	24,0	28,9	54,8	174,1	193,0	193,5		756,7

Source: Own elaboration by KOBiZE.

It should be noted that Poland plans to set up a special national fund (i.e. the Energy Transformation Fund – FTE), based on the revenues from auctioned allowances in order to support the transformation of the energy sector in addition to the MF. The FTE revenues will include the resources gained from sales at auctions of:

- 40% of the annual volume of EUA's in the period from 2021 to 2030,
- 50% of the volume of EUA's in 2021 which have not been issued as part of derogation to electricity generating installations in the period from 2013 to 2020.

It can be estimated that as a total in the period from 2021 to 2030 this will be about 248 million allowances which Poland will earmark from its auction pool for the FTE. Adding these allowances to the amount of the Polish share in the MF, Poland will acquire many more resources for the transformation of the energy sector than Romania and the Czech Republic. However, Poland's needs are also very high.On the basis of the CAKE report „Polska net-zero 2050: Mapa drogowa osiągnięcia wspólnotowych celów polityki klimatycznej dla Polski do 2050 r."[11] ["Poland net-zero 2050. The roadmap toward achievement of the EU climate policy goals in Poland by 2050.

[11] Pyrka, M., Jeszke, R., Boratyński, J., Tatarewicz, I., Witajewski-Baltvilks, J., Rabiega, W., Wąs, A., Kobus, P., Lewarski, M., Skwierz, S., Gorzałczyński, A., Tobiasz, I., Rosłaniec, M., Cygler, M., Sekuła, M., Krupin, V. "Polska net-zero 2050: Mapa drogowa osiągnięcia wspólnotowych celów polityki klimatycznej dla Polski w 2050 r.", CAKE/KOBiZE/IOŚ-PIB, Warsaw, June 2021.

Summary."[12] – full report in Polish, summary in English] of June 2021, the projected investment outlays for the energy sector in the scenario providing for an increased reduction target[13] amount in Poland to about EUR 45.6 billion[14]. In turn, when considering the allowance[15] prices projected by the CAKE in the same report at about 100 EUR/t in 2030, the revenues from the sales of allowances from the MF can be estimated at about EUR 12.97 billion. When combined with the estimated revenues of about EUR 17.27 billion from the FTE, this would produce a total value of about EUR 30.24 billion. So it is approximately about 60% less that the projected investment outlays on new generating capacity in the energy sector. Table 3 gives detailed information on the estimated values of the resources available from the MF and the FTE in Poland.

TABLE 3. RESOURCES FOR THE TRANSFORMATION OF THE ENERGY SECTOR AVAILABLE FROM THE MF AND THE FTE IN POLAND.

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2021 – 2030
MF [million EUAs]	11.96	11.96	11.96	19.74	19.74	19.74	19.74	19.74	19.74	19.74	174.06
FTE [million EUAs]	45.52	24.83	24.12	19.59	19.92	22.60	26.11	24.44	21.38	19.88	248.39
Number of allowances in the MF and FTE [million EUAs]	57.48	36.79	36.08	39.33	39.66	42.34	45.85	44.18	41.12	39.62	422.45
Allowance price [EUR/EUA]	48.21	53.39	58.57	63.75	68.92	74.10	79.28	84.46	89.64	100.00	-
Financial resources in the MF and FTE [EUR billion]	**2.77**	**1.96**	**2.11**	**2.51**	**2.73**	**3.14**	**3.63**	**3.73**	**3.69**	**3.96**	**30.23**

** The average allowance price from the ICE/EEX determined from January to October 2021.*

Source: Own elaboration by KOBiZE.

b. Auction pool and the operation of the Market Stability Reserve (MSR)

The achievement of the assumed emission reduction targets requires a systematic decrease in the number of allowances in the EU ETS. For the value of the reduction target currently set at 43% in 2030 (the baseline scenario) the total number of auction allowances within the EU ETS in the period from 2021 to 2030, taking into account the transfers in the MSR, is about 4,350 million. The change of the target from 43% to 61%, in accordance with the "Fit for 55" scenario, causes in the period from 2021 to 2030 a decrease in the abovementioned pool of auction allowances to 3,830 million; hence, about 12% fewer allowances than now will be available at auctions.

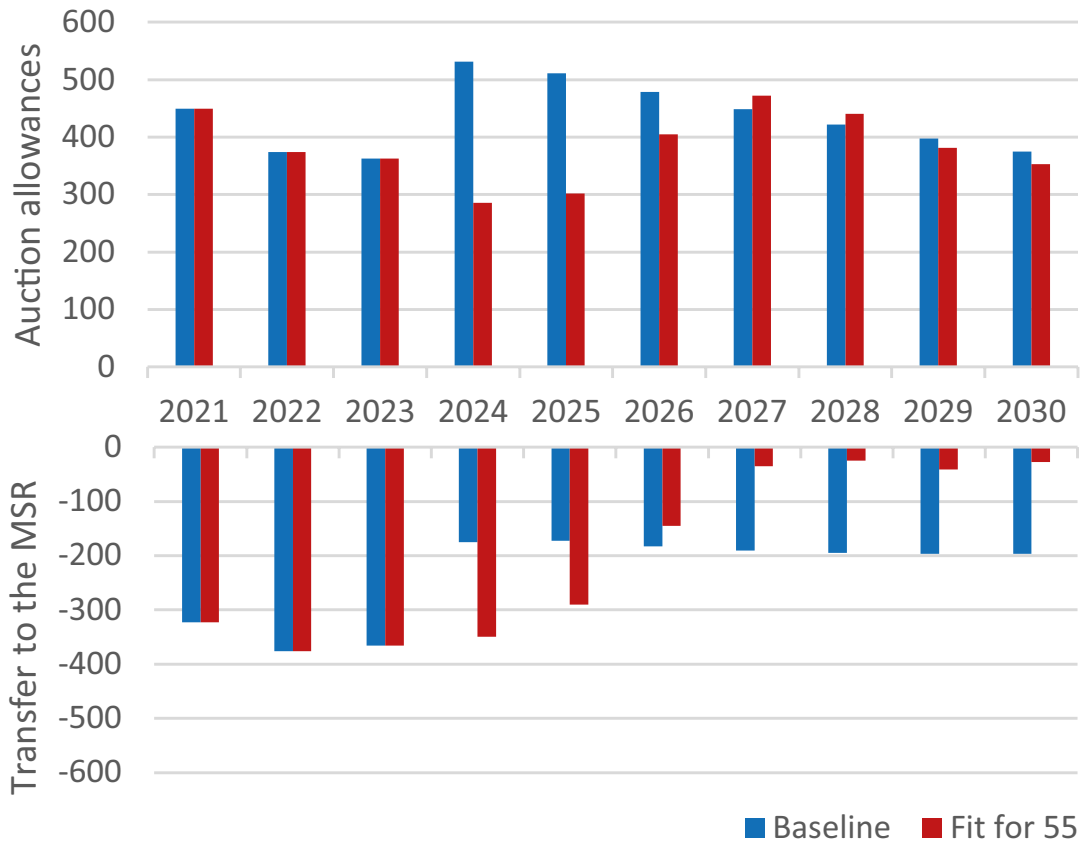
[12] Pyrka M. et al., "Poland net-zero 2050. The roadmap toward achievement of the EU climate policy goals in Poland by 2050. Summary.", CAKE/KOBiZE/IOŚ-PIB, Warsaw, June 2021..

[13] The values in the CAKE report as given here relate to the neutrality scenario (NEU), providing, among others, for the achievement of a GHG reduction target of 60% in the EU ETS in 2030 compared with the emissions in 2005. The whole report is available on the website www.climatecake.pl.

[14] The reported investment outlays include solely investments in new generating units (including capacity reserve units) and energy storage. They do not include expenditures on the expansion and modernisation of the transmission and distribution networks (both electricity and heat), or the modernisation of existing generating units.

[15] For the purposes of this article, it is assumed that the EUA prices are equal to the marginal emission reduction costs in the EU ETS. Moreover, the marginal reduction cost presented in the CAKE report can be different from the emission allowance price, since, among others, no account is taken of the role of financial institutions whose activities have significantly grown on the EU ETS market.

CHART 3. NUMBER OF AUCTION ALLOWANCES AND THE TRANSFER TO THE MSR [MILLION EUAs].



Source: Own elaboration by KOBiZE.

From the beginning of the period analysed the number of allowances decreases as the result of the operation of the MSR. No scenario involves a return transfer of allowances from the MSR to the market until 2030. The allowance surplus is reduced more quickly in the "Fit for 55" scenario; however, it does not fall below the 833 million threshold until 2030, staying close to the upper value of the threshold from 2025. In the baseline scenario, the allowance surplus remains high and from 2024 to 2030 it takes values from 1,500 to 1600 million. As a result of this, the total number of allowances transferred in the period from 2021 to 2030 to the MSR is higher in the baseline scenario (about 2400 million) than in the "Fit for 55" scenario (about 2,000 million). This means that the proposed revision of the MSR will reduce more quickly the allowance surplus on the market, significantly increasing the annual transfers of allowances to the MSR in 2024 and 2025. However, the differences found in the transfers of allowances to the MSR between the scenarios do not only result from the MSR reform, but are also an effect of other proposed changes in the EU ETS, i.e. the application of the rebasing of 117 million (including about 122 million EUAs for shipping in the EU ETS) in 2024 and the change of the LRF from 2.2% to 4.2%.

> The proposed revision of the MSR will reduce more quickly the allowance surplus on the market, significantly increasing the annual transfers of allowances to the MSR in 2024 and 2025.

When considering a hypothetical variant in the "Fit for 55" scenario providing that from 2023 the intake rate would diminish from 24% to 12% (as in the baseline scenario), the number of allowances

transferred to the MSR would fall to about 1850 million in the period from 2021 to 2030. In turn, the surplus would also be effectively eliminated, to reach from 2027 a value close to that projected in the original "Fit for 55" scenario, i.e. one fluctuating near the upper threshold of the operation of the MSR (833 million). This can demonstrate that maintaining the intake rate at an increased level of 24% after the change in the LRF and the rebasing in 2024 causes deeper emission reductions through the operation of the MSR (as the result of a larger transfer of allowances to the MSR). This, in turn, can cause an additional increase in the EUA prices in the period from 2024 to 2026. In contrast, this will not affect the achievement of the reduction target in 2030.

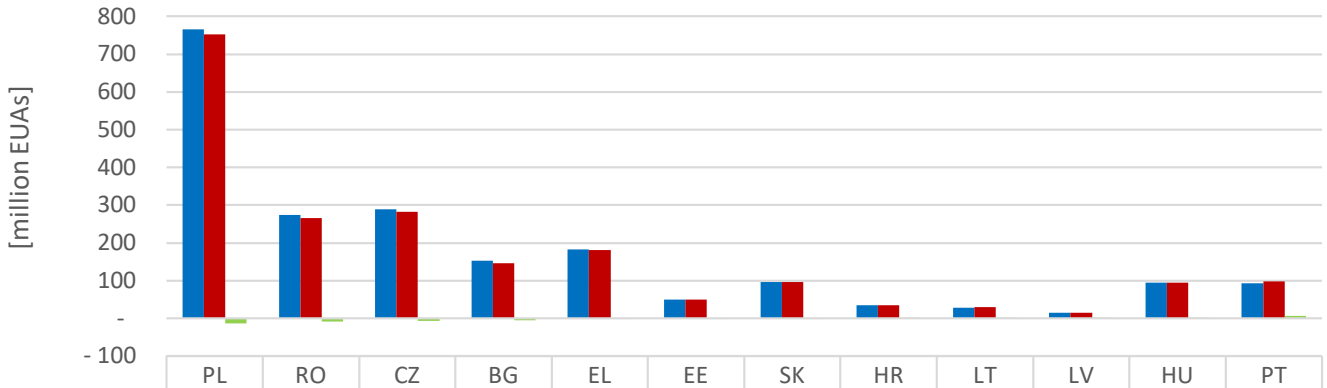
In theory, the EU ETS includes a mechanism protecting against an excessive increase in the allowance prices which allows for the release of additional 100 million allowances on the market. This is the so-called mechanism under Article 29a of the EU ETS Directive which can be launched "If, for more than six consecutive months, the allowance price is more than three times the average price of allowances during the two preceding years on the European carbon market"[16]. However, it follows from the market observations that even in the case of very strong recent increases in the allowance prices this criterion was not met and there was no reaction in the form of an increase in the auction pool[17]. The mechanism could turn out to be of crucial importance for protecting the operators functioning in the EU ETS, if its operation were appropriately accelerated by mitigating the price criterion (e.g. as in the UK scheme the prices would have to be twice rather than three times higher). In this context, it should also be considered whether a constant number of allowances (400 million) which will be available in the MSR (as a result of the allowance invalidation mechanism from 2023) is sufficient in case of potential market interventions (particularly, after 2030). This is a very important argument for limiting this mechanism to some extent (so that there are appropriately more allowances in the MSR) or even eliminating it completely. Otherwise the scheme will not have no real flexibility which would allow it to ensure greater stability of EUA prices. As estimated by the CAKE/KOBiZE, in both the baseline and the "Fit for 55" scenarios, about 3,300 – 3,400 million EUAs would be cancelled in the MSR in the period from 2023-2030. This means that these allowances would never return to the market.

Chart 4 shows the numbers of available allowances within the auction pool and the Modernisation Fund in the period from 2021 to 2030 depending on the scenario adopted. The results are listed for the States which are the beneficiaries of the MF. In consequence of the proposed EU ETS reform (the "Fit for 55" scenario), Poland loses 13 million allowances in the whole period from 2021 to 2030 compared with the regulations now in effect (the baseline scenario). A slight change in the number of allowances available for Poland is caused mainly by the inclusion of shipping in the EU ETS in the "Fit for 55" scenario. If shipping is not included in the EU ETS in the "Fit for 55" scenario, the number of auction allowances and those available within the MF for Poland would decrease by about 60 million. As estimated by the CAKE/KOBiZE, in the period from 2021 to 2030, Poland will have to transfer 276 million from the auction pool to the MSR in the baseline scenario and about 218 allowances in the "Fit for 55"scenario, moreover a substantial part of these allowances will be cancelled.

[16] Pursuant to Article 29a of the EU ETS Directive and Article 1(7) of the MSR Decision.

[17] Jeszke, R., Lizak, S., Reflections...(2021).

CHART 4. TOTAL NUMBER OF AUCTION ALLOWANCES AND THOSE WITHIN THE MF IN THE PERIOD FROM 2021 TO 2030.



	PL	RO	CZ	BG	EL	EE	SK	HR	LT	LV	HU	PT
Baseline	765	275	289	152	182	50	97	34	29	14	94	92
Fit for 55	752	266	283	147	180	49	96	35	30	15	95	98
Difference	- 13	- 8	- 7	- 6	- 2	- 1	- 1	1	1	1	1	6

(*) The number of auction allowances for Poland, excluding 34.5 million EUAs sold in 2021 and those originating from the derogation in the period from 2013 to 2020.

Source: Own elaboration by KOBiZE.

The quantity of the auction pool shown in Chart 4 does not include allowances which have not been freely allocated and may appear at auctions after the implementation of the Carbon Border Adjustment Mechanism (CBAM). In its currently proposed form, the CBAM includes provisions stopping the allocation of a part of free allowances to the sectors which will be covered by this mechanism.

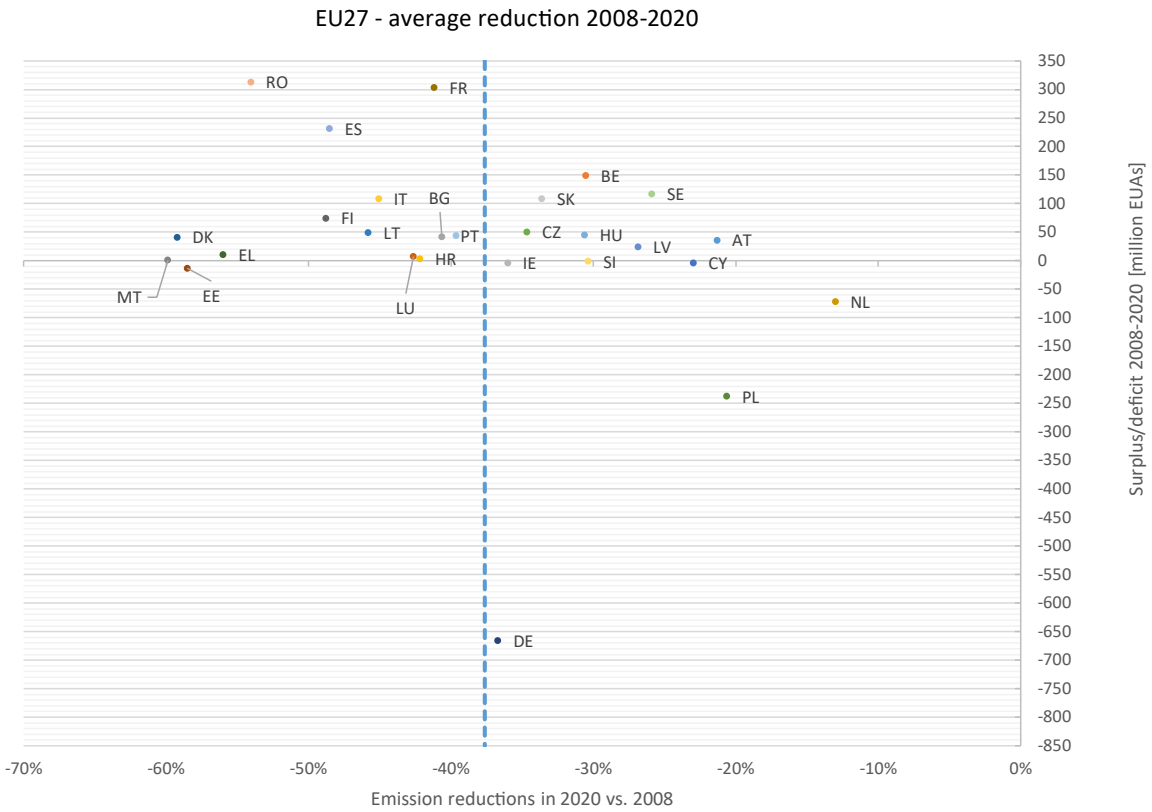
Analysis of the allowance deficits/surpluses in EU Member States

The Conclusions of the European Council of 11 December 2020 which mandated the European Commission to work on the amendment to the EU ETS Directive as included in the "Fit for 55" package are important for the analysis of the emission allowance deficits in Member States. Item 18 of those Conclusions provided that the future legislation would address the problem of imbalances for Member States which were beneficiaries of the Modernisation Fund (MF). The problem consisted in that they did not receive revenues which were equivalent to the costs paid by the installations covered by the EU ETS in those Member States. This item did not specify what measures would be taken to this end. However, it obliged the EU legislator to increase the allocation of allowances as part of the EU ETS in such a way as to balance the number of allowances and the expected emission levels from the installations covered by the EU ETS within a given State. Ultimately, in the proposed amendment to the Directive of 14 July 2021, the EC increased the MF by an additional 2.5%. At this point, the question arises as to whether such a measure designed to increase the resources in the MF will turn out to be sufficient to balance the costs of the functioning of the EU ETS with the revenues of the States referred to in item 18 of the Conclusions mentioned above. In Poland's case, the proposed measure leads to an increase in the national share in the MF by 47 million in the period from 2021 to 2030; thus, on a mean annual basis, this is only 4.7 million allowances.

In addressing this problem, in its first step, Table 1 shows historical data reflecting the emission reductions by Member States in the EU ETS from 2008 to 2020 and the corresponding data on the allowance surplus or deficit. The initial year, i.e. 2008, was chosen since it had been impossible earlier to transfer allowances between the first trading period (2005-2007) and the second one (2008-2013) in the EU ETS. Because of this, the first trading period (the pilot one) was not considered in the analysis, since it had no effect on the arising allowance surplus. A comparison of the amount of the allowance surplus/deficit with the emission reductions in the period from 2008-2020 shows that not all the States which had relatively large allowance surpluses significantly contributed to emission reductions in the EU ETS.

For example the States which achieved small emission reductions and had allowance surpluses included Latvia (-27% vs. +24 million), Austria (-21% vs. +35 million) and Sweden (-26% vs. +117 million). The latter two States achieved emission reduction levels which were close to that of Poland; however, Poland had a very large deficit (238 million) compared e.g. with Sweden. The difference between Sweden's surplus and Poland's deficit was about 355 million. Reductions below the EU average were also achieved by such States as Belgium, Slovenia, Hungary and the Czech Republic, but, despite this, they had allowance surpluses. There were also States, e.g. Estonia, which, despite large emission reductions, had allowance deficits. Poland, Germany and the Netherlands had the largest allowance deficits. It should be added that Germany and the Netherlands are much more affluent States than Poland (the real GDP per capita in these States is about three times higher than that of Poland).

CHART 5. ALLOWANCE DEFICIT/SURPLUS COMPARED WITH THE REDUCTION TARGET ACHIEVED IN MEMBER STATES IN 2008-2020.



	BG	CZ	EE	HR	LV	LT	HU	PL	RO	SK	EL	PT
Deficit/surplus 2008-2020 [million]	42	50	-13	3	24	48	45	**-238**	313	108	10	44
GHG emission reduction in 2020 vs. 2008 [%]	-41	-35	-59	-42	-27	-46	-31	**-21**	-54	-34	-56	-40

Source: Own elaboration by KOBiZE.

An analysis of historical data indicates that the reduction efforts of Member States do not necessarily coincide with their having a positive balance or a slight deficit of allowances. This can indicate that the problem of an allowance deficit is a serious one, has a structural character resulting from the method for the allocation of allowances in the EU ETS and is not necessarily solely an effect of deficiencies in the reduction efforts of particular Member States in the past.

