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## The role of the agricultural sector in the legal system of national reductions of air pollution in the European Union under Directive 2016/2284 NEC

1. Air pollution is one of the most serious environmental problems today. It is the greatest environmental threat to human life and health,<sup>1</sup> causing a huge economic cost, estimated at 300–900 billion euros every year (between 3% and 9% of the EU's GDP). For Poland, the annual expenditure on this account is 101.8 billion dollars, or 12.9% of GDP.<sup>2</sup> Polluted air is a major cause of premature death in the EU, claiming even more victims than road accidents. Its adverse effects are also observed in nature, in the functioning of ecosystems.<sup>3</sup> In this context, one could mention, for example, the problem of acid rain which was not only the main focus of EU action in the field of air protection, but also an important impulse for the development of EU environmental policy in general.<sup>4</sup> Thus, the European Union is taking active measures (including regulatory measures) to improve the quality of air and to reduce anthropogenic emissions, using a wide variety of instruments, directly or indirectly aimed at this environmental problem.

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<sup>1</sup> World Health Organization, *Ambient air pollution: A global assessment of exposure and burden of disease*, 2016, <https://www.who.int/phe/publications/air-pollution-global-assessment/en/> (accessed on: 15 December 2019); J. Lelieveld et al., *The contribution of outdoor air pollution sources to premature mortality on a global scale*, "Nature" 2015, No 525, pp. 367–371.

<sup>2</sup> <http://healpolska.pl/aktualnosci/dyrektywa-nec-czemu-jest-tak-wazna-dla-polski/>.

<sup>3</sup> A. De Marco et al., *Impacts of air pollution on human and ecosystem health, and implications for the National Emission Ceilings Directive: Insights from Italy*, "Environment International" 2019, No 125, p. 321 at the literature quoted therein.

<sup>4</sup> See e.g. N. Haigh, *EU Environmental Policy*, London–New York 2016, pp. 6, 45 et seq.

The subject matter of air protection is very complex, which makes it difficult to formulate a legal system of regulation in this area.<sup>5</sup> In principle, there are two basic lines of action: immission protection (consisting in particular of setting general air quality standards and requiring the development of sanitation plans in the event of non-compliance) and emissions protection (pollution prevention and emission control).<sup>6</sup> As part of emission protection regulations, there are several groups of provisions laying down: (i) requirements for the rules for emissions from identified industrial installations, (ii) rules for emissions from a specific type of installation, (iii) restrictions on the use of harmful substances, and (iv) national limit values for total emissions. Such a system of air protection regulations is also present in all EU countries.

The system of EU regulations concerning air protection, which is commonly accepted, distinguishes three basic types of legislative acts concerning: (i) air quality protection (first of all the CAFE Directive<sup>7</sup> and Directive 2004/107/EC<sup>8</sup>); (ii) national emission ceilings for certain pollutants (Directive 2001/81/EC NEC)<sup>9</sup> now replaced by Directive 2016/2284 NEC<sup>10</sup>); (iii) emissions from stationary sources control (Directive 2010/75/UE IED<sup>11</sup>) and Directive 2015/2193 MCP<sup>12</sup> on product standards (mainly transport-borne emissions), emissions causing climate change and emissions depleting the ozone layer.<sup>13</sup>

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<sup>5</sup> G. Dobrowolski, *Ochrona powietrza. Zagadnienia administracyjnoprawne*, Kraków 2000, p. 280.

<sup>6</sup> J. Boć, J. Rotko, *Organizacja i instrumenty prawnej ochrony powietrza*, in: J. Boć, K. Nowacki (eds.), *Prawna ochrona powietrza i handel uprawnieniami emisyjnymi w Polsce i w Niemczech*, Wrocław 2006, pp. 71–72.

<sup>7</sup> Directive No 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe, OJ L 152, p. 1.

<sup>8</sup> Directive 2004/107/EC of the European Parliament and of the Council of 15 December 2004 relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air, OJ L 23, p. 3.