In addition, it can be seen that the problem of an allowance deficit did not affect in the same way all the Member States which are now covered by the MF. Therefore, an increase in the MF as a whole, without adjusting the shares of Member States in this Fund, is unlikely to bring the appropriate outcome which would implement item 18 of the Conclusions of the European Council of 11 December 2020. To some extent, this thesis is confirmed by historical data which are cited in this article. However, in order to complement the information confirming this thesis, the projections of allowance deficits in the Member States covered by the MF in the period from 2021 to 2030 should also be looked at. An analysis of the future allowance deficits in the Member States covered by the MF required the adoption of additional assumptions, i.e.:

- The quantities of free allocations of allowances were estimated taking into account the historical share of a given country in the pool of free allowances for the period from 2013 to 2020 (excluding Great Britain). For Poland it was assumed that its share in the pool of free allowances (under Article 10a) would be about 7%, as indicated by an analysis of data related to the National Implementation Measures[18] as forwarded to the EC.
- It was assumed that it would not be necessary to apply the cross-sectoral correction factor to adjust the free allocation for an installation, i.e. CSCF[19]= 1.
- No account was taken of the decrease in the allocation of free allowances and the simultaneous increase in the auction pool in the EU ETS which would result from the implementation of the CBAM[20].

[18] Member States are obliged to submit to the EC National Implementation Measures (NIMs), containing a list of installations covered by Directive 2003/87/E in their territory and information on their production, transfers of heat and gases, electricity generation and emissions at the level of sub-installations. The NIMs define the preliminary allocation of free allowances which must be approved by the EC.

[19] The uniform cross-sectoral correction factor (CSCF) applied to adjust the preliminary free allocation of allowances (pursuant to Article 10a(5) and 10a(5a) of Directive 2003/87/EC) to the total number of allocations available in the EU ETS. CSCF = 1 means that an adjustment of the preliminary free allocation of allowances will not be necessary.

[20] The analysis demonstrated a relatively slight effect of this mechanism on the estimated surplus/deficit levels in the period from 2021 to 2030. In Poland's case, the difference in the estimated deficit level after taking the CBAM into account was about 2.5% relative to the scenario considered (without taking the CBAM into account).

- The emissions were projected on the basis of "EU reference scenario 2020, Energy, transport and GHG emissions – trends to 2050" (De Vita, A., et al., 2021). For Poland the calculations were carried out in two variants based on emission projections:

  Variant I – *"EU reference scenario 2020, Energy, transport and GHG emissions – trends to 2050."*

  Variant II – the CAKE report *"Poland net-zero 2050"* ["Polska net-zero 2050" in Polish] of June 2021.

Chart 6 shows the projected surpluses/deficits relative to the projected emissions in the period from 2021 to 2030 in the Member States covered by the MF in the scenario providing for the implementation of the "Fit for 55" package. The results indicate that Poland has the largest allowance deficit of about 583 million in Variant I. The reason for such a large allowance deficit of Poland is, among others, its fairly small share in the auction pool when compared with its projected emission level, combined, in addition, with a decrease in the auction pool as a result of the operation of the MSR.

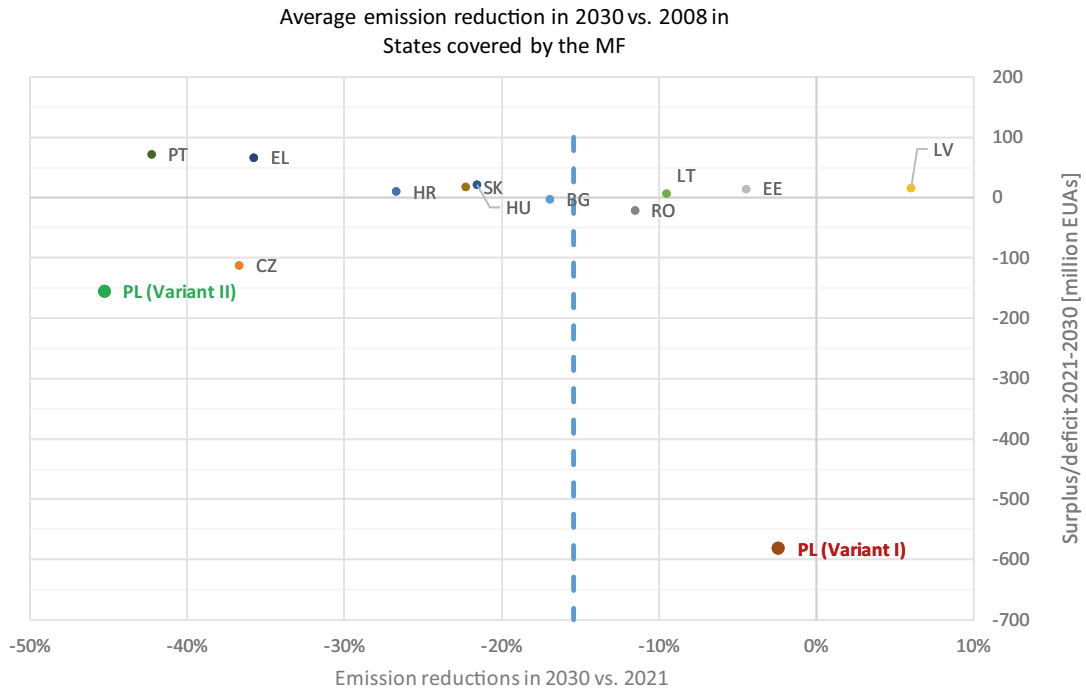
The results indicate that Poland has the largest allowance deficit of about 583 million in Variant I.

Another reason for the emergence of a large deficit is the relatively small increase in the part of the MF earmarked for Poland after the implementation of the "Fit for 55" package. Still another factor affecting the deficit level is the projected emission reduction in the period from 2021 to 2030, which is about 2% for Poland in "*EU reference scenario 2020, Energy, transport and GHG emissions – trends to 2050*".

As indicated by an analysis of the balance of the future emissions and the number of allowances, there is no doubt that Poland's situation is difficult when compared with the other States covered by the MF. Even when comparing the number of allowances to which Poland is entitled in the period from 2021 to 2030 with the more ambitious projection of GHG emission reductions than the one resulting from "EU reference scenario 2020, Energy, transport and GHG emissions – trends to 2050", cited in the CAKE report "Net-zero Poland 2050" of June 2021, it can be demonstrated anyway that Poland will have a large allowance deficit of about 155 million (Variant II). Moreover, in the period from 2021 to 2030 Poland's emission reduction in the EU ETS in the CAKE report "Net-zero Poland 2050" is about 45%.

Even when comparing the number of allowances to which Poland is entitled in the period from 2021 to 2030 with the more ambitious projection of GHG emission reductions than the one resulting from "EU reference scenario 2020, Energy, transport and GHG emissions – trends to 2050", cited in the CAKE report "Net-zero Poland 2050" of June 2021, it can be demonstrated anyway that Poland will have a large allowance deficit of about 155 million (Variant II).

CHART 6. ALLOWANCE DEFICIT/SURPLUS COMPARED WITH THE REDUCTION TARGET ACHIEVED IN MEMBER STATES COVERED BY THE MF IN THE PERIOD FROM 2021 TO 2030.



	BG	CZ	EE	HR	LV	LT	HU	PL	RO	SK	EL	PT
Deficit/ surplus 2021-2030 [million]	- 3	- 112	15	9	15	6	21	**Variant I - 583 Variant II - 155 (*)**	- 21	17	66	71
GHG emission reduction in 2030 vs. 2021 [%]	-17	-37	-4	-27	6	-9	-22	**Variant I - 2 Variant II - 45**	-12	-22	-36	-42

(*) The allowance deficit for Poland does not include 34.5 million EUAs sold in 2021 and those originating from the derogation in the period from 2013 to 2020..

Source: Own elaboration by the KOBiZE.

Conclusions

It follows from the analysis presented here that Poland can become a State which will be the most strongly affected by an allowance deficit among States with the lowest GDP (i.e. those covered by the MF). A side effect of the deficit of a Member State is the need for installations to buy allowances the sales of which, among others, generate revenues to the budgets of other States in the EU ETS. Given the level of Poland's dependence on fossil fuels, it will have to incur large investment outlays related to the transformation of the national energy sector, whilst Poland's financial capacity is relatively small, in light of the level of affluence of its society. Even when taking into account the national resources from the sales of emission allowances within the national Energy Transformation Fund (FTE), the increase in the MF as proposed by the European Commission will be insufficient to finance key changes in the energy sector. In light of this, other sources of financial support will have to be used. The assessment carried out here indicates that the problem of the deficit should be addressed in greater

detail in the proposed amendment to the EU ETS Directive in order to minimise the need for the transfer of resources for the purchase of emission allowances outside the borders of the poorest States. Here, this means the need for installations situated in the territory of a given State to buy additional allowances (exceeding the quantity of free allocation) which are not covered by the revenues of that State from the sales of its auction allowances and those available from the MF. The above financial resources should be earmarked for the purposes of an internal transformation in these States. Some of the resources could also be reallocated to support the introduction of protective schemes for households to prevent the growth of energy poverty which would be caused by increased energy prices as a result of more expensive emission allowances in the EU ETS.

With regard to the MSR reform, there is no doubt that the proposed changes will contribute to reduce the supply of allowances on the market, thus also causing significant increases in the EUA prices, in particular, around 2025. The MSR reform itself will contribute to additional reductions (as a result of a decrease in the number of allowances and an increase in their prices) in the EU ETS relative to those that would only be caused by a change in the LRF (from 2.2% to 4.2%) and by leaving the MSR in its present form. By reducing the auction pool and by causing an increase in the allowance prices, the MSR contributes to the need for enlarging the transfer of resources referred to above in the States which have an allowance deficit. Self-evidently, this process is most painful for the poorest EU Member States. When considering this problem, it should be recalled that the superior goal of the MSR was to eliminate the allowance surplus on the market which emerged not only as a result of the crisis in the period from 2007 to 2009, but also (or perhaps primarily) in consequence of the use of CERs/ERUs[21] in the EU ETS. Moreover, it should be noted that it was the rich EU Member States that used CERs/ERUs to the greatest extent. Unfortunately, the MSR did not differentiate in any way the transfer of allowances on the basis of the share of a given State in the historical generation of the surplus in the EU ETS. In relation to the discussions on the MSR reform and the design of the MF, it is also important to note that the operation of the MSR until 2025 excludes only the auction allowances which constitute the solidarity component in the key to the allocation of the auction pool (the 10% component). Perhaps it is exactly this 10% component that should be changed so as thus to ensure greater solidarity in the allocation of allowances and minimise the problem of imbalances in some of the poorest EU Member States.

As part of the discussion on the reforms proposed by the EC, the essential question arises as to whether the changes strengthening the operation of the MSR mechanism and thus causing an additional increase in the allowance prices in the EU ETS are necessary at all. The allowance surplus resulting from the functioning of the MSR in its present form (without the proposed changes) is and will be successively eliminated, whilst the emissions trading scheme is not expected to ensure a predetermined allowance price which political decision-makers would identify as an appropriate one for stimulating the "required" low-emission investments. Quite on the contrary, the emissions trading scheme is expected to ensure that emissions are reduced at the lowest

[21] Certified Emission Reductions (CERs) and Emission Reduction Units (ERUs) originate from the implementation of projects as part of the Clean Development Mechanism (CDM) and the Joint Implementation (JI) mechanism. CERs and ERUs could be partly used by installation operators to account for their emissions in the EU ETS in the period from 2008 to 2020.

price needed to achieve the intended goal which is expressed through the available number of allowances.

References

1. Błachowicz, A., Jeszke R., Sprawiedliwość w polityce klimatycznej. Jak nowe państwa członkowskie widzą swój udział w „klimatycznym przywództwie" (climate leadership) Unii Europejskiej [Justice in climate policy. How Member States see their participation in the "climate leadership" of the European Union – in Polish], Elektroenergetyka, No. 4 (670) / Year 63, July 2010.

2. Commission Decision of 5 September 2013 concerning national implementation measures for the transitional free allocation of greenhouse gas emission allowances in accordance with Article 11(3) of Directive 2003/87/EC of the European Parliament and of the Council (OJ L 240/27).

3. Decision No 406/2009/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020 (OJ L 140/136).

4. Decision (EU) 2015/1814 of the European Parliament and of the Council of 6 October 2015 concerning the establishment and operation of a market stability reserve for the Union greenhouse gas emission trading scheme and amending Directive 2003/87/EC (OJ L 264/1).

5. Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC (OJ L 275/32, as amended).

6. Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community (OJ L 140/63).

7. Directive (EU) 2018/410 of the European Parliament and of the Council of 14 March 2018 amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments, and Decision (EU) 2015/1814 (OJ L 76/3).

8. European Environment Agency, EU ETS data viewer (https://www.eea.europa.eu/data-and-maps/dashboards/emissions-trading-viewer-1, (accessed on: 15.11.2021).

9. The European Green Deal Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions, COM(2019) 640 final, Brussels, 11 December 2019.

10. Proposal for a Directive of the European Parliament and of the Council amending Directive 2003/87/EC establishing a system for greenhouse gas emission allowance trading within the Union, Decision (EU) 2015/1814 concerning the establishment and operation of a market stability reserve for the Union greenhouse gas emission trading scheme and Regulation (EU) 2015/757, European Commission, Brussels, 14.7.2021, (COM(2021) 551 final).

11. Proposal for a Regulation of the European Parliament and of the Council establishing a carbon border adjustment mechanism,

European Commission, Brussels, 14.7.2021, (COM(2021) 564 final).

12. Jeszke, R., Lizak, S., Reflections on the Mechanisms to Protect Against Formation of Price Bubble in the EU ETS Market, Institute of Environmental Protection – National Research Institute, Warsaw, 2021. Vol. 32, No 2, 2021, pp.8-17., DOI 10.2478/oszn-2021-0005.

13. Conclusions on the Multiannual Financial Framework, the Next Generation EU facility, Covid-19, climate change, security and external relations, European Council, Brussels, 11 December 2020, https://www.consilium.europa.eu/media/47337/1011-12-20-euco-conclusions-pl.pdf, (accessed on: 15.11.2021)

14. Commission Regulation (EU) No 176/2014 of 25 February 2014 amending Regulation (EU) No 1031/2010 in particular to determine the volumes of greenhouse gas emission allowances to be auctioned in 2013-20 (OJ L 56/11).

15. Trotignon R, Jouvet P.A, Solier B, Quemin S, Elbeze J, Chaire Economie du Climat, Lessons on the Impact of a Market Stability Reserve using the Zephyr Model, Universite Paris-Dauphine CDC Climat, WP No. 2015-11, October 2015.

16. Pyrka, M., Tobiasz I., Boratyński, J., Jeszke, R., Mzyk, P. (2020), Zmiana celów redukcyjnych oraz cen uprawnień do emisji wynikająca z komunikatu „Europejski Zielony Ład" ["European Green Deal Impact on the GHG's emission reduction target for 2030 and on the EUA prices. - in Polish".], CAKE/KOBiZE/IOŚ-PIB, Warsaw, March 2020.

17. National energy and climate plans (https://ec.europa.eu/info/energy-climate-change-environment/implementation-eu-countries/energy-and-climate-governance-and-reporting/national-energy-and-climate-plans_en, as of 15.11.2021).

18. Trends and projections in Europe 2020, Tracking progress towards Europe's climate and energy targets, EEA Report, No 13/2020, Luxembourg: Publications Office of the European Union, 2020.

19. Pyrka, M., Jeszke, R., Boratyński, J., Tatarewicz, I., Witajewski-Baltvilks, J., Rabiega, W., Wąs, A., Kobus, P., Lewarski, M., Skwierz, S., Gorzałczyński, A., Tobiasz, I., Rosłaniec, M., Cygler, M., Sekuła, M., Krupin, V. "Polska net-zero 2050: Mapa drogowa osiągnięcia wspólnotowych celów polityki klimatycznej dla Polski w 2050 r.", CAKE/KOBiZE/IOŚ-PIB, Warsaw, June 2021.

20. Pyrka, M., Jeszke, R., Boratyński, J., Tatarewicz, I., Witajewski-Baltvilks, J., Rabiega, W., Wąs, A., Kobus, P., Lewarski, M., Skwierz, S., Gorzałczyński, A., Tobiasz, I., Rosłaniec, M., Cygler, M., Sekuła, M., Krupin, V. (2021). "Poland net-zero 2050. The roadmap toward achievement of the EU climate policy goals in Poland by 2050. Summary.", CAKE/KOBiZE/IOŚ-PIB, Warsaw, June 2021.

21. De Vita, A., Capros, P., Paroussos, L , Fragkiadakis, K., Karkatsoulis, P., Höglund-Isaksson, Lena, Winiwarter, Wilfried, Purohit, Pallav, Gómez-Sanabria, Adriana, Rafaj, Peter, Warnecke, Laura, Deppermann, Andre, Gusti, Mykola, Frank, Stefan, Lauri, Pekka, Fulvio, Fulvio di, Florou, A, Kannavou, M., Forsell, Nicklas, Fotiou, T., Siskos, P., Havlík, Petr, Tsiropoulos, I., Evangelopoulou, S., Witzke, Peter, Kesting, Monika, Katoufa, N., Mitsios, I., Asimakopoulou, G., Kalokyris, T., EU reference scenario 2020, Energy, transport and GHG emissions – trends to 2050, ISBN 978-92-76-39356-6, EC, Brussels, 2021.

The role of low- and zero-emission energy technologies on the path to achieving the net zero target in Poland by 2050

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The role of low- and zero-emission energy technologies on the path to achieving the net zero target in Poland by 2050


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Abstract

The acceleration of the process of the transition of the EU economies towards net zero*, combined with the depletion of the potential for relatively simple ways of reducing greenhouse gas emissions (by increasing the share of intermittent RES), makes it also necessary to develop more expensive technologies providing low- and zero-emission electricity, like BECCS and nuclear power plants. The decisions on the indispensable investments in new energy sources need to be taken already now and, given the long-term character of these investments, their consequences will affect the competitiveness of the EU economy for several future decades. This competitiveness will depend on the electricity costs both for the EU as a whole and at the levels of its particular Member States – in light of the differences in terms of the technology potentials and the strategic decisions taken. Analyses of the development of electricity systems should not only consider the most probable scenarios of regulatory changes and technology development, but also take into account less optimistic scenarios, providing for a limited potential for the development of certain technologies because of technical difficulties or the lack of social acceptance. An analysis of the less favourable scenarios primarily makes it possible to assess the effects of strategic decisions taken (or the absence of decisions) and to prepare beforehand solutions which may alleviate in the future the possible problems related to the development of some of low- and zero-emission technologies.

Introduction

The present article was prepared basing on the results of the calculations carried out by the CAKE PL team and presented in the analysis „Polska net-zero 2050: Mapa drogowa osiągnięcia wspólnotowych celów politykiklimatycznej dla Polski do 2050 r."[1] ["Poland net-zero 2050. The roadmap toward achievement of the EU climate policy goals in Poland by 2050. Summary."[2] – full report in Polish, summary in English]. This study presents the directions of technological changes necessary to achieve the EU emission reduction target for 2050. The article develops a few key issues, concerning the directions of the development of the energy sector that could not be fully addressed in the

* The target of a balance between the quantity of greenhouse gases produced and the quantity of those removed from the atmosphere to be achieved in the EU by 2050.

[1] Pyrka, M., Jeszke, R., Boratyński, J., Tatarewicz, I., Witajewski-Baltvilks, J., Rabiega, W., Wąs, A., Kobus, P., Lewarski, M., Skwierz, S., Gorzałczyński, A., Tobiasz, I., Rosłaniec, M., Cygler, M., Sekuła, M., Krupin, V. "Polska net-zero 2050: Mapa drogowa osiągnięcia wspólnotowych celów polityki klimatycznej dla Polski w 2050 r.", CAKE/KOBiZE/IOŚ-PIB, Warsaw, June 2021.

[2] Pyrka M. et al., "Poland net-zero 2050. The roadmap toward achievement of the EU climate policy goals in Poland by 2050. Summary.", CAKE/KOBiZE/IOŚ-PIB, Warsaw, June 2021.

study cited above due to volume considerations.

In July 2021, the European Commission published the "Fit for 55" reform package, containing proposals for detailed legal regulations enabling the achievement of the overall EU CO_2 emission reduction target of at least 55% in 2030 (compared with 1990)[3]. It is a key step towards EU climate neutrality in 2050, to which Poland also agreed by adopting the EU "climate law". The new targets are based on relatively ambitious assumptions on the both the availability of RES technologies, the possibilities of generating green hydrogen or using the CCS/CCU technologies (Carbon Capture and Storage/ Carbon Capture and Utilisation), as well as the potential for a decrease in their costs in accordance with the assumptions of PRIMES REF 2020[3]. Each of the assumptions on low- and zero-emissions requires detailed analyses addressing the possibilities of using them, their potential and costs.

As part of the analysis Poland net-zero 2050, three basic scenarios defining the EU climate policy targets were elaborated:

- The **business as usual scenario (BAU)** providing for a target of 60% reduction in 2050 vs. 1990, excluding the land use, land-use change and forestry (LULUCF) sector.
- The **reference scenario (REF)** providing for a target of about 80% GHG reduction in 2050 vs. 1990 excluding the land use, land-use change and forestry (LULUCF) sector.
- The **neutrality scenario (NEU)** – providing for a target of about 90% GHG reduction in 2050 vs. 1990 and net zero emissions, i.e. taking into account removal technologies and including the LULUCF sector. Moreover, this scenario provides for an increase in the reduction target to 55% for 2030, in accordance with the new proposals of the European Parliament and the Council[4].

The simulations presented below were elaborated using a set of tools, including a macroeconomic model (d-PLACE) and sectoral models: for energy (MEESA), transport (TR3E) and agriculture (EPICA). The combination of the models ensures that, on the one hand, the measures to reduce greenhouse gas emissions are comprehensively represented: the estimated emission changes in the different sectors of the economy add up to give the assumed cumulative reduction targets and, moreover, the marginal emission reduction costs in particular sectors level out. On the other hand, the application of the sectoral models made it possible to capture in greater detail the specificity of the sectors and reduction technologies in the key areas of energy, transport and agriculture.

The present article focuses on selected aspects of the energy sector, i.e. primarily the results of the MEESA energy model[5]. Nevertheless, it should be emphasised that these results were obtained in the process of iteration with other models; primarily, the d-PLACE macroeconomic model, which made it possible to examine the

[3] Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999.
[4] Primes Reference Scenario 2020, Final Assumptions, E3-Modelling, Brussels 2020.
[5] Tatarewicz, I., Lewarski, M., Skwierz, S. (2019). The MEESA model documentation. National Centre for Emissions Management (KOBiZE), Institute of Environmental Protection – National Research Institute (IOS-PIB), Warsaw.

response of the economy to the transformation of the energy sector through changes in the CO_2 emission costs and those in energy demand.