<sup>9</sup> Directive 2001/81/EC of the European Parliament and of the Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants, OJ L 309, p. 22 (hereafter: Directive 2001/81/EC NEC)

<sup>10</sup> Directive No 2016/2284 of the European Parliament and of the Council of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants, amending Directive 2003/35/EC and repealing Directive 2001/81/EC, OJ L 344, p. 1 (hereinafter referred to as Directive 2016/2284 NEC)

<sup>11</sup> Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control); OJ EU L 334, p. 17.

<sup>12</sup> Directive No 2015/2193 of the European Parliament and of the Council (EU) of 25 November 2015 on the limitation of emissions of certain pollutants into the air from medium-sized combustion plants, OJ L 313, p. 1.

<sup>13</sup> B. Iwańska, *Ochrona powietrza w systemie prawa ochrony środowiska*, “Europejski Przegląd Sądowy” 2017, No 7 (142), pp. 8–9.

When considering pollution pathways (from the source to the site of its concentration or receptors in the environment), six types of environmental standards can be identified, taking into account the stages at which these standards could be established. They are: emission, process, product, environmental quality, (human) exposure and biological.<sup>14</sup> The system of national air pollution emission ceilings stands out in comparison with other instruments. It is not based on the standard approach, but on the concept of limits on total national emissions. It assumes the obligation to reduce the emission of pollutants from the whole country, expressed as a percentage, by a certain future point in time in relation to a certain previous date. Simply speaking, this concept is sometimes referred to as a national bubble which is virtually determined to cover in a certain area (in the Directive – it is a Member State) into which only a certain predetermined total, joint emission of pollutants from all sources in the whole territory may enter (virtually). The advantage of this construction is that one country does not interfere in the policy of another country, and each country determines the measures leading to the reduction of pollution.<sup>15</sup>

The basic law implementing this concept in the legal system of air protection in the EU was Directive 2001/81/EC NEC. In relation to the setting of new strategic objectives of the European Union in the sphere of air quality,<sup>16</sup> as well as the need to adapt the system of national emission ceilings to international obligations arising, largely, from the revised Gothenburg Protocol,<sup>17</sup> it was considered necessary to set out a new legal framework in this respect by means of a new directive. This resulted in the adoption of Directive 2016/2284 NEC which entered into force on 31 December 2016. Its transposition date was set at 1 July 2018, and the last provisions of Directive No 2001/91/EC NECs due to be repealed on 31 December 2019. The current period is therefore a breakthrough for the regulation of this issue and consequently for the system of national ceilings for air pollution emissions in the European Union.

The subject of the article is the agricultural context of the above legal regulation. Its aim is to determine the role of the agricultural sector in the legal

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<sup>14</sup> N. Haigh, *EU Environmental...*, pp. 47–48.

<sup>15</sup> *Ibidem*, p. 50.

<sup>16</sup> Communication from the Commission to the Council and the European Parliament of 18 December 2013. Clean Air for Europe [COM(2013) 918 final]. See also Communication from the Commission to the Council and the European Parliament of 21 September 2005, Thematic Strategy on air pollution [COM(2013)918 final].

<sup>17</sup> Protocol to the 1979 Convention of the United Nations Economic Commission for Europe on Long-range Transboundary Air Pollution for combating acidification, eutrophication and ground-level ozone, signed in Gothenburg on 30 November 1999 (OJ EU L 179 of 2003), amended in 2012. It was approved by the Union by Council Decision (EU) 2017/1757 of 17 July 2017 (OJ EU L 248, p. 3).

system of national air pollution emissions ceilings in the European Union, in particular, the requirements posed by the amended legal basis in this respect. This will also allow to identify the challenges that this sector faces in relation to the implementation of the NEC Directive. This is all the more important as the NEC Directive and the Nitrates Directive are currently two key legislative acts governing the adjustment of the agricultural sector to the objectives and requirements of European Union law with regard to broadly understood environmental and climate policy.

Due to the extent and complexity of the legal issues of air protection, these matters have so far been the subject of interest of the doctrine and their various aspects have been analysed.<sup>18</sup> However, to date, the legal literature has not dealt with the problem of national air pollution reductions in the European Union from the agricultural perspective, as outlined above, which is mainly due to the short duration of the new NEC Directive.