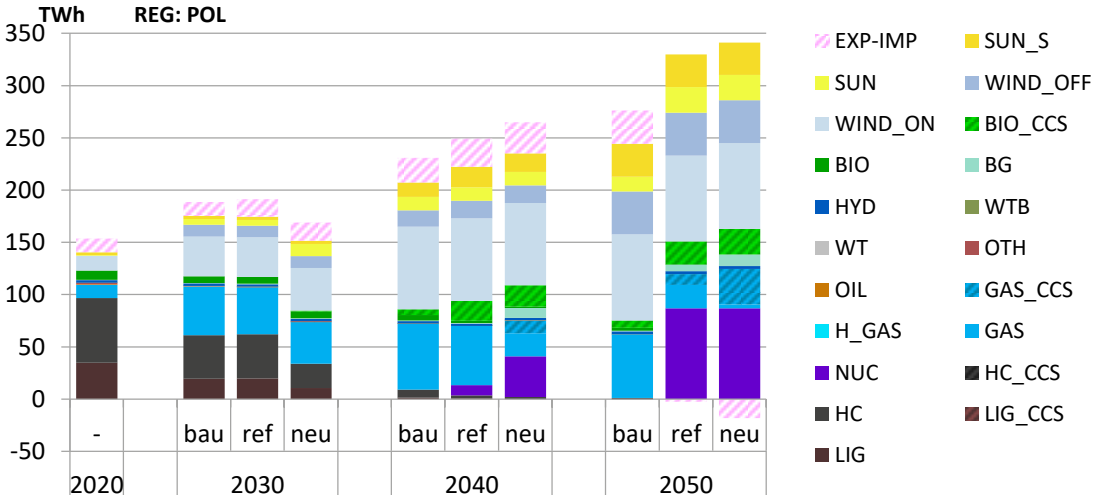
MEESA is a linear optimisation model, covering the whole EU; as a result of this, it can find solutions in the form of the optimum selection of generating units under predetermined conditions and constraints, taking into account the present generation structures in particular EU Member States, the potential renewable sources, the national policies in the area of energy and, primarily, the EU emission reduction targets in the medium- and long-term.

The electricity generation structure in the scenarios analysed

By forcing different levels of CO_2 emission reductions, the particular scenarios both lead to changes in the electricity generation structure and change the electricity demand. Demand changes are, primarily, determined by two factors with opposite effects: the need to reduce emissions, along with the related need to electrify many branches of the economy, and an increase in energy costs. The other effect is particularly conspicuous around 2030 in the climate neutrality/net zero scenario (NEU), where the reduction targets which are higher in relation to the other scenarios cause higher electricity costs and lower demand. Until 2030 there will be no radical technological changes and the share of highly emission-intensive sources will remain significant; in consequence of this, the high emission allowance cost will directly translate into a rapid increase in the electricity generation costs.

In turn, in the long term, the higher reduction targets assumed in the NEU scenario will force changes in the generation structure towards less emission-intensive sources and will encourage companies to substitute electricity for fossil fuels. Electrification will primarily apply to such sectors, as district heating, transport and industry. For this reason, in the period from 2035 to 2050 the demand growth rate in the NEU scenario is slightly higher than in the REF scenario and significantly higher than in the BAU scenario.

CHART 1. ELECTRICITY GENERATION IN POLAND FROM 2020 TO 2050 IN THE BAU, REF AND NEU SCENARIOS [TWH].



Key:

EXP-IMP	Import-export balance
SUN_S	Small PV power plants
SUN	Large PV power plants
WIND_OFF	Offshore wind power plants
WIND_ON	Onshore wind power plants
BIO_CCS	Biomass-fired power plants and CHP plants with CCS
BIO	Biomass-fired power plants and CHP plants
BG	Biogas-fired power plants and CHP plants
HYD	Run-of-river hydropower plants
WTB	Renewable waste fuel-fired CHP plants
WT	Non-renewable waste fuel-fired CHP plants
OTH	Other fuel-fired power plants and CHP plants
OIL	Oil-fired power plants
GAS_CCS	Gas-fired power plants and CHP plants with CCS
H_GAS	Gas-fired power plants and CHP plants with hydrogen co-combustion
GAS	Gas-fired power plants and Gas CHP plants
NUC	Nuclear power plants
HC_CCS	Hard coal-fired power plants and CHP plants with CCS
HC	Hard coal-fired power plants and CHP plants
LIG_CCS	Lignite-fired power plants with CCS
LIG	Lignite-fired power plants

Source: Own elaboration by CAKE/KOBiZE.

The results of the MEESA model on the development of electricity generating sources indicate that the reduction targets assumed in the scenarios will force significant changes in the Polish energy mix, consisting in the replacement of coal fuels by zero- or low-emission technologies. These changes are characteristic of all the three scenarios analysed; moreover, these changes are faster in the NEU scenario, as a result of its assumption of the highest reduction target.

In the transitional period, the gas-fired sources will play an important role, as they will gradually replace coal-fired units. In the BAU scenario, gas-fired

sources will remain the main baseload technology and they will balance intermittent RES units, ensuring the stable operation of the electricity system. In the REF and NEU scenarios, due to growing costs, the role of baseload units will be taken over by power plants equipped with CCS and also nuclear power plants. Gas-fired power plants without CCS will remain an important element of the system, but rather as providing reserve capacity, in the case of a growing share of intermittent RES sources.

The key role of renewable energy sources

The growing costs of CO_2 emission allowances are the main factor affecting the change in the energy mix; these costs grow significantly, even in the scenarios with lower reduction targets (BAU and REF). Therefore, the installed capacity of RES technologies is approaching its maximum potential also in scenarios with less ambitious GHG reduction policies. RES technologies relatively quickly become competitive with respect to technologies basing on fossil fuels; primarily, as a result of an increase in CO_2 prices, but also due to the expected decrease in investment cost of these technologies. Changes in the costs of energy technologies were adopted according to PRIMES REF 2020. The cost decreases assumed there for RES technologies are significant, which by the way is consistent with the predictions of most analysts in the world. The significant scale of the development of these technologies in the long-term should lead to a further decrease in generating unit costs, although it is impossible to exclude periods where costs would jump as a result of possible transitional deficits of raw materials and their higher prices or increased commodity transport costs (a particularly significant risk for the EU as a importer of both finished RES installations and raw materials needed for their production)[6].

In Poland, the share of RES in net electricity generation in the BAU scenario in 2030 is slightly more than 35%, whereas it is close to 50% in the NEU scenario. This results from a higher target for 2030 in the NEU scenario and a substantial increase in the CO_2 emission allowance prices with respect to the BAU scenario. In 2050, the shares of RES in both scenarios are quite similar: nearly 70% in the BAU scenario and 75% in the NEU scenario. Although the CO_2 prices in 2050 are much higher than in the NEU scenario (more than 400 EUR/t), most RES technologies are fully competitive already in the BAU scenario (for an emission price of about 100 EUR/t) and develop within nearly all the assumed potential.

The development of RES sources will primarily involve wind power plants – first, onshore plants as the cheapest ones and later also followed by offshore wind farms – and photovoltaic power plants. In the case of the latter, the calculation results primarily indicate the development of prosumer systems, but of course, this does not exclude the development of larger-scale photovoltaic farms.

In contrast to simulation methods, the applied optimisation approach does not take into account the effectiveness of support mechanisms. In other words, it answers only the question what technologies should be developed, taking into account their total costs, but does not indicate what regulatory instruments should be implemented to overcome the barriers to the development of

[6] https://www.pv-magazine.com/2021/06/03/ihsm-clean-energy-insights-high-module-prices-and-shipping-costs-jeopardize-2021-installation-outlook/.

these sources. Nevertheless, their results clearly shows that onshore and offshore wind farms and small-scale photovoltaics are some of the main directions in which the electricity system should be transformed.

Bioenergy with CCS (BECCS) is a technology of large importance for achieving ambitious reduction targets. Due to the capture of CO_2 from biomass combustion, in fact, BECCS permanently removes CO_2 from the atmosphere. Under the assumption that BECCS receives revenues for the storage of CO_2 which are proportional to the emission costs in the EU ETS system, for high CO_2 costs this technology becomes very competitive (with the CO_2 released during the production and transport of biomass detracted from the calculated amount of the removed CO_2).

> Bioenergy with CCS (BECCS) is a technology of large importance for achieving ambitious reduction targets.

In such conditions, the development of BECCS is mainly limited by the biomass potential. Whilst enabling the achievement of negative CO_2 emissions from the energy sector, this technology leads, at the same time, to lesser reduction burdens in other sectors. It is difficult to give a clear answer as to how far CO_2 capture and storage technologies, including those based on biomass, will actually prove feasible on a larger scale. It appears that there may be both technical and social difficulties which will limit their development. The problem is related to the simultaneous public support for the development of a given technology combined with resistance to the installation in the vicinity of the place of residence (i.e. Not In My Back Yard - NIMBY); a similar phenomenon can be seen in the case of onshore wind power plants or nuclear power plants.

Nuclear energy

The construction of nuclear power plants is an enormous technical and financial challenge, even in countries which already have nuclear energy at their disposal, not to mention a country without any earlier experience in this respect. However, this article focuses on the systemic costs and benefits related to the possible development of nuclear energy in Poland, particularly, in the context of challenges related to climate action and greenhouse gas emission reductions.

Nuclear power plants are some of the few sources which ensure stable electricity supplies without emitting greenhouse gases. The results of the model analyses indicate that for lower emission allowance prices gas-fired units can play the role of sources serving baseload power, whereas the development of nuclear energy mainly depends on the scale of the necessary investment expenditures (just as in the case of other technologies, the analysis did not impose the construction of any nuclear unit, but only allowed for such a possibility in the case where it is optimal in terms of cost).

> Nuclear power plants are some of the few sources which ensure stable electricity supplies without emitting greenhouse gases.

In practice, this means that the cost-effectiveness of an investment will be determined by the terms of the contract and financing; moreover, it is impossible to assess the economic efficiency of such a project without a detailed analysis of

a specific investment taking into account the local circumstances, the financing structure and the credit costs.

Under conditions of high CO_2 emission allowance prices, the construction of nuclear power plants proves to be a reasonable solution. In such conditions, gas-fired units without CCS takes mainly the role of a backup, characterised by a low capacity factor. The role of sources operating in the baseload is fulfilled mainly by nuclear power plants, supported by biomass and gas fired plants equipped with CCS.

Possible consequences of the unavailability of nuclear power plants and BECCS

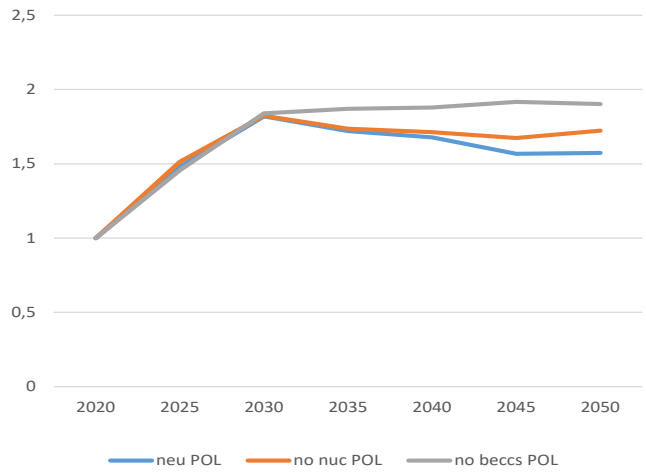
The construction of nuclear power plants in Poland is still under question - there is no final decision from the government and potential investors. The need for considerable investment and the fear of protests by organisations and communities opposed to the development of nuclear power plants could lead to the failure of the project - at present, it is very difficult to predict how likely it is to be implemented. This is also due to the unfavourable attitude of the European Commission towards this technology.. Therefore, in addition to the NEU scenario, presenting the optimum energy mix, the analysis also covered a variant of this scenario which showed the possible consequences of the resignation from the development of nuclear energy in Poland.

Another technology of large importance for achieving the net zero target is BECCS which uses biomass and is equipped with an installation for the capture of CO_2. Its effect on the results was analysed in a similar way. Moreover, the analyses provided for no development of BECCS for the EU as whole, whereas the limitation of the development of nuclear power plants was adopted for Poland only (such plants are no longer developed in the countries which have declared a shift away from nuclear energy already in the basic scenario).

The analysis results presented below for two variants – without nuclear power plants and without BECCS – make it possible to better assess the role of the two technologies in achieving the reduction targets and in ensuring the security of electricity supply. It is important to note that the scenario where the two technologies were unavailable at the same time was not analysed.

First of all, both alternative variants result in higher unit generation costs when compared with the NEU scenario (Chart 2). In the variant without nuclear power plants, the generation costs are nearly 10% higher than those in the NEU scenario, whereas the absence of the BECSS technology causes costs to grow by more than 20% (the presence of nuclear power plants in this variant clearly mitigates the cost effects).

CHART 2. GROWTH RATE OF THE AVERAGE ELECTRICITY GENERATION COSTS IN POLAND FOR THE NEU SCENARIO AND THE NO NUC AND NO BECCS VARIANTS [1 = 100%].



Source: Own elaboration by CAKE/KOBiZE.

An increase in the electricity costs leads to a decrease in electricity demand in both alternative variants (Chart 3); in addition, more serious consequences occur in the variant without BECCS. It is self-evident, given the fact that the scenario without nuclear power plants has a direct effect primarily on the Polish electricity system, whereas the unavailability of BECCS was analysed for all the EU Member States. Moreover, due to its emission removals the BECCS technology significantly affects CO_2 emission caps in other branches of the economy, whereas its absence causes a shortage of emission allowances and a significant increase (several times) in the marginal costs of emission reductions in the EU ETS.

In the variant without the BECCS technology, the role of hydrogen grows where its production grows about twice as much as in the NEU scenario. Hydrogen also begins to be used for electricity generation (so it plays the role of energy storage), whereas in the basic NEU scenario hydrogen is primarily used in other sectors of the economy; this indicates that both the hydrogen production and the production of electricity and heat from hydrogen involves energy losses; therefore, hydrogen is supplied first of all to sectors with fewer alternative emission reduction options.

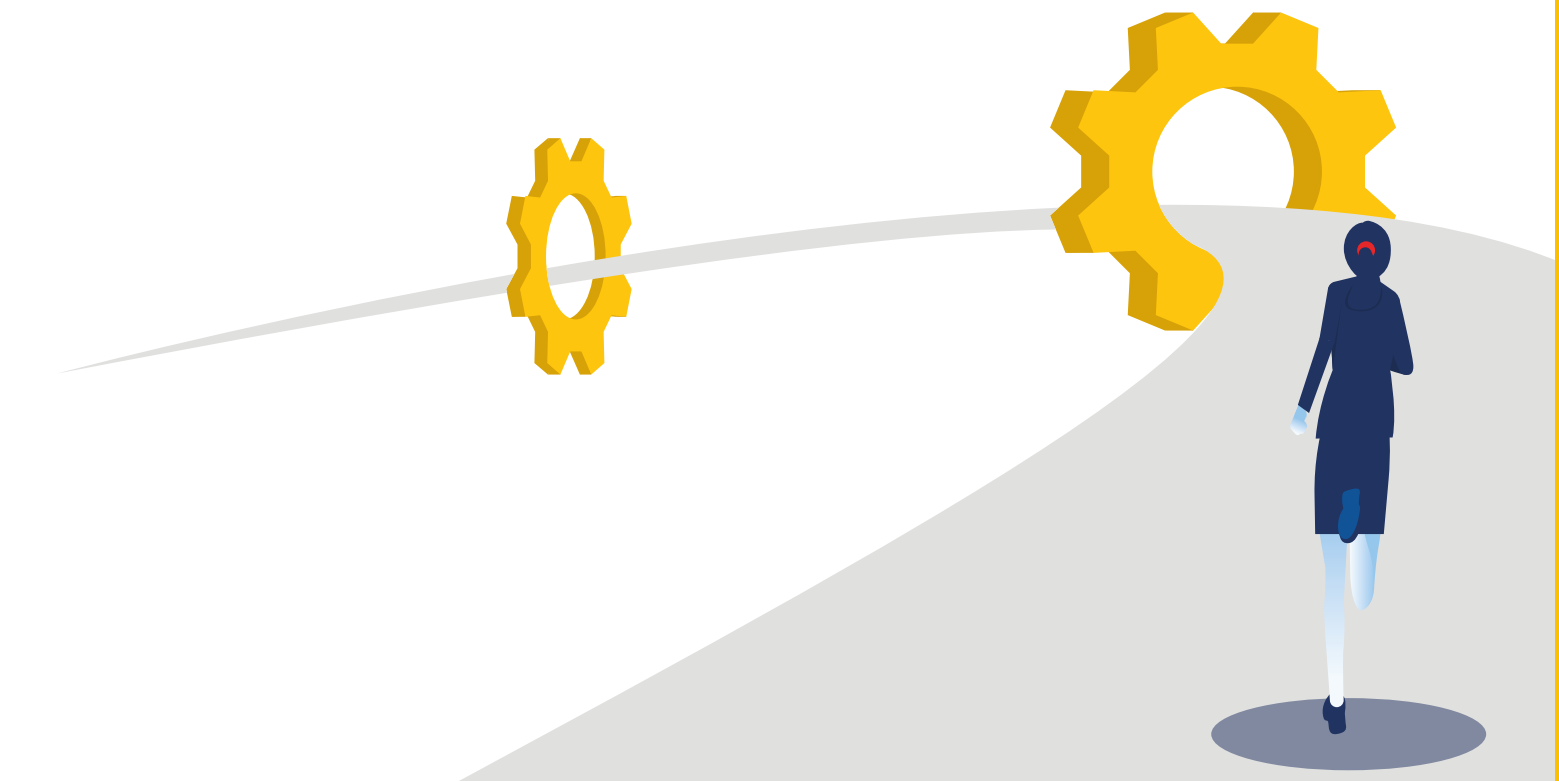
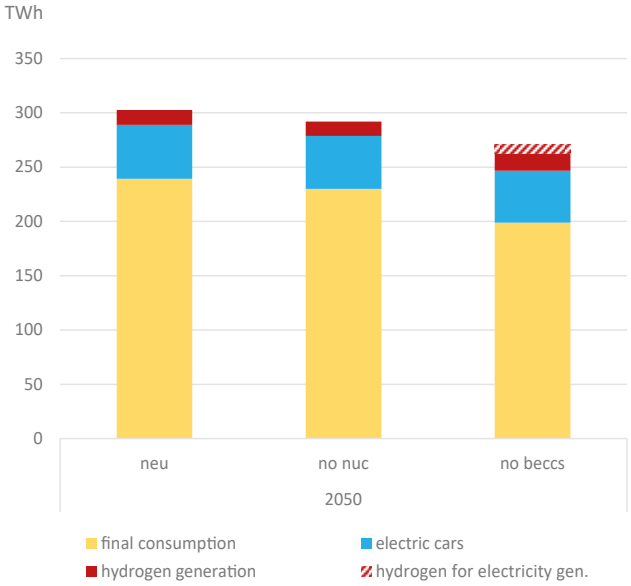
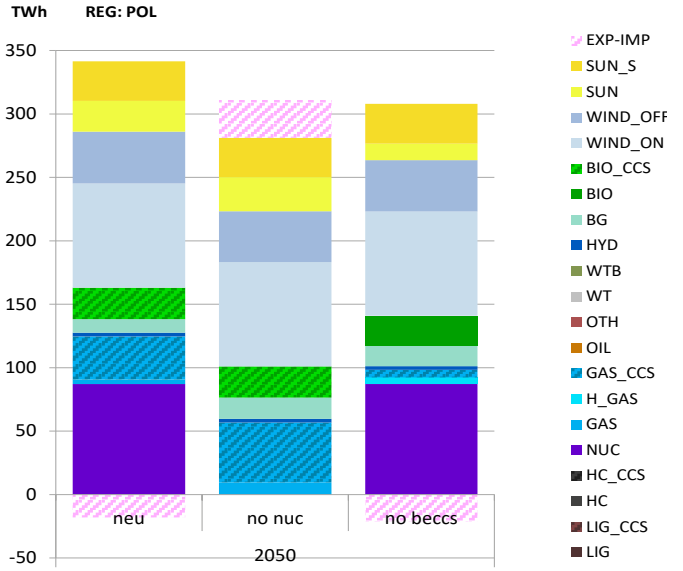


CHART 3. NET ENERGY DEMAND IN 2050 IN THE NEU SCENARIO AND THE NO NUC AND NO BECCS VARIANTS [TWH].



Source: Own elaboration by CAKE/KOBiZE.

CHART 4. NET ELECTRICITY GENERATION IN 2050 IN THE NEU SCENARIO AND THE NO NUC AND NO BECCS VARIANTS [TWH].



Source: Own elaboration by CAKE/KOBiZE.

The results for the additional variants considered as part of the NEU scenario indicate that ambitious targets (90% net GHG reduction) can be achieved both without nuclear energy and without the BECSS technology, but that, particularly, in the latter case, it entails a significant increase in energy costs. It can be conjectured that costs would grow faster in Poland under the assumption of the absence of both the BECSS technology and nuclear power plants; however, considering it is difficult to achieve rational solutions for the economy as a whole, this variant was not taken into account at all in the present analysis.

In the variant without nuclear power plants, deep emission reductions are possible in Poland, but they would involve the need to significantly increase electricity imports and also to increase energy generation in gas-fired units equipped with CCS installations (both of these factors increase the average energy costs). Higher gas consumption means larger imports of this energy carrier. A separate problem is the possibility of applying the capture and storage of CO_2 on such a scale in gas-fired units, which can be difficult for technical and the public acceptance reasons.

In the variant without BECCS, nuclear power plants play a key role, since the model seeks stable zero emission technology.. In such conditions, the energy costs grow in all the Member States, with a higher increase in the countries which have no nuclear energy or have not sufficient potential of RES. This indicates that nuclear power plants can be a significant fallback in the event of a delay or limitation of the scale of the development of the BECCS technology and application possibilities for CCS/CCU.

It should be noted that although the NO NUC variant require approx. 20% lower investment costs, in turn, involves much higher operating costs. The difference between these costs will be offset after several years. Therefore, an estimation of generation costs that takes into account the lifetime of each technology shows that the variant with nuclear power plant is a recommended option.