2. Agricultural activity generates significant amounts of air pollution. Predominantly, it is responsible for the emission of two types of substances: atmospheric aerosols (particulate matter) PM<sub>2.5</sub> and ozone. Particulate matter is a serious threat to human health due to the size of the dust particles which may penetrate the respiratory and circulatory systems.<sup>19</sup> Agricultural emissions constitute a major source of high concentrations of atmospheric aerosol in Europe and the eastern parts of the United States and China.<sup>20</sup> The impact of agriculture on the atmospheric pollution is associated with two paths. The first is, as indicated by satellite monitoring, the direct emission of these aerosols into the air. It is caused by the still widespread (although banned in most EU countries) practice of incinerating agricultural waste.<sup>21</sup> The second path starts with PM<sub>2.5</sub> precursors produced by the agricultural sector, which are formed by chemical reactions in the atmosphere. Among these gases – precursors, which

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<sup>18</sup> J. Boć, K. Nowacki (eds.), *Prawna ochrona powietrza...*; G. Dobrowolski, *Ochrona powietrza. Zagadnienia administracyjnoprawne*, Kraków 2000; M. Górski, *Zmiany w regulacjach prawnych dotyczących ochrony powietrza*, in: R. Molski (ed.), *Rynek energii elektrycznej. Wybrane aspekty prawne i techniczne...*, pp. 161–178; M. Górski, *Nowe regulacje prawne w zakresie ochrony jakości powietrza – monitoring i przywracanie wymaganego stanu jakości powietrza*, “Acta Iuris Stetinensis” 2014, No 5, pp. 233–245; B. Iwańska, *Ochrona powietrza...*; P. Kozłowski, *Model prawny ochrony powietrza w ustawie – Prawo ochrony środowiska*, “Prawo i Środowisko” 2014, No 1(77).

<sup>19</sup> J. Lelieveld et al., *The contribution...*, p. 367.

<sup>20</sup> S.E. Bauer, K. Tsigaridis, R. Miller, *Significant atmospheric aerosol pollution caused by world food cultivation*, “Geophysical Research Letters” 2016, No 43(10), p. 5399.

<sup>21</sup> J.X. Warner et al., *Increased atmospheric ammonia over the world’s major agricultural areas detected from space*, “Geophysical Research Letters” 2017, No 44, pp. 2875–2884.

include mainly sulphur dioxide, nitrogen oxides, ammonia and volatile organic compounds, one – ammonia is especially involved in agricultural activities. It is estimated that 96% of the emission of this chemical compound to the air is produced by the agricultural sector (especially animal husbandry and because of the use of fertilisers).<sup>22</sup> The major source of another pollutant, ozone (highly toxic and aggressive to humans and ecosystems) is agricultural activity, too. This is because one of its precursors is methane. Globally, about half of the emissions of this anthropogenic gas are related to agricultural activity.<sup>23</sup>

Paradoxically, despite these facts, the agricultural sector makes little contribution to the efforts to improve the air quality. It is estimated that the share of the EU agricultural sector in the costs of implementing the current legislation is only 2%.<sup>24</sup> Of the pollutants covered by Directive 2001/81/EC NEC, the ammonia emissions have been the least reduced emissions in recent decades. (In the European Union, between 1990 and 2010, sulphur dioxide emissions were reduced by 82%, nitrogen oxide emissions by 47%, non-methane volatile organic compounds by 56% and ammonia emissions by 28%.)<sup>25</sup> At the same time, it is estimated that the reduction of ammonia emissions from agriculture was only 5% between 2005 and 2013, and even increased in the following years (by 3% between 2013 and 2016).<sup>26</sup>

It must be noted though, that the reduction of ammonia emission from agriculture is a very complex issue. The application of measures to reduce ammonia emissions is strongly dependent on local conditions, including the structure of farm holdings and agricultural practices applied in a given country. Not all reduction methods may be applied in small farms either.<sup>27</sup> Moreover, the fugitive nature of ammonia emissions from agricultural sources makes it difficult to both reduce and control them. It is also worth pointing out that in fact as much as 80% of ammonia emissions from agricultural sources in the EU can

<sup>22</sup> E. Giannakis et al., *Costs and benefits of agricultural ammonia emission abatement options for compliance with European air quality regulations*, “Environmental Sciences Europe” 2019, No 31, p. 1.