The role of hydrogen

On the basis of the results of the NEU scenario and the additional variants of calculations excluding the BECCS technology (NO BECCS) and nuclear power plants (NO NUC), several significant conclusions can be drawn on the use of hydrogen. The hydrogen production and storage levels primarily depend on the demand for this fuel in the industry and transport sectors. In turn, in the energy sector itself, the use of hydrogen as a storage technology is low. There are several reasons for this situation. First of all, the hydrogen production in the electrolysis process and, subsequently, the conversion of hydrogen to electricity involve substantial energy losses; therefore, battery storage systems prove to be better short-term energy storage options, as they are characterised by lower losses. In addition, with a large share of electric vehicles, provided that its well managed, a smart charging system will play a significant role in flattening out the load curve, diminishing the demand for typical energy storage systems.

The role of hydrogen for energy storage purposes will thus depend on both the costs of its production and the energy system structure. The hydrogen production costs in the electrolysis process will be lower if the system includes a large number of wind and photovoltaic units, since the generation surplus will lead to a lower marginal energy cost and this energy can be used to generate and store hydrogen. The results of calculations show that in the future hydrogen will be produced mostly in the summer on sunny days, with large generation from PV and in the winter mostly on windy nights. In turn, hydrogen will be used in the energy sector mostly at winter peak loads (in the periods when the available reserve capacity is the lowest). However, for the assumed RES development scale and substantial penetration of the electric vehicle, the energy surplus from RES will probably be insufficient to enable hydrogen to play a more significant role in the energy system. Higher growth rates for RES would certainly lead to greater usage of hydrogen in the energy sector, but it would be very difficult to achieve greater RES share than assumed in the scenario, due to enormous scale of investment needs as well as network limitations and the problems related to the balancing of electricity demand and supply. It is also important to note an interesting aspect related to hydrogen production and nuclear power plants. As mentioned above, hydrogen production depends on the availability of surplus generation from RES.. But with limited RES resources, the quantity of the surplus energy also can grow, if baseload units supply substantial amounts of energy with moderate costs and without emissions – it can be achieved by using nuclear power plants to a large extent. Supplying a large amount of baseload energy, nuclear power plants create the conditions for generation of surplus energy that can be used to produce hydrogen.

Conclusion

The process of modernising the economy to reduce emissions will involve additional costs, leading to higher energy prices. This, in turn, can lead to a lower competitiveness of the economies of EU Member States and, in addition, it will pose the risk of increased energy poverty. The achievement of ambitious reduction targets, consisting in the limitation of the net emissions in the whole economy practically to zero, is hampered by the fact that not all the industrial processes can be completely decarbonised; therefore, it is necessary to attain as large reductions as possible, and even negative emissions, in those areas where this is possible with reasonable costs. It seems that the energy sector is one of those branches of the economy where it is technically feasible. However, in order to achieve this target at EU level, in addition to efficiency-enhancing measures, it is necessary to develop a wide range of different low- and zero-emission energy generating technologies: RES, BECCS and nuclear power plants. Hydrogen can be an important element of the energy transition process, provided that the economic conditions of its use substantially improve (i.e. with lower electrolyser costs, the generation of an adequate surplus and lower RES electricity generation costs) and that the infrastructure necessary for its storage and distribution is adequately developed.

References

1. Pyrka, M., Jeszke, R., Boratyński, J., Tatarewicz, I., Witajewski-Baltvilks, J., Rabiega, W., Wąs, A., Kobus, P., Lewarski, M., Skwierz, S., Gorzałczyński, A., Tobiasz, I., Rosłaniec, M., Cygler, M., Sekuła, M., Krupin, V. "Polska net-zero 2050: Mapa drogowa osiągnięcia wspólnotowych celów polityki klimatycznej dla Polski w 2050 r.", CAKE/KOBiZE/IOŚ-PIB, Warsaw, June 2021..

2. Pyrka, M., Jeszke, R., Boratyński, J., Tatarewicz, I., Witajewski-Baltvilks, J., Rabiega, W., Wąs, A., Kobus, P., Lewarski, M., Skwierz, S., Gorzałczyński, A., Tobiasz, I., Rosłaniec, M., Cygler, M., Sekuła, M., Krupin, V. (2021). "Poland net-zero 2050. The roadmap toward achievement of the EU climate policy goals in Poland by 2050. Summary.", CAKE/KOBiZE/IOŚ-PIB, Warsaw, June 2021.

3. Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999.

4. Primes Reference Scenario 2020, Final Assumptions, E3-Modelling, Brussels 2020.

5. Tatarewicz, I., Lewarski, M., Skwierz, S. The MEESA model documentation. National Centre for Emissions Management (KOBiZE), Institute of Environmental Protection – National Research Institute (IOS-PIB), Warsaw 2019.

6. https://www.pv-magazine.com/2021/06/03/ihsm-clean-energy-insights-high-module-prices-and-shipping-costs-jeopardize-2021-installation-outlook/ (accessed on: 25.08.2021).

Scenarios of the transition of the passenger car and light duty vehicle fleets in Poland and the EU in the context of the “Fit for 55” package

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Scenarios of the transition of the passenger car and light duty vehicle fleets in Poland and the EU in the context of the "Fit for 55" package

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Abstract

In order to achieve climate neutrality in 2050, it is necessary to step up actions to support the development of electromobility. Changes in the transport sector are a steady process including both companies and households. The change should first apply to entities using their vehicles to gain revenues and then to households. Consistently decreasing of purchase and exploitation cost or such benefits as e.g. clean transport zones will encourage purchases of electric vehicles. Over time, the owners of these vehicles will change from those with higher incomes to those with lower incomes, who will feel the real benefits to the greatest extent. Finally, internal combustion vehicles which are expensive to maintain will be pushed out of the market. The operation of electric vehicles means both a benefit for the environment and savings for their holders throughout their service life. There is no doubt that the transition of the passenger car and light duty vehicle fleets requires the cessation of sales of new internal combustion vehicles. In this context, the "Fit for 55" package proposed by the European Commission presents the possibilities of limiting average exhaust emission standards for new passenger cars and light duty vehicles in three analytical scenarios (TL_Low, TL_Med and TL_High). The results of these scenarios were compared with those of the climate neutrality scenario (NEU) prepared as part of the analysis carried out by the CAKE/KOBiZE team: „Polska net-zero 2050: Mapa drogowa osiągnięcia wspólnotowych celów polityki klimatycznej dla Polski do 2050 r."[1] ["Poland net-zero 2050: The roadmap toward achievement of the EU climate policy goals in Poland by 2050."[2] – full report in Polish, summary in English].

Introduction

On 14 July 2021, the European Commission proposed a revision of the CO_2 emission standards for new passenger cars and light duty vehicles (LDVs) with maximum permissible weight to 3.5 tonnes. This proposal was presented in documents which can be found on the website of the European Commission: https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/delivering-european-green-deal_en#transforming-our-economy-and-societies.

[1] Pyrka, M., Jeszke, R., Boratyński, J., Tatarewicz, I., Witajewski-Baltvilks, J., Rabiega, W., Wąs, A., Kobus, P., Lewarski, M., Skwierz, S., Gorzałczyński, A., Tobiasz, I., Rosłaniec, M., Cygler, M., Sekuła, M., Krupin, V. "Polska net-zero 2050: Mapa drogowa osiągnięcia wspólnotowych celów polityki klimatycznej dla Polski w 2050 r.", CAKE/KOBiZE/IOŚ-PIB, Warsaw, June 2021.

[2] Pyrka M. et al., "Poland net-zero 2050. The roadmap toward achievement of the EU climate policy goals in Poland by 2050. Summary.", CAKE/KOBiZE/IOŚ-PIB, Warsaw, June 2021.

The present legislation on the average emission standards for newly registered vehicles (Regulation (EU) 2019/631[3]) provides for the following standards and CO_2 reduction targets:

- by 2025 the emissions at a level of 95g CO_2/km for passenger cars,
- in the period from 2025 to 2029, the emission standards for passenger cars and LDVs will be reduced by 15% from 2021 levels,
- from 2030 the emissions will be reduced by 37.5% from 2021 levels for passenger cars and by 31% for LDVs.

In consequence, this will result in a reduction in the CO_2 emissions from road transport by about 16% until 2030 and by 44 % until 2050 from 2015 levels, with emissions reduced by 23% until 2030 and by 56% until 2050 for passenger cars and, respectively, by 13% and 57% for LDVs.

Commitment to achieve climate neutrality – the background to the revision of the present emission standards for passenger cars and light duty vehicles.

The results of the analytical scenarios presented in the "Fit for 55" package indicate that compliance with the CO_2 emission standards under Regulation (EU) 2019/631 will be insufficient to reduce emissions to levels consistent with a target of at least -55% for 2030 and the target of climate neutrality for 2050. To this end, the road transport emissions would have to be reduced by 19-21% until 2030 and by almost 100% until do 2050.

Activity in road transport is growing. Despite the development of common mobile services and an easier shift between modes of transport, it is assumed that transport activity (passenger and light duty modes) will grow.

> The results of the analytical scenarios presented in the "Fit for 55" package indicate that compliance with the CO_2 emission standards under Regulation (EU) 2019/631 will be insufficient to reduce emissions to levels consistent with a target of at least -55% for 2030 and the target of climate neutrality for 2050.

The present standards are not a strong, long-term signals towards decarbonisation. It follows from an analysis of the Climate Target that with the present CO_2 emission standards under Regulation (EU) 2019/631, the shares of zero-emission passenger cars and light duty vehicles in the total vehicle fleet are expected to be 11% and 7%, respectively, in 2030. With the existing policies and targets, it is envisaged that zero- and low-emission vehicles will represent 54% of the fleet in 2050.

> The present standards are not a strong, long-term signals towards decarbonisation.

Therefore, given the absence of more stringent CO_2 emission standards and clear long-term regulatory signals, there is a substantial risk that manufacturers may not offer a quantity of zero-emission vehicles which would be needed to achieve the new overall greenhouse gas emission reduction target of 55% by 2030 and the target of climate neutrality by 2050.

The extent of the use of zero-emission vehicles will be insufficient. Anticipated share of electric vehicles in the EU-wide fleet by 2030 will be about 25%.

[3] Regulation (EU) 2019/631 of the European Parliament and of the Council of 17 April 2019 setting CO_2 emission performance standards for new passenger cars and for new light commercial vehicles, and repealing Regulations (EC) No 443/2009 and (EU) No 510/2011 (Text with EEA relevance.); http://data.europa.eu/eli/reg/2019/631/oj.

The development of the electric vehicle fleet means benefits for households and companies resulting from lower operating and maintenance costs and the absence of exhaust emissions. The CO_2 emission standards play a key role in encouraging the placing of zero-emission vehicles on the market, as evidenced by a surge in their sales in 2020. Although it is difficult to forecast the future consumer behaviour, the current trends indicate that new supply-side regulations will boost the number of new, efficient and zero-emission vehicles placed on the market.

The EU may lose the position of the global leader on the automotive market. At present, as far research and development (R+D) expenditures are concerned, they are concentrated in several European countries, Japan and South Korea, representing about 70% of global outlays[4]. However, the EU automotive industry mostly leads in the technological development of internal-combustion engines.

> The EU may lose the position of the global leader on the automotive market.

In recent years, the demand for zero-emission vehicles and the related infrastructure dynamically grew. In the period from 2005 to 2015, three countries: Japan, China and the United States accounted for 63% of all the patent families in the area of the environmentally friendly transport technologies. The development of the market of zero-emission vehicles influences manufacturers all over the world in the context of the implementation of increasingly modern and more competitive solutions. It is now difficult to indicate the leader in this scope; however, the current trends indicate that clear regulatory signals communicated to the automotive industry play an important role[5]. In their absence, both manufacturers and their suppliers can delay investment decisions with long-term effects, in the scope of both research and development and production in Europe, as well as the development of the necessary infrastructure for charging zero-emission vehicles. Such delays pose the risk that the EU automotive industry may lose its leading position in technology, by failing to invest sufficiently quickly, or even lose its share in the EU market itself, and fail to become a leader on the quickly developing new market of zero-emission vehicles[6].

Insufficient limitation of fossil fuel use. In EU-27, in the transport sector, fossil fuels account for 93% of energy use (94% in road transport); moreover, the consumption of oil-derived fuels now grows by about 2% annually. As regards the use of energy from RES (Renewable Energy Sources), its total share in transport in 2018 was 8.3%.

> In EU-27, in the transport sector, fossil fuels account for 93% of energy use (94% in road transport); moreover, the consumption of oil-derived fuels now grows by about 2% annually.

[4] https://www.eib.org/en/publications/investment-report-2020.htm (accessed on: 10.08.2021).

[5] The development of the policy aimed at reducing carbon dioxide emissions has been the main driver of investments in zero-emission technologies. In 2017 and 2018, when China adopted an ambitious policy on electric vehicles, investments in e-mobility were seven times as high in China (EUR 21.7 billion) as in the EU (EUR 3.2 billion). In 2019, along with the upcoming new CO_2 emission standards for 2020/21,the EU attracted large investments (about EUR 60 billion) in electric vehicles and batteries, i.e. almost 20 times more than in 2017/2018 and 3.5 times more than in China.

[6] https://ec.europa.eu/info/sites/default/files/amendment-regulation-co2-emission-standards-cars-vans-with-annexes_en.pdf (accessed on: 12.08.2021).

Insufficient adaptation of the infrastructure for charging and refuelling of zero-emission vehicles. A particular significant barrier to an increase in the share of zero-emissions on the market and consumer acceptance is the limited availability of the infrastructure for charging and refuelling them. The present level of the infrastructure is only sufficient to serve a rather small number of alternative-fuel vehicles. Throughout the EU, there are many petrol stations offering diesel oil or petrol, whereas in many countries electric charging points have only recently started to appear in the public space.

No clear benefits for consumers and companies. Given the absence of transparent information about the benefits arising from the possession of zero-emission vehicles, when buying a new car few consumers will consider the operating costs. Particularly, this is so in the case of households. Potential buyers may fail to appreciate the future savings, especially as regards fuel. Firstly, this results from the uncertainty as to the fuel and energy price variations during the period of vehicle use and, secondly, as to the period when they intend to own a given vehicle. Passenger cars usually have many owners; hence, the initial buyer can only benefit from part of savings related to fuel or repair. Another aspect is the situation where buyers prefer to purchase cheaper vehicles rather than those ensuring a more profitable total cost of ownership. This is the case when a buyer does not incur fuel costs (particularly, in companies). Depending on the fuel cost reimbursement policy, this can apply to vans and leased vehicles the share of which in new registrations in the EU is about 30% and most of them are business cars.

Proposals for strengthened average emission standards for new passenger cars and light duty vehicles.

The achievement of climate neutrality requires the strengthening of the targets of CO_2 emission reductions. In the most ambitious scenario (TL_High), the CO_2 emission standards in 2030 will be lower than in 2021, respectively, by 60% for passenger cars and by 50% for light duty vehicles. For 2035 it is assumed that the average emissions will be zero in new passenger cars and light duty vehicles. This means that it will only be possible to buy electric vehicles or hydrogen-fuelled ones.

TABLE 1. COMPARISON OF THE CURRENT REDUCTION TARGETS WITH THE PROPOSALS OF THE "FIT FOR 55" PACKAGE [THE PERCENTAGE REDUCTION OF THE CO_2 STANDARDS FROM 2021 LEVELS FOR NEW PASSENGER CARS AND LIGHT DUTY VEHICLES].

	Passenger cars		Light duty vehicles	
	Current target	„Fit for 55" [TL_High scenario]	Current target	„Fit for 55" [TL_High scenario]
2021	95g CO_2 / km	95g CO_2 / km	147g CO_2 / km	147g CO_2 / km
2025	-15%	-15%	-15%	-15%
2030	-37.5%	-60%	-31%	-50%
2035	-	-100%	-	-100%

Source: https://ec.europa.eu/info/sites/default/files/amendment-regulation-co2-emission-standards-cars-vans-with-annexes_en.pdf.

CHART 1. REDUCTION OF THE CO_2 STANDARDS FOR PASSENGER CARS FROM 2021 LEVELS [THE CURRENT TARGET VS. THE TL_HIGH SCENARIO].

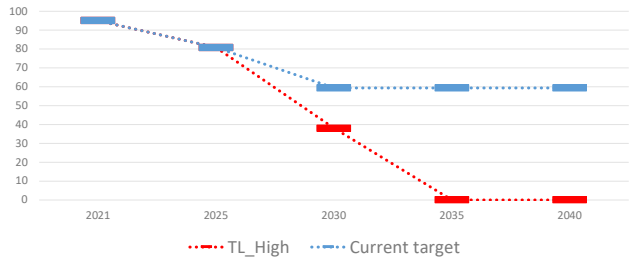
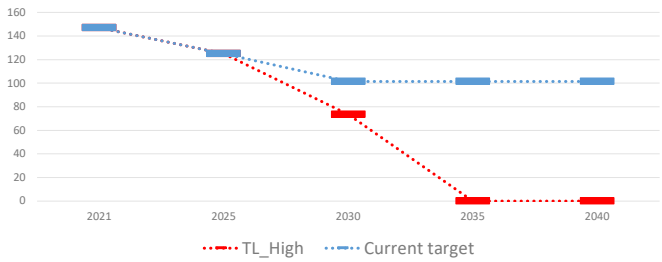


CHART 2. REDUCTION OF THE CO_2 STANDARDS FOR LIGHT DUTY VEHICLES FROM 2021 LEVELS [THE CURRENT TARGET VS. THE TL_HIGH SCENARIO].



Source: https://ec.europa.eu/info/sites/default/files/amendment-regulation-co2-emission-standards-cars-vans-with-annexes_en.pdf

The structure of the sales of passenger cars in the EU. A comparison of the EC scenarios and the NEU scenario (CAKE)

The structure of the sales of new passenger cars and light duty vehicles will depend to a large extent on the regulations in effect. The results of the EC scenarios were compared with those of the neutral climate scenario (NEU) analysed as part of the report prepared by the CAKE/KOBiZE team: Polska net-zero 2050: Mapa drogowa osiągnięcia wspólnotowych celów polityki klimatycznej dla Polski do 2050 r.

> The structure of the sales of new passenger cars and light duty vehicles will depend to a large extent on the regulations in effect.

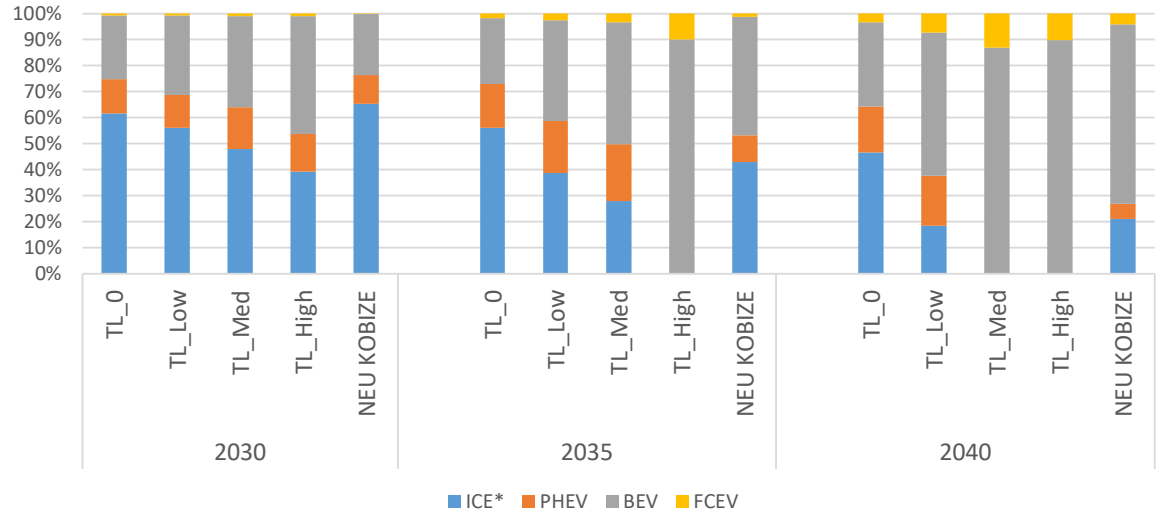
[Poland net-zero 2050: The roadmap toward achievement of the EU climate policy goals in Poland by 2050 – in Polish][7]. In the NEU scenario (simulated on the TR3E transport model), the emission intensity improves by -29% in 2030 compared with 2021 in the fleet of all the passenger cars.

> In the NEU scenario (simulated on the TR3E transport model), the emission intensity improves by -29% in 2030 compared with 2021 in the fleet of all the passenger cars.

An analysis of both Charts 3 and 4 clearly shows that without a substantial strengthening of the reductions of the standards for new passenger cars and light duty vehicles it will be difficult to achieve the sales of only zero-emission vehicles in 2035. In the scenarios providing for low (TL_Low) and medium (TL_Med) targets and in the NEU scenario, in 2035 new vehicles using fossil fuels represent 50 to 60% for passenger cars and 50 – 65% for light duty vehicles.

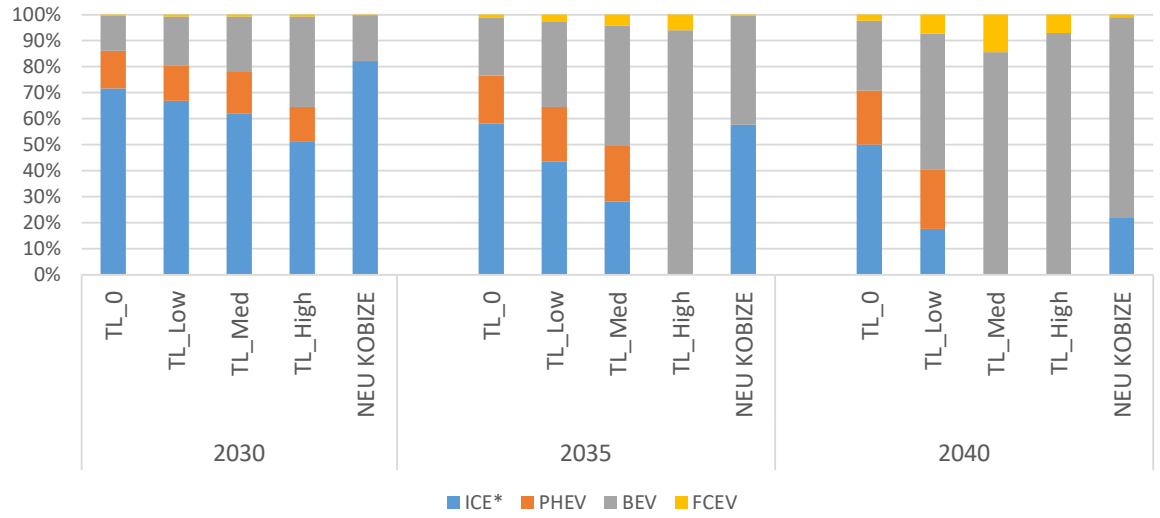
[7] https://climatecake.ios.edu.pl/wp-content/uploads/2021/07/CAKE_Mapa-drogowa-net-zero-dla-PL.pdf (accessed on: 22.07.2021).