<sup>23</sup> I. Karakurt, G. Aydin, K. Aydiner, *Sources and mitigation of methane emissions by sectors: A critical review*, “Renewable Energy” 2012, No 39, p. 40.

<sup>24</sup> <http://ec.europa.eu/environment/air/pdf/review/Facts%20and%20figures%20agriculture%20under%20the%20NEC.pdf> (accessed on: 10 December 2019).

<sup>25</sup> Recital 1 of Directive (EU) 2016/2284 of the European Parliament and of the Council of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants, amending Directive 2003/35/EC and repealing Directive 2001/81/EC.

<sup>26</sup> Eurostat, Ammonia emissions from agriculture, 2019, [https://ec.europa.eu/eurostat/web/products-datasets/-/sdg\\_02\\_60](https://ec.europa.eu/eurostat/web/products-datasets/-/sdg_02_60) (accessed on: 15 December 2019).

<sup>27</sup> O. Oenema et al., *Emissions from agriculture and their control potentials TSAP Report #3 Version 2.1 IIASA 2012*, [http://ec.europa.eu/environment/air/pdf/TSAP-AGRI-20121129\\_v21.pdf](http://ec.europa.eu/environment/air/pdf/TSAP-AGRI-20121129_v21.pdf) (accessed on: 10 December 2019), p. 34.

be attributed to 5% of large-scale agricultural holdings, which are essentially agricultural enterprises.<sup>28</sup>

Addressing the problem of pollution of agricultural origin was one of the strong arguments in favour of the new NEC Directive 2016/2284. This was particularly true for ammonia and methane. In its proposal to include methane among the substances covered by the Directive, the European Commission argued that: “Methane ceilings under the EU system of national emission ceilings could reduce emissions in a cost-effective manner.”<sup>29</sup> It should be noted that the EU regulations in force so far do not address directly this pollution and its role in the formation of tropospheric ozone. Furthermore, although methane is one of the six greenhouse gases covered by the Kyoto Protocol, it is at the discretion of the Member States, since they are committed to an overall reduction target, to decide which gas to include in their reduction effort.<sup>30</sup> The reduction levels proposed in the draft directive were to be 29% for ammonia and 33% for methane by 2030. Eventually, as a result of the proactive involvement of the agricultural lobby, methane was excluded from the reduction obligations and the requirements for ammonia were significantly reduced.<sup>31</sup>

3. As mentioned above, the basic piece of legislation governing the system of national air pollution ceilings in the EU is Directive 2016/2284 NEC. Pursuant to it, Member States must limit their anthropogenic emissions of five pollutants: sulphur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), non-methane volatile organic compounds (NMVOC), ammonia (NH<sub>3</sub>) and fine dust (PM<sub>2.5</sub>). This reduction is in line with national obligations applicable as of 2020 to 2029 and as of 2030, as set out in Annex II of the Directive (article 4(1) of Directive 2016/2284 NEC). The reduction obligations are determined by reference to emissions in the reference year 2005. For Poland, these requirements were set respectively for both periods indicated above for SO<sub>2</sub> by 59% and 70%, for

<sup>28</sup> On the concept of an agricultural enterprise as an agricultural holding see e.g. J. Bieluk, *O potrzebie wprowadzenia do prawa polskiego pojęcia przedsiębiorstwa rolnego*, “Studia Iuridica Agraria” 2013, vol. XI, pp. 131–145; B. Jeżyńska, *Przedsiębiorca rolny we współczesnym ustroju rolnym*, in: P. Litwiniuk (ed.), *Kwestia agrarna. Zagadnienia prawne i ekonomiczne*, Warszawa 2016, pp. 205–215.

<sup>29</sup> European Commission proposal of 18 December 2013 for a Directive of the European Parliament and of the Council on the reduction of national emissions of certain atmospheric pollutants and amending Directive 2003/35/EC /COM/2013/0920 final – 2013/0443 (COD).

<sup>30</sup> L. Duprez et al., *Clearing the air. Critical guide to the new national mission ceiling directive*, European Environmental Bureau (EEB) 2017, <https://eeb.org/publications/62/air-quality/1078/clearing-the-air-a-critical-guide-to-the-new-nec-directive.pdf> (accessed on 16 December 2019), p. 28.