CHART 3. STRUCTURE OF THE SALES OF PASSENGER CARS IN EU-27 ACCORDING TO THE EC SCENARIOS AND THE NEU_CAKE SCENARIO.



Source: https://ec.europa.eu/info/sites/default/files/amendment-regulation-co2-emission-standards-cars-vans-with-annexes_en.pdf and CAKE/KOBiZE.

CHART 4. STRUCTURE OF THE SALES OF LIGHT DUTY VEHICLES IN EU-27 ACCORDING TO THE EC SCENARIOS AND THE NEU_CAKE SCENARIO.

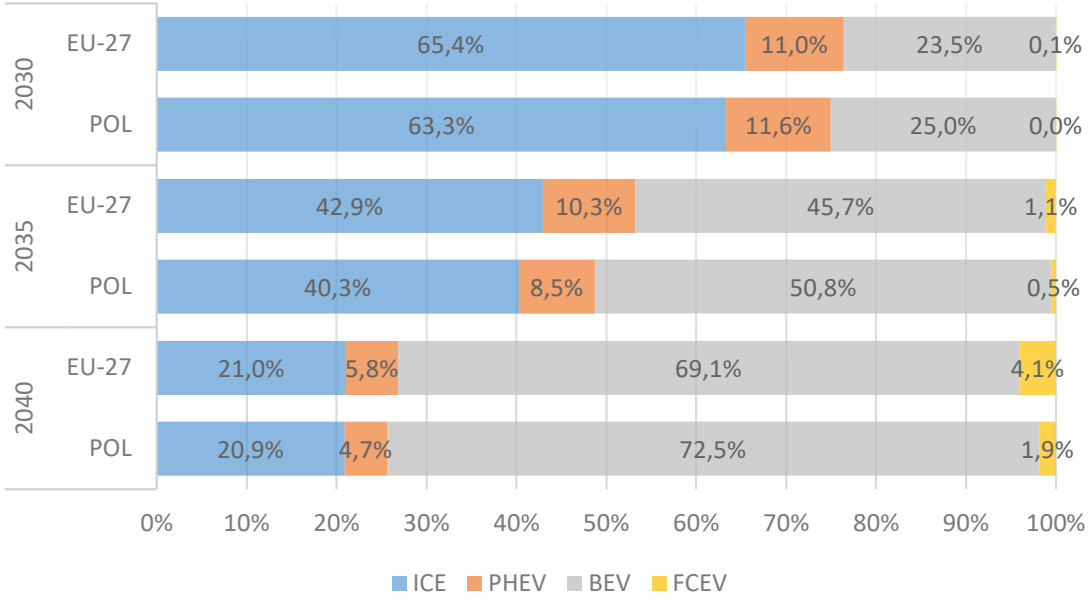


Source: https://ec.europa.eu/info/sites/default/files/amendment-regulation-co2-emission-standards-cars-vans-with-annexes_en.pdf and CAKE/KOBiZE.

The results of CAKE modelling – the NEU scenario

The results of the NEU scenario indicate that new zero-emission passenger cars in Poland in 2035 will represent about 50% and in 2040 about 73% of sales. This structure is close to the level found for EU-27 as a whole.

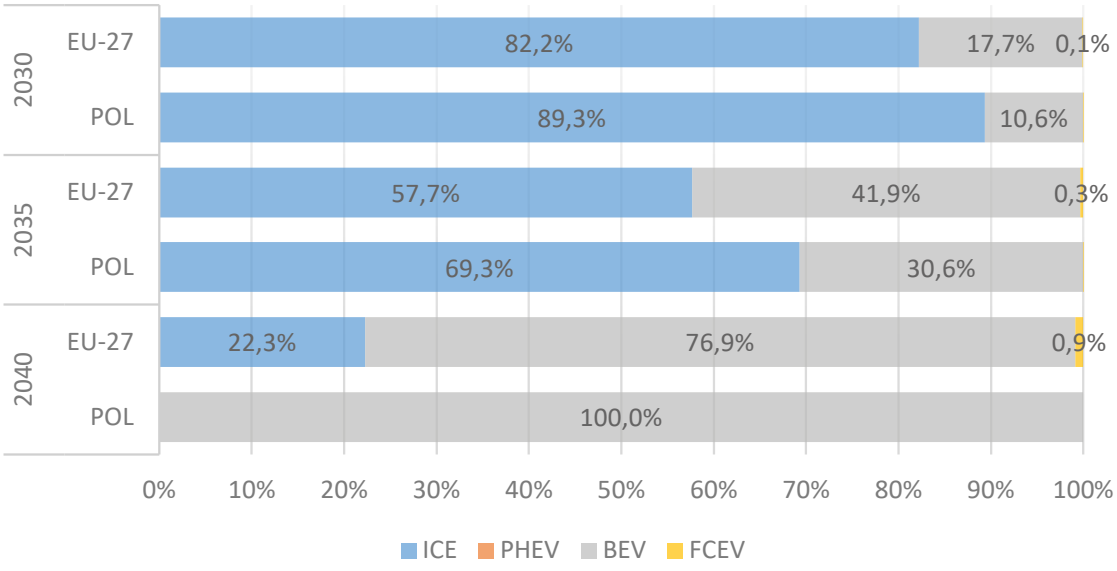
CHART 5. STRUCTURE OF THE SALES OF PASSENGER CARS IN POLAND VS. EU-27 [THE NEU SCENARIO] [IN %].



Source: Own elaboration by CAKE/KOBiZE.

Zero-emission light duty vehicles in Poland will represent 100% of the sales after 2040. In the NEU scenario, after 2035 there is a distinct change in the structure of the sales of light duty vehicles, both in Poland and in EU-27, mainly as a result of electrification.

CHART 6. STRUCTURE OF THE SALES OF LIGHT DUTY VEHICLES IN POLAND VS. EU-27 [THE NEU SCENARIO] [IN %].



Source: Own elaboration by CAKE/KOBiZE.

Conclusion

The process of moving away from internal-combustion vehicles (petrol and diesel fuelled) is a long one, depending on the extent to which these vehicles are withdrawn from use and the pace at which zero-emission vehicles are purchased. The most important issue in this process and, thus, "the beginning of the end" of the era of vehicles equipped with internal combustion engines, is the moment of the complete cessation of the sales of these vehicles; perhaps it can come in about 20 years (depending on the scenario), i.e. at the end of the fourth decade of this century.

References

1. EIB Investment Report 2020/2021: Building a smart and green Europe in the COVID-19 era (https://www.eib.org/en/publications/investment-report-2020.htm ; (accessed on: 10.08.2021).

2. Pyrka, M., Jeszke, R., Boratyński, J., Tatarewicz, I., Witajewski-Baltvilks, J., Rabiega, W., Wąs, A., Kobus, P., Lewarski, M., Skwierz, S., Gorzałczyński, A., Tobiasz, I., Rosłaniec, M., Cygler, M., Sekuła, M., Krupin, V. "Polska net-zero 2050: Mapa drogowa osiągnięcia wspólnotowych celów polityki klimatycznej dla Polski w 2050 r.", CAKE/KOBiZE/IOŚ-PIB, Warsaw, June 2021.

3. Pyrka, M., Jeszke, R., Boratyński, J., Tatarewicz, I., Witajewski-Baltvilks, J., Rabiega, W., Wąs, A., Kobus, P., Lewarski, M., Skwierz, S., Gorzałczyński, A., Tobiasz, I., Rosłaniec, M., Cygler, M., Sekuła, M., Krupin, V. (2021). "Poland net-zero 2050. The roadmap toward achievement of the EU climate policy goals in Poland by 2050. Summary.", CAKE/KOBiZE/IOŚ-PIB, Warsaw, June 2021. https://climatecake.ios.edu.pl/wp-content/uploads/2021/07/CAKE_Mapa-drogowa-net-zero-dla-PL.pdf; (accessed on: 22.07.2021).

4. Regulation (EU) 2019/631 of the European Parliament and of the Council of 17 April 2019 setting CO_2 emission performance standards for new passenger cars and for new light commercial vehicles, and repealing Regulations (EC) No 443/2009 and (EU) No 510/2011 (Text with EEA relevance.) (https://eur-lex.europa.eu/eli/reg/2019/631/oj ; (accessed on: 10.08.2021)

5. Proposal for a Regulation of the European Parliament and of the Council amending Regulation (EU) 2019/631 as regards strengthening the CO_2 emission performance standards for new passenger cars and new light commercial vehicles in line with the Union's increased climate ambition (https://ec.europa.eu/info/sites/default/files/amendment-regulation-co2-emission-standards-cars-vans-with-annexes_en.pdf; (accessed on: 12.08.2021).

The success of the negotiations on Article 6 of the Paris Agreement at COP26

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The success of the negotiations on Article 6 of the Paris Agreement at COP26

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Abstract

The provisions of the Paris Agreement (PA) concerning the use of market-based mechanisms as laid down in Article 6 of the PA were agreed in 2015 due to huge efforts of the Parties, on the basis of many years of negotiations. The Parties pledged to one another that they would operationalise these provisions during the COP24 climate summit in Katowice at the end of 2018. The efforts of the Parties and also the Polish Presidency leading this climate summit were not reflected in a final success. Too large discrepancies led to a failure of the talks, in spite of the general success undoubtedly represented by the conference in Silesia where the so-called Katowice Rulebook was adopted. During COP25 in Madrid in 2019 the Parties also failed to overcome the barriers among them, which were perhaps even reinforced after the Katowice summit. Despite strenuous efforts of the Presidency, the outcome of COP24 was repeated and the discussions were moved to the next year. During COP26 in Glasgow, due to substantial efforts of the UK Presidency, after many hours of talks and also after the publication of 4 versions of texts, the Presidency managed to work out a compromise, which, in the UNFCCC jargon, "made everyone equally unhappy". Given the complexity of these issues, as well as the complications and delays in adopting the basic rules, the package adopted in Glasgow should be assessed as quite a significant success, although encumbered with certain risk areas. The actual implementation and the launch of specific measures under Article 6 of the PA can still take some more time, even in spite of certain pilot actions which have already been carried out.

> Given the complexity of these issues, as well as the complications and delays in adopting the basic rules, the package adopted in Glasgow should be assessed as quite a significant success, although encumbered with certain risk areas.

How will the rules which were ultimately adopted in Glasgow affect the environmental integrity of the PA and how will they contribute to maintaining an appropriate level of ambition will most likely be the subject matter of analyses only at the end of the present decade.

A historical overview of the negotiations on Article 6 of the Paris Agreement

The relatively short provisions of the Paris Agreement (PA) concerning the use of market-based mechanisms as laid down in Article 6 of the PA were agreed in 2015 due to huge efforts of the Parties, on the basis of many years of negotiations. Already then, it was believed that this compromise had been worked at the expense of too many concessions and, given that the Parties were greatly attached to the particular parts of

this text, that it would substantially hamper in the future the elaboration of detailed guidance for the functioning of this important element of the architecture of the agreement reached in the French capital.

These misgivings came true and what enabled a compromise to be reached on a short text, whilst applying a certain freedom of interpretation (which is often called "constructive ambiguity" in the negotiations under the Climate Convention), proved to be a problem which was extremely difficult to resolve when it was addressed more extensively with a full spectrum of details.

The Parties pledged to one another that they would operationalise the provisions of Article 6 of the PA during the meeting of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA), coinciding with the COP24 climate summit hosted by Poland in Katowice at the end of 2018. The efforts of the Parties and also the Polish Presidency leading this climate summit were not reflected in a final success. Too large discrepancies, including exactly those resulting from different interpretations of the Paris provisions, led to a failure of the talks and, in spite of the general success undoubtedly represented by the conference in Silesia where the so-called Katowice Rulebook[1] was adopted, this manual on the Paris Agreement was left with an unwritten chapter. The talks aimed at complementing this set of rules implementing the PA were moved to the next year, to be handled by the Chilean Presidency.

In such a situation, also bearing in mind the high position which the issue of Article 6 took on the political agenda in Katowice, it was clear that there would be a large political pressure to try and resolve this missing element during the next Conference of the Parties to the Convention. On the one hand, there were many concerns about the unexpected change of the venue of COP25 climate summit from the capital of Chile to Madrid, in light of the social unrest erupting in the territory of this South American country. On the other hand, it was expected that the Minister of Environment of Chile, who had taken an active part in arranging and supporting the negotiations on this issue in Katowice[2], would be able, as the COP President knowing the positions of the particular Parties, to bring the negotiations to completion. Nevertheless, during COP25 in Madrid, too, the Parties failed to overcome the barriers among them, which were perhaps even reinforced after the Katowice summit. Despite strenuous efforts of the Presidency and last attempts to present a compromise text, the outcome of COP24 was repeated and the discussions were moved to the next year.

Because of the global pandemic situation, 2020 froze, as it were, the talks of the Parties to the UNFCCC Convention. Naturally, residual discussions in virtual format brought no outcomes and, given the uncertainty as to a change in the situation prevailing in the world, it was decided to move COP26 in Glasgow to 2021.

2021 already saw a more organised format of virtual meetings, including many in informal settings, where the Parties devoted much of their time to Article 6 of the PA. It is worth to mention that a dozen or so technical expert dialogues

[1] https://unfccc.int/process-and-meetings/the-paris-agreement/the-katowice-climate-package/katowice-climate-package (accessed on: 30.11.2021).

[2] The Minister of Environment of Chile was designated to facilitate the negotiations on Article 6 of the PA in Katowice during COP24, i.e. to chair the ministerial consultations in the second week of the COP.

took place, during which the Parties addressed the particular elements of the Madrid texts and which were to a large extent led by the UNFCCC Secretariat. On the other hand, the initiative was also taken over by the upcoming UK Presidency which involved the so-called ministerial level and appointed the Norwegian and Singaporean Ministers to conduct informal consultations among the Parties. The aim of all this was to build appropriate foundations so as to give the Parties a chance to finally agree the guidance on Article 6 of the PA already at the November summit in Glasgow which was to take place in physical format.

Basic elements of Article 6 of the PA

Before moving to the very course of the negotiations during COP26 in Glasgow, it is important to recall the basic elements of Article 6 of the PA. Article 6 of the PA is expected to govern at the level of the Climate Convention the rules of international cooperation where the implementation of commitments (so-called nationally determined contributions – NDCs) of the Parties is to be market-based. It is expected to take over the legacy, as it were, of the flexible mechanisms known from the Kyoto Protocol, specifically, the International Emissions Trading (Article 17 of the KP) and the project-based mechanisms: Clean Development Mechanism (CDM) and Joint Implementation (JI)[3]. The most important difference is the context of this cooperation, i.e. the existence of the PA itself and its voluntary, bottom-up nature and various commitments of the Parties expressed in different ways.

Article 6.2 applies to the issue of accounting for the Parties targets and commitments using international transfers (implicitly, coming from market-based mechanisms), whilst complying with the relevant rules, primarily, the rule of the avoidance of double counting of emissions reductions. This is a certain derivative from the International Emissions Trading which used to exist under the Kyoto Protocol, providing that international transfers can be used to account for international commitments; for which the term "internationally transferred mitigation outcomes" (ITMOs) was introduced.

Article 6.2 and the related provisions of Decision 1/CP.21 (paragraph 36)[4] mandated the negotiation path of the Subsidiary Body for Scientific and Technical Advice (SBSTA) to draft the guidance on Article 6.2 in compliance with which the Parties could use transfers (ITMOs) to account for their commitments.

Article 6.4 established a new market-based mechanism in the architecture of the Paris Agreement, expected to replace the existing project-based mechanisms of the Kyoto Protocol, i.e. the Clean Development Mechanism (CDM) and Joint Implementation (JI). The mechanism of Article 6.4 is a central mechanism, supervised by a meeting of the Parties to the Paris Agreement (CMA) and is to be based on central set of rules and procedures, so-called rules, modalities and procedures (RMP).

In addition to Articles 6.2 and 6.4 laid down in the PA, the package of Article 6 of the PA

[3] Articles 12 and 6, respectively, of the Kyoto Protocol.

[4] Decison1/CP.1 Adoption of the Paris Agreement. (https://unfccc.int/sites/default/files/resource/docs/2015/cop21/eng/10a01.pdf ; (accessed on: 30.11.2021).

included Articles 6.8 and 6.9 concerning the so-called non-market approaches, which had long been discussed at the Convention and which were promoted by such countries as Bolivia to counterbalance the discussion on market-based mechanisms in the PA. The mandate conferred for these Articles is very vague, and so is the purpose of the framework established in Article 6.9 for non-market approaches voluntarily used by the Parties. The intention may be to link them to the financing of activities, which overlaps to a large extent other, already existing negotiation paths under the Convention.

Main areas of contention

Despite extensive activities in 2021, the Parties did not demonstrate any clear changes in their negotiation positions from those presented during the summits in Katowice in 2018 and Madrid in 2019. The discussions on the implementation of Article 6 of the PA were characterised by a large degree of complexity and addressed very many aspects. The key issues in this respect included the elements described below, which were also distinguished by the COP26 Presidency as the areas of the greatest importance for unlocking agreement on Article 6 of the PA.

- "Share of proceeds" (SoP), i.e. a certain type of tax on transfers of mitigation outcomes under Article 6.2. In the PA itself, there is no mention of the imposition of such a tax under the rules of Article 6.2 (as it only provides for the SoP for the mechanism under Article 6.4), but the Parties representing developing countries expressed their desire to impose this tax on all ITMO transfers in order to increase the generation of funds for adaptation actions. Developed country Parties were strongly opposed to it because of the possible effect on the international integration of emissions trading schemes (ETS).

- The "transition" of the KP mechanisms into the PA framework; this mainly involved the carryover of existing CDM projects into the Article 6 framework, but also all the CER units issued so far (generated by CDM projects). The BASIC grouping countries (primarily, China, India and Brazil) would benefit the most. Many other groupings of the Parties were opposed to the transition of already generated units, but at the same time they expressed their openness (to a varying degree) to the possible carryover of CDM projects alone.

- Double counting in Article 6.4; for many Parties the rules for ITMO transfers (governed by the rules laid down in Article 6.2 of the PA) should also apply to the credits issued under the mechanism of Article 6.4, as the basis for the avoidance of double counting. This was opposed by a permanent part of developing countries led by Brazil; for them the mechanism of Article 6.4 should operate as CDM did, with no linkage to the national NDCs.

The course of COP26

When landing in Glasgow to attend the COP26 summit, many delegates and observers were fairly reserved about the potential success on this complicated issue. Nevertheless, under the strong leadership of the UNFCCC Secretariat, the first week saw very intensive talks among the Parties which were reflected in as many as four versions of the text for each of the three

elements of Article 6 of the PA. The Parties built the successive versions of the text of a decision on the basis of what they had discussed earlier during the COP in Madrid (and the Madrid texts had been based to a large extent on those from Katowice). Although the successive negotiation options seemed to be increasingly clear and the number of square brackets[5] in the text was reduced, the main political themes remained on the negotiation table and there were also disputes on issues of a more technical nature.

As the negotiation outcomes worked out in the first week of the COP were handed over to the UK Presidency, the dynamics of the negotiations began to change and the second week saw the emergence of the will to make possible concessions in the areas which greatly affected the outcomes in Katowice and Madrid. This was the case, in particular, with the aspect of the avoidance of the double counting of emission reductions under Article 6.4, where the successive negotiation positions arising as part of bilateral consultations gained increasingly large support.

As a rule, the UK Presidency operated on three paths. The first of them provided for the continuation of technical work from the first week, where possible, and there were still quite many elements of Article 6 which needed to be finally ironed out. The second one provided for consultations at ministerial level, conducted by the Norwegian and Singaporean Ministers on issues of highly political importance. On the third path, the UK Presidency itself held bilateral consultations with groupings of the Parties. Inevitably, many of the Parties' talks took place behind closed doors, without the participation of observers, and this, in turn, resulted in an enhanced information flow in the corridors and lobbies, as well as among the representatives of sectoral portals, which, after they had acquired informal information from negotiators, very frequently reported in their everyday briefings on the negotiations on Article 6. These news also carried an unambiguous message that in the negotiations the walls which had been built for many years finally began to crumble and that the Parties were determined to use the third time round to reach a happy ending and to complete the unfinished Katowice Rulebook.

Due to huge efforts of the UK Presidency and with full support from the UNFCCC Secretariat, after many hours of talks, as well as after the publication of 4 versions of the Presidency texts (each including three elements of Article 6 of the PA, so, as total, 8 versions of three texts were drafted during COP26, each a dozen or so pages long), on the day following the official closing date of COP26, the last version of the texts was frantically analysed, taking into account the fact that it was the one that would be submitted for approval during the closing plenary session of COP. Since it proved possible to work out a compromise which, in the UNFCC jargon, "made everyone equally unhappy", the texts were approved and COP26 was closed.

The outcomes of COP26

What did the Parties finally manage to achieve and at what expense? First of all, starting with an element of Article 6.2 of the PA, the Parties

[5] This is how not agreed and contested provisions are marked in the UNFCCC negotiations.

managed to adopt a fairly extensive guidance on how the mitigation outcomes were to be transferred between jurisdictions. The main rules adopted by the Parties in the Annex to the Decision are important insomuch as they will also apply to credits generated from the central mechanism which is the one established by Article 6.4 of the PA.