<sup>31</sup> <https://www.teraz-srodowisko.pl/aktualnosci/Dyrektywa-NEC-pominie-metan-2349.html> (accessed on 16 December 2019).

NO<sub>x</sub> by 30% and 39%, for NMLZO by 25% and 26%, for NH<sub>3</sub> by 1% and 17% and for PM<sub>2.5</sub> by 16% and 58%, respectively.

Moreover, in order to ensure visible progress in implementing the 2030 commitments, article 4(2) of the Directive provides for the obligation for Member States to determine indicative emission levels in 2025 using a linear reduction pathway established between the emission levels set out in the 2020 and the 2030 commitments. In addition, under the conditions set out in that provision, countries may follow a non-linear reduction pathway.

The Directive also requires the development, adoption and implementation of national air pollution abatement programmes (NAPPs) and the monitoring of emissions of pollutants under the obligation to be reduced, as well as other pollutants indicated in Annex I of the Directive and their effects of their emissions. Article 6 sets out the requirements for these programmes and Annex III details their content. The first NAPP was to be transmitted to the European Commission by 1 April 2019 (article 10(1) of the Directive). In Poland, this programme was adopted at a later date.<sup>32</sup>

An important element of Directive 2016/2284 NEC is also the “flexible approach” provided for in its article 5, which is the result of a turbulent and difficult legislative process, and consequently its current shape represents a compromise solution. This provision allows for derogations from the reduction obligation in specific situations (e.g. an exceptionally cold winter or an exceptionally dry summer – article 5(2); sudden and exceptional disruption or loss of power in the generation or supply the electricity or heat systems – article 5(4)).

The novelty provided for in article 9 of Directive 2016/2284 NEC is also worth noting. It is an obligation to monitor the negative effects of air pollution on ecosystems. According to this provision, “Member States shall ensure the monitoring of negative effects of air pollution on ecosystems based on a network of monitoring stations, representative of their freshwater, natural and semi-natural habitats and of the types of forest ecosystem, taking a cost-effective and risk-based approach.” Here a certain return to the sources of air pollution protection regulations may be seen. The initial stimulus to undertake legislative activities in this area was the need to solve the problem of acid rain in order to focus subsequently on the protection of human life and health. Hence the holistic approach and motivation in this regulatory area observable today.

As mentioned above, Directive 2016/2284 NEC does not provide for any obligation to reduce methane, while ammonia reduction measures are mandatory. In accordance with the disposition of article 6 of the Directive, the key

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<sup>32</sup> Resolution No. 34 of the Council of Ministers of 29 April 2019 on the adoption of the National Air Pollution Control Programme (Monitor Polski of 21 June 2019, item 572).

document defining the methods and measures to reduce ammonia emissions is the NAPPs. Annex III of the Directive, concerning the content of this document, specifies in its second part the measures designed to reduce emissions (ammonia as well as fine dust and soot.) Importantly, when establishing these measures, Member States are to take into account relevant guidelines for ammonia and use best available techniques in accordance with Directive 2010/75/EU IED. This demonstrates an attempt to implement a comprehensive and complementary approach to the legal regulation of protection against pollution from agricultural holdings at the Union level. It should be stressed, however, that most of the requirements are optional. Additionally, when introducing these measures, Member States must ensure that their effects on small and very small farms are fully taken into account. Such holding, may, for example, be exempted from these obligations (Annex III(C)).

However, the adoption of a national advisory code of good agricultural practice on limiting ammonia emissions and a ban on ammonium and carbonate fertilisers is mandatory. The above obligation was incorporated into the Polish legal order by an amendment<sup>33</sup> to the Act of 10 July 2007 on fertilisers and fertilisation.<sup>34</sup> According to article 22a that has been added to the Act, the Code of Good Agricultural Practice for Reducing Ammonia Emissions<sup>35</sup> is to be drawn up by the minister responsible for agriculture in consultation with the minister responsible for the environment, taking into account the 2014 Framework Code for Good Agricultural Practice for Reducing Ammonia Emissions of the United Nations Economic Commission for Europe. The provision of article 22a of the Act on Fertilisers and Fertilisation also indicates the voluntary application of the Ammonia Code.

**4.** What, then, are the obligations incumbent on the agricultural sector under Directive 2016/2284 NEC and its reformed system of national air pollution ceilings?

As it follows from the characteristics of the provisions of Directive 2016/2284 NEC, the objective of the EU legislator is to achieve environmental goals for air quality in the form of a reduction of air pollution, based on the

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<sup>33</sup> Article 22a added by article 9(2) of the Act of 4 July 2019 amending the Act on the greenhouse gas emission allowance trading scheme and certain other Acts (Journal of Laws 2019, item 1501) amending this Act as of 24 August 2019.

<sup>34</sup> I.e. Journal of Laws 2018, item 1259 as amended.

<sup>35</sup> Code of good agricultural practice for reducing ammonia emissions, Warszawa 2019, <https://www.gov.pl/web/rolnictwo/kodeks-dobrej-praktyki-rolniczej-w-zakresie-ograniczania-emisji-amoniaku> (accessed on: 22 December 2019); hereinafter referred to as the Ammonia Code.



reduction of emissions of certain substances aimed at reducing air pollution at source. In the case of agriculture, among the substances covered by the Directive, ammonia and fine dust are of primary concern. Measures applicable to agriculture are therefore targeted at reducing these pollutants. It is worth mentioning that, according to scientific research, the regulation targeting NH<sub>3</sub> emissions from agricultural sources is considered to be the most effective strategy for reducing PM<sub>2.5</sub> in Europe.<sup>36</sup> Thus, ammonia is the primary objective of the measures set out in the Directive.

In the Polish NAPP programme, the methods and measures referred to in Annex III, Part 2 of Directive No 2016/2284 NEC that are aimed at ensuring compliance of the agricultural sector with commitments to reduce emissions are contained in Chapter 2.7. This document provides that specific actions resulting in the reduction of NH<sub>3</sub> emissions are set out in the “Advisory Code of Good Agricultural Practice for Reducing Ammonia Emissions.” This programme also points to the adoption in 2018 of a nitrogen programme for water protection containing measures that could contribute to the reduction of ammonia emissions to air and lists four measures to be further communicated to farmers.

In turn, the Ammonia Code adopts and describes five of the six measures to reduce ammonia emissions as set out in Annex III, Part 2(A)(1): (a) nitrogen management, including the full nitrogen cycle; (b) livestock feeding strategies; (c) low emission fertiliser spreading techniques; (d) low emission fertiliser storage systems; (e) low emission animal husbandry systems. The last measure (reduction of ammonia emissions from mineral fertiliser use), listed in the Annex of Directive 2016/2284 NEC, has already been a mandatory measure since the entry into force of the Nitrates Programme.”<sup>37</sup> The Ammonia Code provides that these measures are intended for voluntary implementation. However, it should be noted that farms carrying out activities subject to the integrated permit are obliged to apply the best available techniques (BAT) and therefore have to choose from the above Code measures and implement them in practice.<sup>38</sup>

<sup>36</sup> E. Giannakis et al., *Costs and benefits...*, p. 2 and the literature quoted therein.

<sup>37</sup> Ordinance of the Council of Ministers of 5 June 2018 on the adoption of an “Action Programme to reduce water pollution by nitrates from agricultural sources and prevent further pollution,” Journal of Laws 2018, item 1339.

<sup>38</sup> This concerns the intensive rearing of poultry or pigs. See Commission Implementing Decision (EU) No 2017/302 of 15 February 2017 establishing best available techniques (BAT) conclusions for the intensive rearing of poultry or pigs in accordance with Directive 2010/75/EU of the European Parliament and of the Council, OJ L 43, p. 231. National Emission Ceilings (NEC) Directive reporting status 2019, Briefing No. 2/2019; <https://www.eea.europa.eu/themes/air/air-pollution-sources-1/national-emission-ceilings/nec-directive-reporting-status-2019/#tab-interactive-charts> (accessed on: 29 December 2019).