Preliminary assessments of the guidance adopted indicate that it is quite an extensive and exhaustive set of rules, based on the need to adjust the NDC of a Party for each international transfer to be counted towards the NDC of another country or another international mitigation target (here, implicitly, it means counting towards the CORSIA scheme[6], i.e. the mechanism for offsetting international aviation). This adjustment, called the "corresponding adjustment" is to provide a key in international rules to resolving the possible problem of the double counting of emissions reductions. It can be assumed, intuitively, that at the moment when one tonne of reduced carbon dioxide equivalent is transferred to another country which will use this tonne to achieve its target, the transferring country should reduce its emission budget. In turn, in the case where various NDCs exist, including those expressed in different metrics and sometimes partly unquantified, with different timeframes and expressed according to different methods, such a simple operation can already be quite complicated. The emergence of this complication was the price for the adoption of the guidance, since many developing countries did not accept the possibility that certain types of NDCs might be excluded from the international cooperation under Article 6 of the PA. Ultimately, international transfers will be allowed between NDCs expressed in different metrics, as well as those that are partly expressed unquantified policies. The Parties will have to specify in the further guidance how all this can be reduced to a common denominator, since ultimately the accounting of international transfers is to be reflected in tones of CO_2eq.

In spite of all these difficulties for which specific requirements will be set, in principle, all the international transfers towards NDCs will be subject to corresponding adjustments, although during the last two summits it was mainly this aspect that caused a failure of the talks. To a large extent, this was a consequence of the negotiation position of Brazil which did not want to allow such a possibility for credits generated under Article 6.4, claiming that this mechanism was not linked to the NDC of the Party hosting projects. According to such a position, Article 6.4 would generate credits in a vacuum, as it were, as was the case with the CDM mechanism in which Brazil actively participated.

An important element, which needs to be specified as part of the further work programme, will be the manner of accounting for single-year targets, as the target of this type can be seen quite often in the Parties' NDCs.

An important element, which needs to be specified as part of the further work programme, will be the manner of accounting for single-year targets, as the target of this type can be seen quite often in the Parties' NDCs. If the large-scale use of international transfers were only allowed

[6] Ang. Carbon Offsetting and Reduction Scheme for International Aviation.

in the final year of the NDC period, this would not reflect the course of emission trajectories in previous years; therefore, it will be necessary to apply a certain way of averaging, based on the number of years in the NDC period, or to designate an indicative trajectory, or even an emissions budget for the successive years of the period, in order to ensure the environmental integrity of the approach.

An element also worth mentioning within the Article 6.2 guidance is one preventing the banking[7] of newly generated units in the PA scheme between the NDC periods. This element caused particular controversies in the Kyoto Protocol scheme, concerning, among others, the banking of AAU units.

Ultimately, no tax in the form of a share of proceeds for adaptation or any other tax designed to contribute to overall mitigation in global emissions (OMGE) were imposed on transfers subject to the rules under Article 6.2. Developing Parties strongly pushed for this aspect until the very end, but the final version of the text adopted only contained the provisions inviting the Parties to make contributions intended to finance adaptation.

The list of specific tasks adopted in the annex to the guidance on Article 6.2 is quite long and will require intensive work next year (and perhaps even in the successive years, too), but the adopted set of rules can still be regarded as a very extensive one, bearing in mind how difficult a subject matter of the negotiations it was.

Moving to the mechanism under Article 6.4, here, too, quite a broad set of rules was adopted, called the rules, modalities and procedures (RMP) in the Annex to the Decision. Looking at the particular RMP provisions, it is impossible not to see many similarities to the CDM mechanism known from the architecture of the Kyoto Protocol. So what has changed?

First of all, the mechanism under Article 6.4 is open to all the Parties, so, in theory, it can also be implemented in the territories of developed countries.

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Baselines, as the reference levels, will determine how many credits implemented activities will generate. One of the main accusations against CDM was that it made it possible to set hardly ambitious baselines based on historical emissions levels. In the opinion of many, as a result, this led

[7] In the Protocol nomenclature, but also in schemes of the ETS type, the banking of unused units or allowances means the possibility of moving them to the next commitment/trading period for the purposes of their later use.

to the approval of projects generating emission reductions which were not considered "additional" (in line with the additionality criterion[8] under the Kyoto Protocol), i.e. those that did not go clearly beyond the business as usual (BAU) reference scenario. At present, there are many grounds for ascertaining that new projects will more rigorously establish their baselines, using such criteria as benchmarks and the levels available as part of the best available technology (BAT).

A 5% tax in the form of a share of proceeds for adaptation and an additional 2% tax designed to contribute to overall mitigation in global emissions (OMGE) will be imposed on credits issued as part of the mechanism under Article 6.4. It will consist in the mandatory cancellation of a portion of credits issued so as also to ensure going beyond the classical offsetting approach.

Another price for the adoption of the rules for Article 6.4 (as well as the entire package of Article 6 of the PA) was that the provisions on the so-called "transition" of the Kyoto Protocol was agreed. In spite of the strong arguments of many developed countries and also progressive developing countries, it was finally agreed that the use and registration under the Paris Agreement will be allowed for both the issued certified emission reductions (CERs), generated by existing projects carried out as part of the CDM mechanism, and also CDM projects themselves. In the case of already issued CERs, this applies to those generated by projects registered after 2012. The available data[9] indicate that about 300 million CERs may be at stake here. Their scale might be larger if the registration of the existing CDM mechanisms is allowed under the rules for the Article 6.4 mechanism. If the maximum possible supply from these projects in the period from 2021 to 2030 was considered, it could include more than 2 billion units; still, such estimates should be approached with reserve, since certainly not all the projects will find their way into the Article 6.4 framework. There are time constraints on their possible transition, the projects will have to demonstrate compliance with new requirements and account should also be taken of the political pressure seeking resignation from the use of these units, which has already appeared on the international stage in the form of political declarations signed by many countries.

Just as in the case of the guidance on Article 6.2 of the PA, also in the context of the rules, modalities and procedures for Article 6.4, the Parties will work on detailed guidance. The new Supervisory Body will also play an important role. Its task will be to supervise the operation of the new mechanism and it will consist of 24 members nominated according to the UN key (the regional groups). In 2022, it is expected to meet at least twice. Some doubts may arise as to whether this body will be less political than the CDM Executive Board (CDM EB), the members of which include persons who are directly involved in the negotiations under the UNFCCC Convention.

The issues related to the accounting of international transfers subject to the rules for Article 6.2 of the PA and the functioning of the mechanism under Article 6.4. of the PA are also important in the context of the recently popular wave of voluntary emission offsetting schemes,

[8] The additionality criterion originates from the provisions of the Kyoto Protocol: "Reductions in emissions that are additional to any that would occur in the absence of the certified project activity".

[9] The potential impact of transitioning CDM units and activities to the Paris Agreement (https://www.oeko.de/en/publications/p-details/the-potential-impact-of-transitioning-cdm-units-and-activities-to-the-paris-agreement ; (accessed on: 23.11.2021).

gaining in strength as many private companies make their declarations on their internal climate neutrality targets. Before the COP26 outcomes were known, the main two voluntary schemes, offering projects and credits for offsetting emissions, i.e. Verra and the Gold Standard, had declared different approaches to the NDC adjustment considered above, i.e. the issue of "corresponding adjustment". On the one hand, the Gold Standard declared that the projects offered as part of its portfolio and the credits which they generated, even if they were used for voluntary purposes, would seek to appropriately adjust the emission levels in the NDCs of the countries hosting such activities.

> The issues related to the accounting of international transfers subject to the rules for Article 6.2 of the PA and the functioning of the mechanism under Article 6.4. of the PA are also important in the context of the recently popular wave of voluntary emission offsetting schemes,

On the other hand, Verra took the position that, given the absence of a clear guidance from the COP, there was no obligation to use the credits for purely voluntary purposes. The final solutions of COP26 left some ambiguities in this respect. Whereas it is clear that the transfers authorised by states, including those to be counted towards the NDCs and international mitigation targets (i.e. CORSIA), should always be subject to corresponding adjustments, in contrast, in the case of their use for voluntary targets, in the absence of authorisation by a given state, there is no obligation to apply a "corresponding adjustment". This would mean that it would be up to a given state to to decide whether the voluntary markets (and the companies using them in the territory of a given state) will have the appropriate authorisation and obligation to reflect the generated and used credits in the context of the NDCs.

It is also important to mention the third element of Article 6 of the PA, i.e. the framework for non-market approaches (NMAs), and the work programme established for these approaches in Glasgow. As a result of the pressure from developing countries, a dedicated body, called the Glasgow Committee, was established to monitor this issue; still, it will be a sort of soft infrastructure, functioning as a discussion forum on the sidelines of the UNFCCC negotiation sessions. The initial stages of the programme will entail the submission and consideration of examples of the non-market approaches applied by the Parties and what will happen later remains an open question. It is clear that developing country States will push for the mobilisation of additional financing of activities of this type as part of this negotiation path. On the other hand, developed countries, afraid of the potential overlap of the issues considered, among others, as part of the negotiation paths on finance and transfer of technology, will seek to maintain the framework mentioned above, as a form of an exchange of information on examples of activities undertaken by the Parties.

Conclusion

How should the rules adopted for Article 6 of the PA be evaluated as a whole? Given the complexity of these issues, as well as the complications and delays in adopting the basic rules, the package adopted in Glasgow should be assessed as quite a significant success, although adopted and encumbered with certain risk areas. When the emotions related to COP26 subside, many Parties will calmly analyse its outcomes from the perspective of their national interests and draft a strategy for the successive negotiation rounds intended to specify the particular aspects of the package. Bearing this in mind, it should be pointed out the actual implementation and the launch of specific measures under Article 6 of the PA can still take some more time, even in spite of certain pilot actions which have already been carried out. How will the rules which were ultimately adopted in Glasgow affect the environmental integrity of the PA and how will they contribute to maintaining an appropriate level of ambition will most likely be the subject matter of analyses only at the end of the present decade.

References:

1. Katowice climate package (Rulebook) (accessed on: 30.11.2021), https://unfccc.int/process-and-meetings/the-paris-agreement/the-katowice-climate-package/katowice-climate-package

2. Decision 1/CP.21 Adoption of the Paris Agreement; (accessed on 30.11.2021), https://unfccc.int/sites/default/files/resource/docs/2015/cop21/eng/10a01.pdf

3. The potential impact of transitioning CDM units and activities to the Paris Agreement, https://www.oeko.de/en/publications/p-details/the-potential-impact-of-transitioning-cdm-units-and-activities-to-the-paris-agreement ; (accessed on: 23.11.2021)

4. Guidance on cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement (accessed on: 23.11.2021), https://unfccc.int/sites/default/files/resource/cma3_auv_12a_PA_6.2.pdf

5. Rules, modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Paris Agreement, https://unfccc.int/sites/default/files/resource/cma3_auv_12b_PA_6.4.pdf; (accessed on: 23.11.2021)

6. Work programme under the framework for non-market approaches referred to in Article 6, paragraph 8, of the Paris Agreement https://unfccc.int/sites/default/files/resource/cma3_auv_12c_PA_6.8.pdf; (accessed on: 23.11.2021)

Funding for climate action in the EU budget perspective for 2021-2027

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Funding for climate action in the EU budget perspective for 2021-2027

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Abstract

The European Union has taken successive budgetary and programming commitments to increase funding for climate action, including the rule that at least 25% of the budget resources should be allocated for this purpose. Other resources will be provided from such funds as InvestEU, the Innovation Fund, the Modernisation Fund, the Just Transition Mechanism, the revenues to the budgets of Member States from the auctions of emission allowances (EUAs), as well as the LIFE and Horizon Europe Programmes. The resources mobilised to alleviate the negative economic and social impacts of the COVID-19 pandemic will also be important. Given the scale of challenges, it will be necessary to continue the national programmes, i.e. "Mój prąd" (My Electricity), or support from private investors.

The policy background

The large importance of climate action at EU level is demonstrated not only by the Paris Agreement reached due to substantial efforts of the EU or its active leadership in the international negotiations under the UNFCCC, but primarily by the allocation of a huge part of its budget for these objectives. In the perspective for 2014-2020, it was 20% of the EU budget. In the next EU long-term budget for 2021-27, the Commission proposed that at least 25% of the EU expenditures should be spent on actions in this area. This commitment to further strengthen climate action, reiterated in the Communication on the European Green Deal of 11 December 2019, reflects the long-term ambition of the EU to achieve climate neutrality by 2050. The array of financial mechanisms is very wide. For example in 2019 more than 94% of EU funds for climate action came from programmes for growth and jobs, including research and innovation, cohesion policy and natural resources, such as agriculture.

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In the next budget perspective, the existing support schemes will be used, but also new ones will be established, focusing on specific actions enabling the achievement of reduction targets. The resources mobilised to alleviate the negative economic and social impacts of the COVID-19 pandemic will also be important.

The EU funds are the largest source of financial resources allocated for investments and actions to implement the energy transition in Poland. About 80% of the EU funds are allocated via

[1] Portal Funding and Tenders (https://ec.europa.eu/info/funding-tenders/how-eu-funding-works/how-get-funding/find-funding-opportunity_pl; accessed on 12.08.2021).

programmes which EU Member States manage themselves. In the case where the EC directly manages funds, it does so, among others, by awarding grants or public contracts[1]. In order to be awarded co-financing for a project contributing to the implementation of EU programmes and strategies, first, information on the call under a specific programme and the invitation of the supervisory institution to submit applications for co-financing have to be found. One can use the search engine for applications for co-financing available on the EC website[2].

Below we present only selected mechanisms which, in our opinion, will be of key importance at both European, national and local levels.

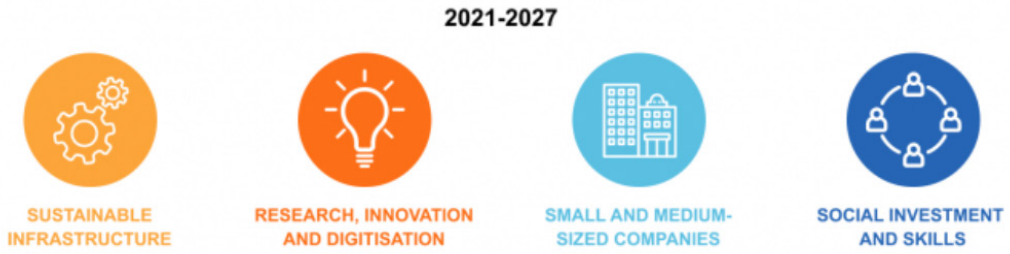
EU-level programmes

The Invest EU Programme

The InvestEU is a new EU investment instrument, which will replace, in principle, the Investment Plan for Europe (the so-called Juncker Plan), including the European Fund for Strategic Investments (EFIS). Just as in the case of the EFIS, the aim of InvestEU is to fill in an investment gap and to improve the investment level by providing EU guarantees for lending from the European Investment Bank (EIB, national development banks (Bank Gospodarstwa Krajowego (BGK) in Poland) and other financial institutions.

It is envisaged that under the Programme an amount of about EUR 32.5 billion in the form of EU guarantees will be allocated; it is expected that it will mobilise about EUR 400 billion for investments across the EU. The main priorities of expenditures will include not only the recovery of the economy after the crisis, but also the implementation of long-term EU objectives, i.e. infrastructure, research, innovation, digitisation, support for small and medium-sized enterprises and social objectives. Importantly, at least 30% of the funds is to be allocated for climate action.

FIG. 1. THE MAIN OBJECTIVES OF THE INVEST EU PROGRAMME FOR 2021-2027.



Source: European Commission.

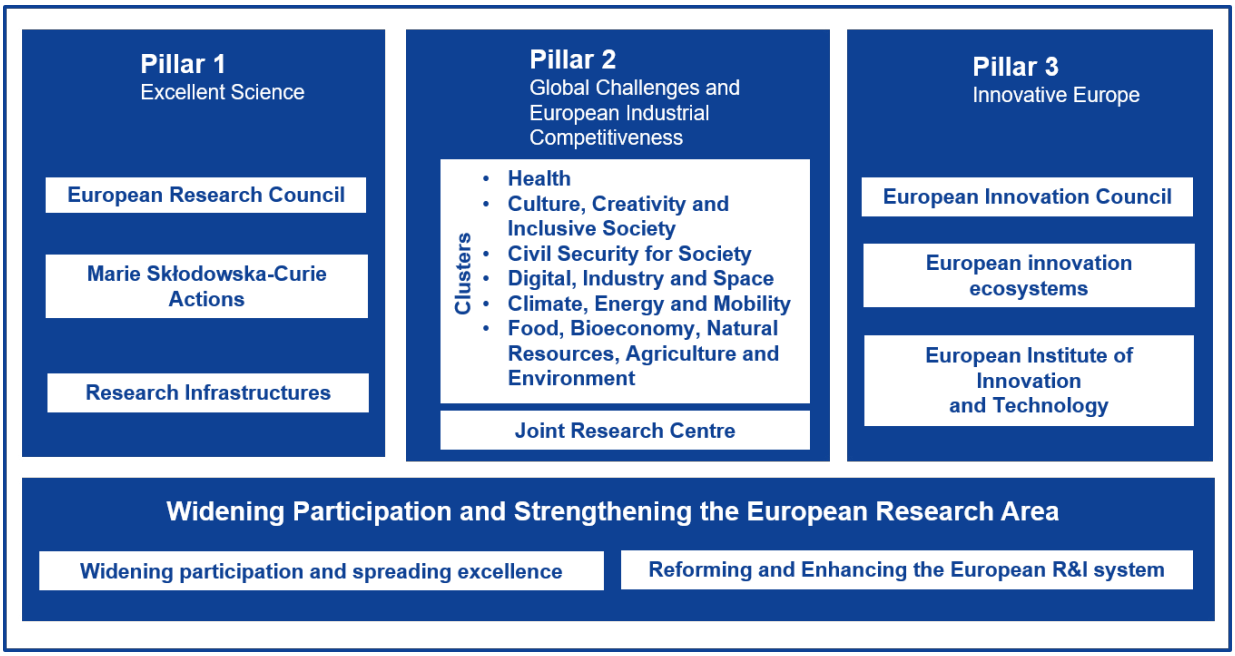
[2] The search engine for submitting applications for co-financing https://ec.europa.eu/info/funding-tenders/find-funding/find-calls-funding-topic_pl; accessed on 12.08.2021).

The Horizon Europe Programme

The EU Horizon Framework Programme (previously Horizon 2020 and now Horizon Europe) is the largest programme for funding research and innovation in the EU's history, focusing on three key areas: an excellent science base, a leading position in industry and innovation. The aim of the Programme is to support the development of science and advanced technologies which would stimulate economic growth. The budget for 2021-2027 is about EUR 95.5 billion, so it is about 30% more than the amount of funds provided under the previous perspective. In order to illustrate the scale of climate expenditures, under the financial perspective of Horizon 2020 35% of the total budget of the Programme was allocated for them. Under the present perspective, as part of the "Climate, Energy and Mobility" cluster, the scale of research and innovation will be enhanced in climate-related fields and European enterprises will be provided with access to needed data and technologies. One of the important elements of the Horizon Programme is its close cooperation with other EU programmes, such as InvestEU, Erasmus+, cohesion policy, Digital Europe, structural and investment funds, the Connecting Europe Facility and the Recovery and Resilience Facility.

Horizon provides support for innovation in the scope of prototype building, testing, demonstration, modelling, large-scale type approval of products and their market replication. The funds under this Programme can be mainly sought by consortiums (consisting at least of three legal entities from at least three Member States).

FIG. 2. THREE MAIN PILLARS OF SUPPORT UNDER THE HORIZON EUROPE PROGRAMME FOR 2021-2027.



Source: European Commission.

The LIFE Programme

The LIFE Programme is the only EU financial instrument which is solely dedicated to co-financing of projects for environmental protection and climate action (about 61% of its resources are to be allocated for the latter field in the period from 2021 to 2027). Its main goal is to support the process of implementing broadly understood European environmental policy, to deliver on the EU policy in this area and also to identify and promote new solutions to environmental problems. In accordance with the European Green Deal, the actions under the LIFE Programme should comply with the "Do no harm" rule. The budget of the perspective for 2021-2027 is EUR 5.4 billion, so this is about EUR 2 billion more than in the previous period. Table 1 shows the scope and specific objectives of the LIFE Programme.

TABLE 1. THE SCOPE OF THE LIFE PROGRAMME AND THE SPECIFIC OBJECTIVES OF ITS PRIORITY AREAS (2021-2027).

The field "Environment"	The field "Climate Action"
• Nature and biodiversity • Circular economy and quality of life	• Climate change mitigation and adaptation • Clean energy transition

Source: Ministry of Climate and Environment.

The beneficiaries of the LIFE Programme may be any entities registered in the territory of an EU Member State, including, territorial self-government units. The standard rate of the co-financing for a LIFE project by the Commission is up to 60% of the value of eligible costs. In addition, Polish applicants can seek co-financing for their projects from the national resources of the National Fund for Environmental Protection and Water Management, to complement the financial assembly for the project to cover even up to 95% of eligible costs.

The European Union Emissions Trading System

EThe European EU ETS System provides increasingly large resources for climate action due to the growing EUA emission allowance prices, the phasing of free allocation and an increased share of resources for funding climate policy from auction proceeds. Both the current EU ETS Directive[3] and the proposal for its revision of 14 July[4] contain financial support mechanisms, i.e. specified objectives of the use of budget proceeds from allowances auctions, the Funds: the Investment Fund, the Modernisation Fund or the newly proposed Social Climate Fund (SCF).

[3] Directive of the European Parliament and of the Council (EU) 2018/410 of 14 March 2018 amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments, and Decision (EU) 2015/1814, OJ L 76/3.

[4] Proposal for an amendment to the EU ETS Directive (https://ec.europa.eu/clima/eu-action/european-green-deal/delivering-european-green-deal/increasing-ambition-eu-emissions-trading_en; accessed on 12.08.2021).

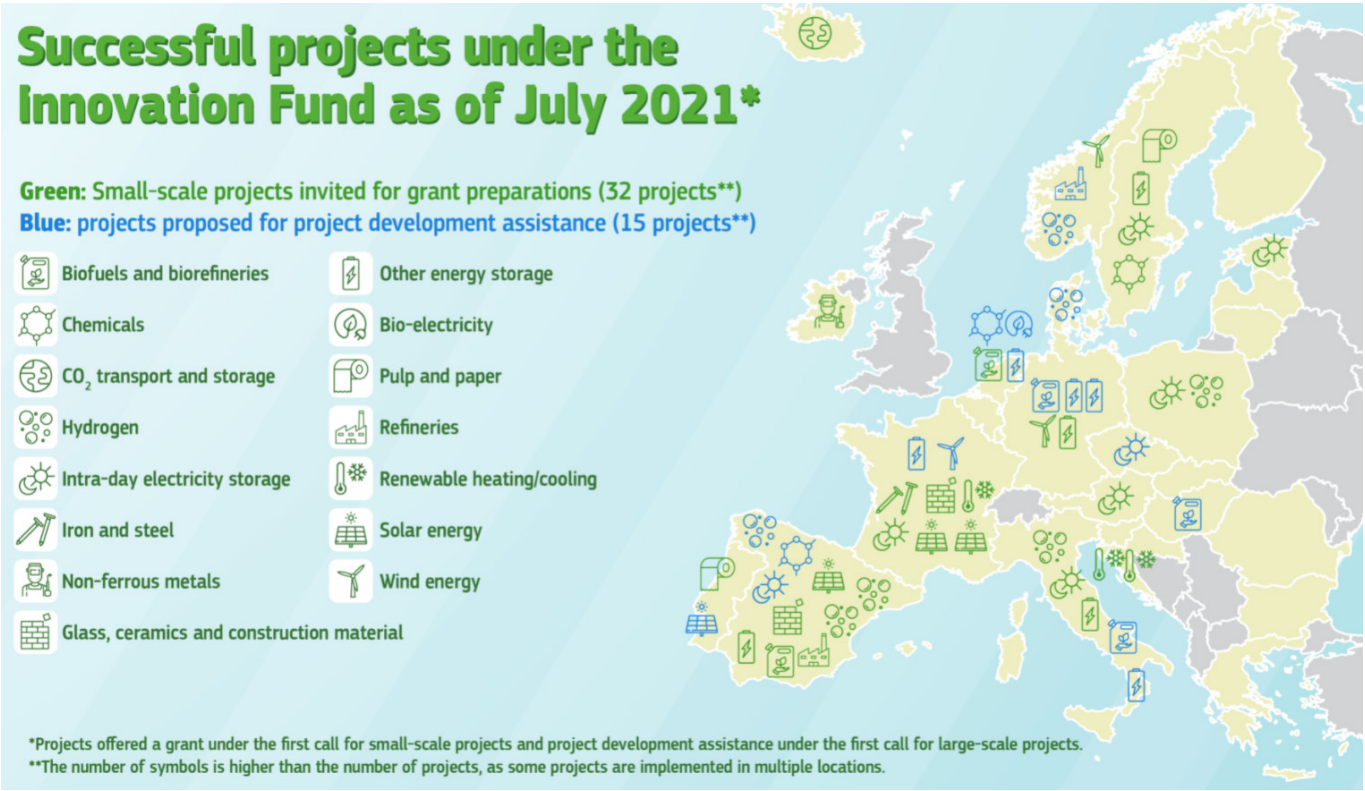
In accordance with the EU ETS Directive now in effect, Member States should use at least 50% for climate objectives. The amendment proposed by the European Commission in July 2021 is significant, since it provides that all the proceeds from the sales of allowances by EU Member States should be spent for those objectives. In Poland's case, since the beginning of the sales of greenhouse gas emissions at auctions, about PLN 20.5 billion went to the state budget. Without these revenues, it would not be possible to finance programs such as "Mój Prąd" (My Electricty) or thermal modernisation programmes.

The Innovation Fund (IF) is one of the worlds' largest funding programmes for demonstration of innovative low-carbon technologies. In the period from 2020 to 2030, its budget may reach approx. EUR 10 billion (depending on EUA prices), whilst the proposal for an amendment to the EU ETS Directive supplies additional allowances to the already existing pool.

The objectives of the funding include:

- Innovative low-carbon technologies and processes in energy intensive industries, including products substituting carbon intensive ones;
- Carbon capture and utilisation (CCU);
- Construction and operation of carbon capture and storage (CCS);
- Innovative renewable energy generation;
- Energy storage.

FIG. 3. MAP OF PROJECTS CO-FINANCED UNDER THE INNOVATION FUND AS OF JULY 2021.



Source: European Commission.

The aim of the Modernisation Fund (MF) is to modernise the energy sector in countries facing the biggest challenges related to the implementation of the EU targets for CO_2 emission reductions. What is important, the MF cannot be used for financing any type of fossil fuels.

TABLE 2. TYPES OF INVESTMENT UNDER THE MODERNISATION FUND.

	Priority investments	Non-priority investments
Support areas	• RES • energy efficiency • energy storage • modernisation of energy networks • just transition	• Other types of investments consistent with the MF objectives • The Fund cannot support fossil fuels (except for district heating networks in Bulgaria and Romania)
Maximum support rate	up to 100% of eligible costs	Up to 70% of eligible costs The remaining costs to be financed from private sources
Share from the MF pool	At least 70%* (*80% in the most recent EC proposal)	Up to 30%*
Type of investments	Individual investments Support schemes	Individual investments Support schemes

Source: CAKE

The operator of the Modernisation Fund in Poland is the National Fund for Environmental Protection and Water Management (NFEP&WM). In Poland's case, the priority investments approved in 2021 include smart meter infrastructure, the development of power grids for electric vehicle car charging stations and energy efficiency in existing buildings[5].

In addition, in its proposal of July 2021, the Commission proposed the establishment of the Social Climate Fund, with the aim of financing Member States' plans concerning the social aspects of emission allowance trading in the areas of buildings and road transport, with particular emphasis on households, micro-enterprises and transport users. The resources of the new Fund would correspond to 25% of the expected revenues from the new emission trading scheme in the period from 2026 to 2032 (established for buildings and road transport) and would be spent on the basis of social climate plans submitted by Member States. Poland could obtain 17.61% of the pool of the resources, including EUR 4.2 billion in the period from 2025 to 2027 and EUR 8.5 billion in the period from 2028 to 2032.

[5] Press release from the EC on the disbursement of MF resources (https://ec.europa.eu/clima/news-your-voice/news/modernisation-fund-first-eur-304-million-support-climate-neutrality-3-beneficiary-countries-2021-08-06_en; accessed on 12.08.2021)

European Funds

The European Funds for 2021-2027 for Poland provide EUR 72.2 billion under Cohesion Policy, which includes the following Funds: the European Regional Development Fund (ERDF), the Cohesion Fund (CF), the European Social Fund Plus (ESF+) and the Just Transition Fund (JTF). The Common Fisheries Policy includes the European Maritime and Fisheries Fund (EMFF). The basic document which defines the cooperation between the EU and Poland is the Partnership Agreement (PA)[6]. It is the strategy for the use of European Funds which has been agreed with the European Commission.

The European Funds for 2021-2027 for Poland provide EUR 72.2 billion under Cohesion Policy, which includes the following Funds: the European Regional Development Fund (ERDF), the Cohesion Fund (CF), the European Social Fund Plus (ESF+) and the Just Transition Fund (JTF).

From the climate action point of view, the most important national program will be the European Fund for Infrastructure, Climate and Environment (FEnIKS), which will be the successor to the Operating Programme Infrastructure and Environment (POIiŚ). The main objectives of the Programme include support for the development of the low-emission economy, environmental protection and climate change mitigation and adaptation. FEnIKS will also support transport investments and co-finance health care and cultural heritage. The planned budget of the Programme is more than EUR 25 billion.

The Just Transition Fund

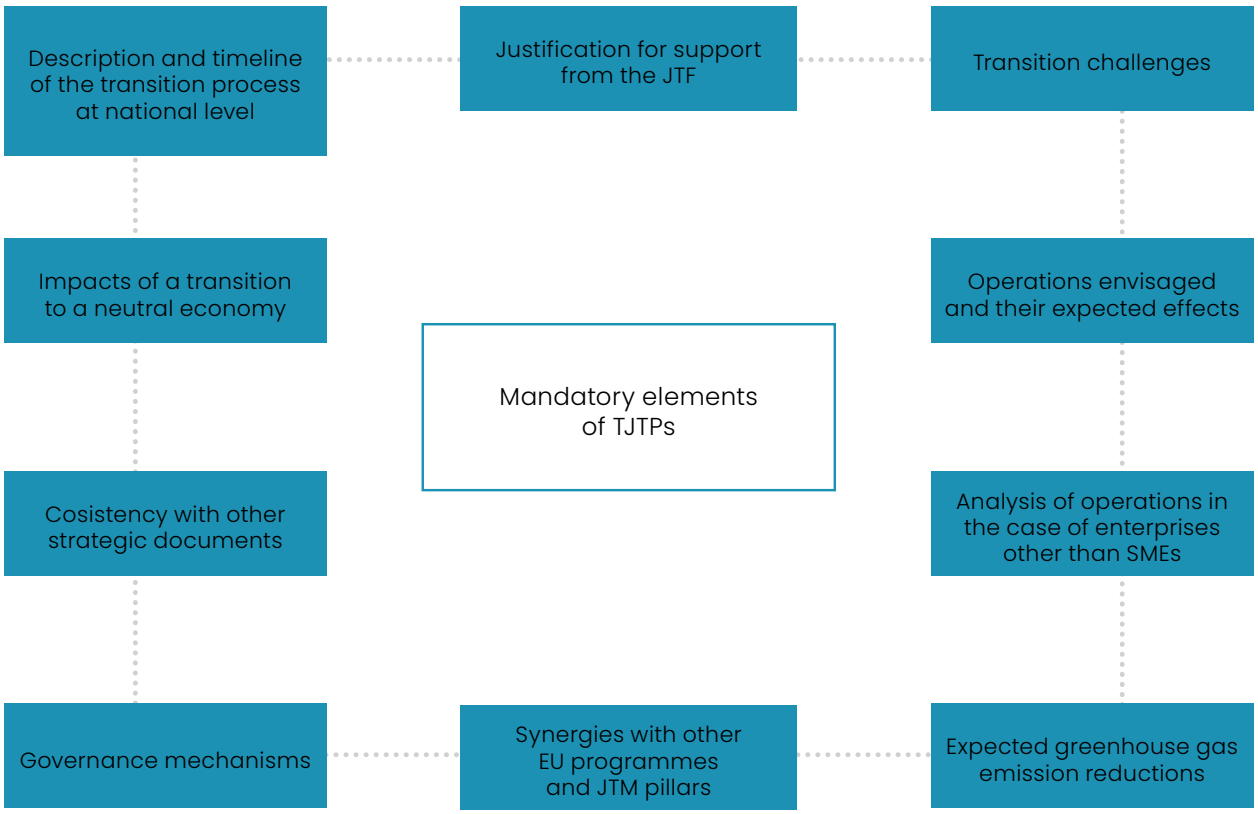
In accordance with the assumptions of the EC, the Just Transition Mechanism (JTM) is envisaged to be the financial arm of the European Green Deal, enabling the mobilisation of at least EUR 100 billion in the period from 2021 to 2027 to support the process of transition to climate neutrality. It will be based on three pillars::

- The first pillar will be the Just Transition Fund (JTF), the budget of which has been adopted at a level of EUR 17.5 billion.
- The second pillar will be the InvestEU Programme (as described above).
- The third pillar will be a lending mechanism managed by the EIB.

The Just Transition Fund will finance projects initiated by regional and local stakeholders, designed to meet the needs of regions and, primarily, to mitigate the adverse social and economic impacts of a shift away from coal. The condition for the award of resources from the JTF is the preparation of a transition plan for the voivodship which is eligible for the Programme. In Poland, 6 coal regions were identified: Śląskie, Dolnośląskie, Wielkopolskie, Łódzkie, Lubelskie and Małopolskie voivodships. The diagram below shows the key elements of territorial just transition plans:

[6] The Partnership Agreement [in Polish] (https://www.funduszeeuropejskie.gov.pl/media/97650/umowa_partnerstwa_broszura_wersja_dostepna.pdf; accessed on 12.08.2021)

FIG. 4. KEY ELEMENTS OF TERRITORIAL JUST TRANSITION PLANS (TJTPs).



Source: CAKE.

The European Commission has proposed the allocation of EUR 8 billion from the JTF for the regions affected by the impacts of the energy transition in Poland, meaning that our country will be the largest beneficiary of this mechanism.

National Programmes
The National Recovery Plan (NRP)

The NRP was established to use the Recovery and Resilience Facility (RRF), which provides for EUR 750 billion of assistance for Member States. Poland is the fourth largest beneficiary of this programme. Our country is expected to receive EUR 23.1 billion in the form of non-returnable grants and EUR 34.2 billion in the form of loans. The NRP is a comprehensive programme of reforms and strategic projects. Its aims include the strengthening of the economic resilience and the building of the potential of the Polish economy for the future. Its resources are to be spent on investments in the areas of key importance for the EU, i.e. infrastructure, transport, energy, environment, innovation, digitisation, health, society and territorial cohesion. To date, regions and ministries have submitted 1,200 projects for the NRP. The largest pool of resources is to be allocated for the energy transition (more than 90%). It is envisaged that the first resources under the NRP will be released in early 2022. The Programme is to last until 2026. The "My Power" and "Clean Air" Programmes will be implemented with the resources under the National Recovery Plan (NRP).

The "Clean Air" Programme

"Clean Air" is the first nationwide Polish programme of subsidies to the replacement of old heating stoves and thermal modernisation of single family houses. Its main aim is to combat smog in cities and rural areas, thus indirectly contributing to greenhouse gas emission reductions. The budget of the Programme is PLN 103 billion in the period from 2018 to 2029. Under the "Clean Air" Programme, grants are envisaged for the replacement of old, inefficient solid fuel-fired stoves and the insulation of houses, covering 30-50% of the total project costs. The support rate depends on the type of a project; moreover, higher grant rate may be applied when the most efficient solutions are used. The highest grants are envisaged for the installation of heat pumps. Financial support can be obtained for:

- the replacement of old, solid fuel-fired heating stoves by environmentally friendly heat sources meeting the requirements of the Programme,
- central heating and hot domestic water installations,
- mechanical ventilation,
- photovoltaic micro-installations,
- the insulation of houses and the replacement of windows and doors (costs of materials and labour).

The "Mój Prąd" (My Electricity) Programme

The "Mój prąd" Programme is a dedicated instrument supporting the development of prosumer energy generation, in particular, the segment of photovoltaic micro-installations (PV of 2-10 kW), implemented in the period from 2019 to 2025. The beneficiaries of the Programme include natural persons producing electricity to meet their own needs who have signed comprehensive contracts governing the issues related to the supply of the electricity generated in micro-installations to the grid. The budget for the implementation of the objectives of the Programme is PLN 1 billion.

Conclusion

The success of the EU as a global actor and partner in climate action entails not only the publication of such communications as the one on the European Green Deal, but also the appropriate use of financial outlays on which the pace of the implementation of green investments depends. In order to deliver on its ambition, the EU must take specific financial steps, including climate action, apply the "Do no harm" rule and actively meet its commitments under the Paris Agreement.

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The European institutions make successive budgetary and programming commitments to increase the funding for climate action, including the adoption of the rule that at least 25% of the budget resources should be allocated for this purpose, which is undoubtedly unprecedented at global level. While resources from the EU budget play a key role in implementing a sustainable

energy transition, additional and substantial resources from other public and private sources will still be needed, as has been repeatedly emphasized by Vice-President of the European Commission Frans Timmermans, and others.[7] Important actions include those under the EU programmes and their uses at both global and European levels, as well as in particular Member States. An important aspect in the funding for these actions is their appropriate orientation in geographical terms and on the relevant target group, so as to respond to the most urgent climate problems, in particular, in low-income countries, such as Poland.

References

1. Directive of the European Parliament and of the Council (EU) 2018/410 of 14 March 2018 amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments, and Decision (EU) 2015/1814, OJ L 76/3.

2. Press release from the EC on the disbursement of MF resources (https://ec.europa.eu/clima/news/modernisation-fund-first-eur-304-million-support-climate-neutrality-3-beneficiary-countries_en; accessed on 12.08.2021)

3. Portal Funding and Tenders (https://ec.europa.eu/info/funding-tenders/how-eu-funding-works/how-get-funding/find-funding-opportunity_pl; accessed on 12.08.2021)

4. Proposal for an amendment to the EU ETS Directive (https://ec.europa.eu/clima/policies/eu-climate-action/delivering/euets_en; accessed on 12.08.2021)

5. The Partnership Agreement [in Polish] (https://www.funduszeeuropejskie.gov.pl/media/97650/umowa_partnerstwa_broszura_wersja_dostepna.pdf; accessed on 12.08.2021)

6. Speech by Frans Timmermans (https://ec.europa.eu/commission/presscorner/detail/en/SPEECH_20_1551; accessed on 12.08.2021)

7. The search engine for submitting applications for co-financing (https://ec.europa.eu/info/funding-tenders/funding-opportunities/find-calls-funding-topic_pl; accessed on 12.08.2021)

[7] Speech by Frans Timmermans (https://ec.europa.eu/commission/presscorner/detail/en/SPEECH_20_1551; accessed on 12.08.2021).

The mechanism for financing climate action projects from the Modernisation Fund resources

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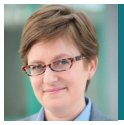
The mechanism for financing climate action projects from the Modernisation Fund resources[1]



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Abstract

The article describes the purpose and operating mechanism of the Modernisation Fund established pursuant to an amendment to Directive 2003/87/EC. The Fund was designed as a transformative instrument intended to transform the energy systems of the beneficiary Member States towards a phase out of fossil fuels. The establishment of the Fund is expected to contribute to the implementation of the target of a greenhouse gas emission reduction by 55% in 2030 from 1990 levels which has been set out at EU level.

The Authors present the key assumptions of the operation of the Fund, including the types of investments to be supported from this source and the rules for the allocation of resources for them. They also describe the procedure of support, including the Polish and European stages of this procedure and the tasks of particular institutions participating in this process.

The foundations of the operation of the Modernisation Fund under the ETS Directive

An amendment to Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC[2] (hereinafter referred to as the ETS Directive) of 2018 established the so-called Modernisation Fund (hereinafter referred to as the Fund)[3]. It should be pointed out, however, that the establishment of this Fund was announced at a meeting of the European Council in October 2014.[4] In its Conclusions, the Council presented the general assumptions of the operation of the Fund and the main objectives of the financing of projects from this source.

The operation of the Fund was planned for the period from 2021 to 2030. Its most important goal is to support the achievement of the target of a greenhouse gas emission reduction by 55% in 2030 from 1990 levels which has been set out at EU level. The Fund is solidarity-based and has been

[1] The article was prepared as part of the Project "Knowledge base on climate change and adaptation to its effects and channels of its dissemination in the context of increasing the resilience of the economy, environment and society to climate change, and counteracting and minimising the effects of extraordinary threats", co-financed from the Operational Programme Infrastructure and Environment 2014-2020.

[2] Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC, OJ L 275, 25.10.2003, p. 1, as amended.

[3] Directive (EU) 2018/410 of the European Parliament and of the Council of 14 March 2018 amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments, and Decision (EU) 2015/1814, OJ L 76, 19.03.2018, p. 3.

[4] See the Conclusions of the European Council of 24 October 2014. Conclusions on 2030 Climate and Energy Policy Framework 2030, SN 79/14 (paragraph 2.7).

established to benefit Member States which had in 2013 a GDP per capita below 60% of the EU average. It will support the transition of these Member States on the EU's path towards the achievement of its target of climate neutrality. The Fund will be used by ten Central and Eastern European countries, including Poland.

The Fund is a transformative instrument and it is expected to stimulate the development of investments intended to transform the energy systems of the beneficiary Member States towards a phase out of fossil fuels, the achievement of significant energy savings and the building of the energy generation system based on renewable energy sources.

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The ETS Directive left a small margin of freedom to Member States as regards the objectives of spending the Fund resources; still, it should be noted that, in addition to investments to modernise the energy system and to improve energy efficiency, the Fund resources should also be used to implement small-scale projects, which means that financial support can be obtained for such investments as e.g. the thermal modernisation of existing single family houses, the modernisation of district heating sources and networks, the development of low-emission distributed energy sources etc. However, the key constraint on the type of projects which can be supported from the Fund resources is the exclusion of financing for units which generate energy using fossil fuels[5].

The ETS Directive also introduced constraints on the intensity of support for specific types of investments. At least 70% of the Fund resources must be allocated to investments in the so-called priority areas which, in accordance with the ETS Directive, include, among others, renewable energy sources, the improvement of energy efficiency, energy storage, electricity and district heating networks, as well as support for a so-called just transition. At most, 30% of the Fund resources can allocated to the other areas. Moreover, the projects in priority areas can expect to be co-financed to the extent of even 100% of the investment costs, whereas the rate of support for other projects can be up to 70%.

The Modernisation Fund will be supplied with the revenues from the sales of emission allowances (EUAs) representing 2% of the total EU pool. The amount at the disposal of the Modernisation Fund depends on the market price of emission allowances in the EU ETS system. The higher the allowance price is, the more resources the Fund will have and, as a result, Member States will have a larger budget for investments. Each Member State which is a beneficiary of the Fund has its specific share in the pool of the Fund resources[6] (so-called national envelopes).

The proceeds from the sales of more than 119.6 million allowances will be allocated to Poland. At the same time, Poland will be the largest beneficiary of the Fund, having at its disposal more that 43%

[5] The exclusion of the possibility to fund energy facilities burning hard coal does apply to installations making up an efficient and sustainable district heating system in Member States, but only certain countries meet this condition (Bulgaria and Romania).

[6] Poland's share is 43.41%, whilst the shares of other Member States that are the beneficiaries of the Funds are as follows: the Czech Republic – 15.59%, Romania – 11.98%, Hungary – 7.12%, Slovakia – 6.13%, Bulgaria – 5.84%, Croatia – 3.14%, Estonia – 2.78%, Lithuania – 2.57% and Latvia – 1.44%.

of the pool of the Fund resources[7]. As indicated by projections, the value of the share of our country in the total budget of the Fund will be about PLN 17 billion.[8]

At the same time, Poland will be the largest beneficiary of the Fund, having at its disposal more that 43% of the pool of the Fund resources. As indicated by projections, the value of the share of our country in the total budget of the Fund will be about PLN 17 billion.

However, Member States could increase their shares in the pool of the resources at the disposal of the Fund, by using for this purpose part or the whole of:

- the pool of free emission allowances which could be allocated to the energy sector in return for modernisation investments (under Article 10c of the ETS Directive) and
- the pool of allowances to be auctioned which were allocated to the Member State for the purposes of solidarity, growth and interconnections within the Union (under Article 10(2)(b) of the ETS Directive)[9].

The decisions to increase the size of the national envelopes were subject to time limits. Member States had to communicate their decisions to the Commission by 30 September 2019 at the latest and also to specify how many additional allowances they intended to transfer to their shares in the Fund.

The financial resources at disposal of Member States in the Fund will be transferred in equal annual volumes in each year in the period from 2021 to 2030[10]. The European Investment Bank (EBI) is expected to ensure that allowances are sold at auctions on the common auction platform, in accordance with Article 10(4) of the ETS Directive, and will also be responsible for the management of revenues, their allocation and transfer to Member States.

The design of the management of the Modernisation Fund is based on cooperation between national and EU institutions. The Fund will be managed by Member States that are the beneficiaries of the Fund, with the participation of the European Investment Bank (EIB), which will take part in the proposal selection process. The Investment Committee, consisting of the representatives of ten Member States that are the beneficiaries of the Fund, three Member States that are not beneficiaries, the EIB and a representative of the European Commission. The representative of the EC will chair the work of the Committee.

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The Investment Committee,

[7] Source: https://modernisationfund.eu

[8] K. Sobczak, J. Ojczyk, Ustawa podpisana, możliwe będzie wsparcie z Funduszu Modernizacyjnego dla energetyki (The Act has been signed so support from the Modernisation Fund will be available for the energy sector [in Polish]), an article in the online service available via the link: (https://www.prawo.pl/biznes/transformacja-energetyczna-nowy-fundusz-ma-wspierac-zmiany,506873.html; accessed on: 8.08.2021).

[9] As the result of their exercise of such a right, 5 Member States have increased the size of their national envelopes in the Fund. Romania and the Czech Republic have transferred the most allowances to the Fund (respectively, more than 167 million and more than 150 million allowances). As a result of this, these states have at their disposal almost twice as large a volume of allowances to be auctioned for use to finance national investment projects than Poland has. Poland has not used this possibility. Source: https://modernisationfund.eu

[10] On 6 August 2021, following a positive decision of the European Commission, the European Investment Bank made the first disbursements from the Modernisation Fund. A total of EUR 304.43 million were released to three states: the Czech Republic (EUR 202 million), Hungary (EUR 11.43 million) and Poland (EUR 91 million). They will be used to finance six investment proposals which were confirmed as priority investments.

The arrangement of competence between these decision-making bodies will not only affect the organisational performance of the Fund, but also determine the objectives of support. In this arrangement, the role of the EIB will be limited to ensure that those schemes and projects that contribute the most to the implementation of EU climate policy are prioritised.

The arrangement of competence between these decision-making bodies will not only affect the organisational performance of the Fund, but also determine the objectives of support.

The EU institutions leaves its marks role in the proposal selection procedure. This procedure is different depending on the area concerned. Projects which fall within priority areas are subject to an assessment by the EIB, which confirms that they fall within some of these areas. After it receives such a position of the EIB, a Member State can decide to finance the investment from its share in the Fund. In this procedure, the Investment Committee is only informed of the confirmation of the investment by the EIB and it is no longer involved in the assessment of the investment proposal.

Investments which do not fall within priority areas are subject to stricter scrutiny by the Investment Committee and the EIB, including an assessment of their technical and financial viability and the emission reductions to be achieved by them. In this procedure, the Investment Committee issues its recommendation concerning the financing of the investment from the Modernisation Fund. The EIB transfers resources to Member States only on the basis of a disbursement decision which is taken by the EC.

The Member State concerned is responsible for supervision over the implementation of projects funded from the Fund resources. Moreover, Member States are free to decide on the rules for the distribution of the funds which make up their share in the Fund resources. For instance, in this scope they can establish dedicated support schemes or they can also use the Fund resources to support other, existing aid schemes.

The mechanism of the co-financing of investments from the Fund resources under the Act on the Emission Allowance Trading System

The national procedure for co-financing of investments from the Modernisation Fund resources was regulated by the new Chapter 8a of the Act of 12 June of 2015 on the Greenhouse Gas Emission Allowance Trading System (Official Journal of the Laws of 2021, Items 332 and 1047; hereinafter referred to as the Trading System Act)[11].

Following the ETS Directive, the national legislation distinguishes between two categories of investments which can be supported from the Fund resources, i.e. investments in the priority areas to which at least 70% of the pool of the funds at Poland's disposal must be allocated and investments in the non-priority areas[12]. In accordance with the Trading System Act, investments of both categories will be implemented in the form of priority schemes by the NFEP&WM.

[11] The Act of 12 June of 2015 on the Greenhouse Gas Emission Allowance Trading System (Official Journal of the Laws of 2021, Items 332 and 1047).

[12] The division into "priority investments" and "non-priority investments" originates from Commission Implementing Regulation 2020/1001 and although it is also present in the Polish legislation they are not called so directly.

The catalogue of priority areas laid down in the new Article 50a(1) of the Trading System Act essentially coincides[13] with the catalogue contained in Article 10d(2) of the ETS Directive. In particular, it includes projects to generate and use energy from renewable sources, energy storage, modernisation of energy networks or support for just transition in regions dependent on fossil fuels, i.e. the investments which the European legislator considers to be the most important from the point of view of the objectives of the Fund.

The catalogue of priority areas in particular includes projects to generate and use energy from renewable sources, energy storage, modernisation of energy networks or support for just transition in regions dependent on fossil fuels, i.e. the investments which the European legislator considers to be the most important from the point of view of the objectives of the Fund.

Any other investments which are not listed in Article 50a(1) of the Trading System Act (and in Article 10d(2) of the ETS Directive) which aim to modernise the national energy system and to improve energy efficiency can also be supported from the Fund resources (investments in non-priority areas), but not more than 30% of the funds constituting Poland's share can be allocated to these investments. Moreover, it should be borne in minds that investments in non-priority areas can receive not more than 70% of their implementation costs from the Fund resources, whilst the other costs should covered by private entities. The Trading Scheme Act has introduced the prohibition of financing the remaining costs of the investments from public resources.

Irrespective of the area, investments supported from the Fund cannot involve units generating energy from solid fossil fuels (i.e. hard coal, lignite and peat). This is a constraint on the activity carried out by an entity which can possibly seek support.

This means that e.g. carbon dioxide capture projects (CCS or CCU) in coal-fired power plants or energy storage systems associated with such generating units may not be financed from the Fund resources. In contrast, projects carried out as part of conventional energy generation which are based on other fossil fuels (e.g. gas) are eligible for support.

Thus, it excludes the possibility of financing any facilities and related projects, if due to the specificity of their operation they use solid fossil fuels.

Thus, it excludes the possibility of financing any facilities and related projects, if due to the specificity of their operation they use solid fossil fuels. The Act confers a key role in the procedure for financing projects from the Fund resources to the National Operator of the Modernisation Fund whose tasks are carried out by the NFEP&WM (hereinafter referred to as the Fund Operator).

The financing of investments from the Fund resources is based on priority schemes. The call for proposals of investments covered by these

[13] However, it is important to note the wording in Article 50a(1)(4) of the Trading System Act, which can lead in practice to a wider interpretation of the catalogue contained in Article 50a compared with the catalogue in Article 10d(2) of the ETS Directive. The provision in question provides that the Fund resources can be used to support investments in energy efficiency, including "in the sectors of transport, buildings, agriculture and waste", which can be understood to mean an open-ended catalogue, i.e. one allowing for the application of this provision to other sectors, too, whereas Article 10d(2) of the ETS Directive enumerates them exhaustively. Without prejudging unequivocally that this regulation is inconsistent with the current wording of the ETS Directive, it should be considered whether such opening of the catalogue in Article 50a(1)(4) of the Act has been a deliberate action of the legislator.

schemes is managed by the Fund Operator in the competition or continuous modes. The Operator places a notice of a competition and the regulations of the call for proposals on its website.

The Management Board of the NFEP&WM is responsible for the preparation of priority schemes[14]. They will be confirmed by the Supervisory Board after a prior agreement is reached with the Minister responsible for climate action. Similar solutions have been adopted in the Environmental Protection Law Act in respect of the use of other resources which are managed by the NFEP&WM, nevertheless the procedure for the preparation of schemes financed from the Fund resources has its specificity.

Specifically, the Trading System Act has imposed on the Minister responsible for climate action the obligation to seek the opinion of the Consultative Council on each priority scheme to be funded from the resources mentioned above[15].

The adoption of a priority scheme completes the national stage of the procedure for the determination of the objectives of the financing of investments from the Fund resources. The next stage – at EU level – involves the approval by the EIB and the European Commission. If a scheme concerns the financing of investments falling within a priority area referred to in Article 50a(1) of the Trading System Act, the Fund Operator forwards such a scheme to the EIB for confirmation of its compliance with Article 10d of the ETS Directive. The scheme should contain a list of investments and information concerning them, in line with requirements of Commission Implementing Regulation (EU) 2020/1001 of 9 July 2020 laying down detailed rules for the application of Directive 2003/87/EC of the European Parliament and of the Council as regards the operation of the Modernisation Fund supporting investments to modernise the energy systems and to improve energy efficiency of certain Member States[16].

In the case where the scheme concerns the financing of investments falling within non-priority areas, the Fund Operator also forwards it to the Investment Committee in order for the Committee to issue its recommendation concerning its compliance with the objectives of the ETS Directive.

The European stage of the procedure for the assessment of investments in priority and non-priority areas which are also implemented in the form of schemes is expected to lead to the issue of a decision of the EIB to approve such a scheme or a recommendation from the Investment Committee. The abovementioned decision or recommendation provide the basis for the issue of a disbursement decision by the European Commission.

[14] The Trading System Act has imposed on the Minister responsible for climate action the obligation to prepare a list of investments financed from the Fund resources in respect of which she/he intends to submit investment proposals over the next two calendar years. This list has an indicative nature and its content is not binding in the procedure for the assessment of proposals or schemes submitted by the Member State concerned.

[15] The legislator has not decided to establish a mechanism for consultations of schemes with the public (in particular, entrepreneurs) or territorial self-government units. Only a mechanism for consultations among the ministries making up the government has been created. In accordance with the Trading System Act, the Minister responsible for climate action consults each proposal for a priority scheme with the Consultative Council, consisting of the representatives of the Ministers heading 14 areas of the government administration and the representative of the Government Plenipotentiary for Strategic Energy Infrastructure. The representative of the Fund Operator also takes part as an observer with no voting rights in the work of the Council.

[16] Commission Implementing Regulation (EU) 2020/100 of 9 July 2020 laying down detailed rules for the application of Directive 2003/87/EC of the European Parliament and of the Council as regards the operation of the Modernisation Fund supporting investments to modernise the energy systems and to improve energy efficiency of certain Member States, OJ L 221 of 10.07.2020, p. 107.

Commission Implementing Regulation (EU) 2020/1001 provides, in principle, for common regulations for investment proposals, irrespective of whether they are submitted in the form of schemes or individual proposals. In certain cases, however, it provides for separate regulations for schemes[17].

The Regulation provides for a mechanism disciplining Member States in respect of the deadlines for the submission of their proposals, including priority schemes under which investments are to be funded under the national law. The mechanism consists in that an investment proposal needs to be submitted for consideration at an appropriately early date prior to one of the biennial meetings of the Investment Committee (respectively, six weeks before the meeting on investments in priority areas and four weeks for investments in non-priority areas). If a proposal is submitted later it is considered in the next cycle.

It also provides for the situation where the EIB is of the opinion that investment proposal do not fall within priority areas. In such a case, the EIB informs thereof the Member State not later than within four weeks from submission of the proposal and states the reasons for its conclusion. The Regulation does not envisage either the effects of failure of the EIB to comply with the deadline or the effects of failure of the institutions of the European Union to meet the other deadlines considered below.

Additional formal requirements for confirmation of investment proposals in priority areas are set in Article 6(7) of Commission Implementing Regulation (EU) 2020/1001. To meet them, a Member State has to demonstrate that its proposal complies with the provisions of the ETS Directive concerning the Fund and other provisions of EU and national law. A Member State should also provide information indicating that the amounts requested from the Modernisation Fund are not intended to cover the same costs of the investment as those financed by another EU or national instrument. The Regulation also provides for simplified requirements[18] where a proposal only concerns a subsequent disbursement for a scheme which has been confirmed earlier by the EIB, provided that there have been no changes to the scheme in question.

Investment proposals which fall into non-priority areas are subject to a more comprehensive assessment in terms of their technical and financial viability and their added value in respect of the objectives of the Fund.

Investment proposals which fall into non-priority areas are subject to a more comprehensive assessment in terms of their technical and financial viability and their added value in respect of the objectives of the Fund. The Investment Committee assesses investment proposals which fall into non-priority areas to issue a recommendation on the

[17] Since the Polish Act has adopted a solution under which investments will only be implemented in the form of schemes (called "priority schemes"), it should be noted that pursuant to Article 2(5) of Commission Implementing Regulation 2020/1001, a scheme is an investment proposal which complies with the following criteria:

a) it comprises a consistent set of priorities coherent with the objectives of the Modernisation Fund, and because of the characteristics of the projects under the scheme, it can be qualified either as a priority or non-priority investment;
b) it has a duration of more than one year;
c) it has a national or regional scope; and
d) it aims to support more than one public or private person or entity responsible for initiating or initiating and implementing projects under the scheme.

[18] Pursuant to Article 4(2) second subparagraph of Commission Implementing Regulation 2020/1001, in the case where the Commission has decided on the first disbursement to a scheme, any subsequent disbursement will require a separate proposal specifying the amount to be disbursed and containing the updated information about the scheme, as appropriate.

financing of them. In this procedure, the EIB carries out a technical and financial due diligence analysis (comprising verification of the costs of the proposed investment), including an assessment of the expected emission reductions; it should do so two weeks before its relevant meeting. For this category, too, additional formal requirements have to be met by a request submitted by a Member State for the issue of a recommendation by the Investment Committee (under Article 7(7)) of Commission Implementing Regulation (EU) 2020/1001) in order to demonstrate that the investment proposal complies with the provisions of the ETS Directive and other provisions of EU and national law. Investments in non-priority areas are also subject to the requirement for submission of information that a given cost category is not financed by another EU or national instrument.

After a meeting of the Investment Committee, the European Commission immediately adopts a decision specifying the amount of the resources from the Fund to be disbursed to each investment confirmed by the EIB or recommended for the financing by the Investment Committee. If investments are implemented in the form of schemes, the disbursement decision may specify the amount of the first or any subsequent disbursement. Within 30 days of the date of the disbursement decision, the EIB transmits to the Member State the relevant amount of the Fund support.

After the European Commission adopts a disbursement decision the procedure moves again to the national level. The Fund Operator concludes agreements on the co-financing of investments from the Modernisation Fund with beneficiaries which are eligible for co-financing under a given priority scheme.

Moreover, the legislation provides for solutions to prevent the use of resources which would be inconsistent with their purpose. In accordance with the Trading System Act, the use of resources which is inconsistent with the terms of the investment co-financing agreement results in the imposition on the beneficiary to immediately return the whole or part of resources and in the suspension of further disbursements. In each case, the disbursement suspension mechanism is set out in detail in the investment co-financing agreement. Moreover, the beneficiary is obliged to return the resources which it has received unduly or in an excessive amount.

The EU legislation also provides for investments to be discontinued if the project proponent or the scheme managing authority has not financed the investment for the period exceeding two consecutive years (the decision in this matter is taken by the European Commission). In such a case, the financing of an investment from the Fund resources is ceased and the amounts already disbursed for a discontinued investment which have not been spent yet should be used to finance new investments.

Each Member State which is a beneficiary of the Fund resources is subject to the reporting obligation. Each year the Minister responsible for climate action submits to the European Commission a report containing information on projects implemented with the support from the Fund resources and the financing of them, as well as an evaluation of the effects of the modernisation of the energy systems and improved energy efficiency which have been achieved due to these projects.

The tasks related to the operations of financial investments from the Fund resources, including the implementation of schemes, the delivery of promotion and information activities and the monitoring of investments can be carried out by Voivodship Funds for Environmental Protection and Water Management on the basis of an agreement concluded with the Fund Operator. However, the Fund Operator is responsible for the activities of the Voivodship Funds as it would for its own activities.

Conclusion

In the nearest future, the Modernisation Fund can become a key source of financing for the energy transition in Poland and a solution which will enable the mitigation of the social impacts of the implementation of EU climate policy. An increase in the greenhouse gas emission reduction target to 55% for 2030 which has been embedded in EU law[19] will cause the investment needs of the Polish economy to grow significantly. The process of a transition towards a climate neutral economy will also have to accelerate. The most significant needs will arise in the energy sector which will have to take very large financial efforts to meet the requirements of EU climate policy. In turn, concern is raised by the insufficient size of the Modernisation Fund which does not keep up with the increasing climate ambition of the EU. The changes to the operation of the Fund as proposed by the EC in July 2021 in its proposal for an amendment to the ETS Directive also turn out to be problematic. The proposal envisages the limitation of support for investments using gaseous fuels which are now supported from the Fund resources. Member States regard these changes as unfavourable ones; therefore, some reconsideration can be expected in this respect on the part of the EU legislator.

References

1. Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC, OJ L 275 of 25.10.2003, p. 1, as amended.

2. Directive (EU) 2018/410 of the European Parliament and of the Council of 14 March 2018 amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments, and Decision (EU) 2015/1814, OJ L 76, 19.03.2018, p. 3.

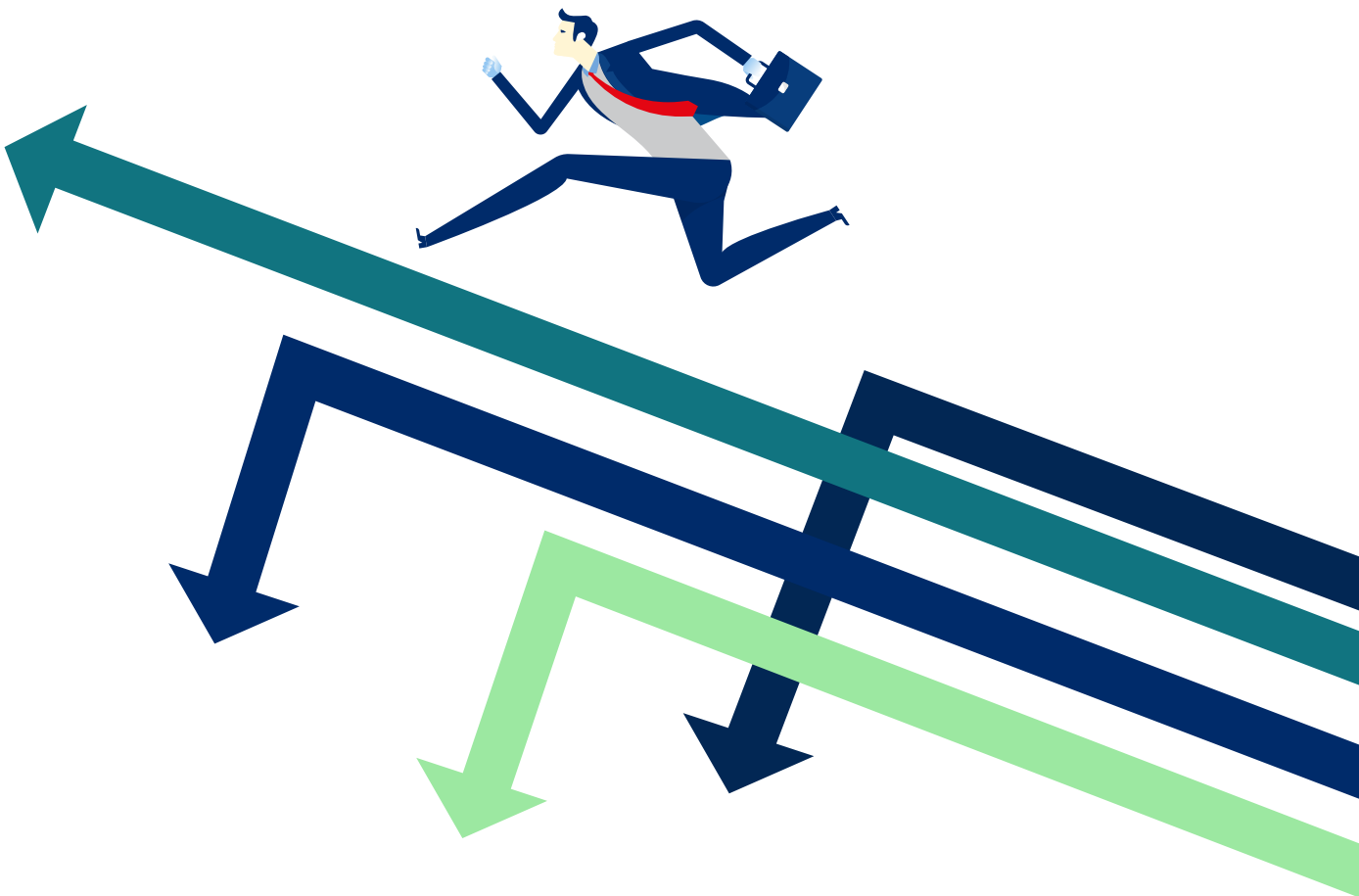
3. Commission Implementing Regulation (EU) 2020/1001 of 9 July 2020 laying down detailed rules for the application of Directive 2003/87/EC of the European Parliament and of the Council as regards the operation of the Modernisation Fund supporting investments to modernise the energy systems and to improve energy efficiency of certain Member States, OJ L 221, 10.07.2020, p. 107.

4. Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 ('European Climate Law'), OJ L 243, 9.07.2021, p. 1.

[19] Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 ('European Climate Law'), OJ L 243 of 9.07.2021, p. 1.

5. The Act of 12 June of 2015 on the Greenhouse Gas Emission Allowance Trading System (Official Journal of the Laws of 2021, Items 332 and 1047).

6. K. Sobczak, J. Ojczyk, Ustawa podpisana, możliwe będzie wsparcie z Funduszu Modernizacyjnego dla energetyki (The Act has been signed so support from the Modernisation Fund will be available for the energy sector [in Polish]), (https://www.prawo.pl/biznes/transformacja-energetyczna-nowy-fundusz-ma-wspierac-zmiany,506873.html; accessed on: 8.08.2021).



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