The synergies of this regulation with the provisions on the protection of water against nitrate pollution originating from agricultural sources need to be particularly highlighted. As indicated in the Ammonia Code, its provisions complement and develop the requirements and recommendations contained in the laws concerning water protection. “These EU regulations are being implemented for different purposes (water and air protection, respectively) and concern different pollutants/substances while the implementation of the requirements resulting from them in agricultural practice is currently at different stages. In practical terms, however, it boils down to the implementation of similar practices and changes in agricultural production technology at the level of a farm holding. Therefore, in the research work to determine the necessary adaptations of the agricultural sector, these areas should be treated together, in a comprehensive manner.”<sup>39</sup>

Given that the system of national air pollution ceilings is based primarily on optional measures, the question arises whether such an approach will be sufficient to achieve the objectives set out in Directive 2016/2284 NEC. Indeed, it is already predicted that the obligations under the Directive by 2030 will be difficult to satisfy. What is more, sixteen Member States reported concerns about meeting the ammonia reduction target for 2020. Between 2014 and 2017, emissions of this gas increased by 2.5% (caused precisely by no reductions in its emission in the agricultural sector), with a downward trend for other pollutants.<sup>40</sup>

Of the three main approaches to reducing emissions: voluntary, economic and regulatory, the first is most favoured by farmers and their organisations, especially when compared to the third, regulatory one.<sup>41</sup> Basing the regulatory approach on voluntary measures may also turn out to be the only way to reach a compromise in the legislative process. However, it should be noted that already now Member States with the most successful ammonia emission reductions (the Netherlands and Denmark) are applying the regulatory approach in this respect.<sup>42</sup> When it comes to the economic approach, the opportunities for integrating air

<sup>39</sup> The Ammonia Code, p. 11.

<sup>40</sup> National Emission Ceilings (NEC) Directive reporting status 2019, Briefing no. 2/2019; <https://www.eea.europa.eu/themes/air/air-pollution-sources-1/national-emission-ceilings/nec-directive-reporting-status-2019/#tab-interactive-charts> (accessed on 29 December 2019).

<sup>41</sup> S. Hellsten, *Abating N in Nordic Agriculture – Policy, Measures and Way Forward*, “Journal of Environmental Management” 2019, No 236, p. 683.

<sup>42</sup> M. Sutton et al., *Topic 5c. Sectors and solutions: opportunities and challenges to reduce air pollution from agriculture [Working Group report]*, in: A. Engleryd, P. Grennfelt (eds.), *Saltsjöbaden VI Workshop 2018. Clean air for a sustainable future – goals and challenges*, Copenhagen 2018, pp. 51–60, <http://nora.nerc.ac.uk/id/eprint/522444/>; S. Hellsten, *Abating N in Nordic agriculture...*, p. 680.

pollution measures into support schemes under the Common Agricultural Policy appear to be still underused.<sup>43</sup> The main reason for that is the effectiveness of the strategy of subsidisation, especially in combination with education and counselling support, has been proved empirically in Europe as well as elsewhere.<sup>44</sup> What is more, incorrectly constructed assumptions of the support system may lead to the opposite effect – co-financing of activities that cause negative environmental effects. This leads to questions about the actual implementation in agricultural activity of the “polluter pays” principle<sup>45</sup> and the legitimacy of supporting agriculture in the capacity of a provider of ecosystem services.

Finally, it is clear that a holistic approach is needed to tackle the pollution of agricultural origin effectively. An important step in this respect has been the adoption in the Directive, of the principle of implementing the concept of nitrogen management, including its full cycle, and linking it to legal regulations on the protection of water against pollution from agricultural sources and industrial emissions. However, it is necessary to keep in mind the existing inconsistencies and deficiencies, as for example the non-inclusion in the BAT scheme of cattle farms that belong to the largest ammonia emitters in the agricultural sector. On the other hand, the current BAT requirements for poultry and pig farming are rated as relatively relaxed as for the effects that could be achieved.<sup>46</sup> It should also be noted that the European Union has not yet developed a comprehensive nitrogen strategy that could provide multifaceted and multi-sectoral environmental and economic benefits.<sup>47</sup> However, as it seems this is going to change since the nitrogen cycle is also seen as one of the elements of a closed-loop economic strategy that is currently one of the priorities of EU environmental policy.<sup>48</sup>

It should also be borne in mind that in order to achieve the reduction targets, it is not enough to implement technical measures alone, but systemic changes are also necessary. With regard to the nitrogen problem, it is necessary, for example, to reduce food waste, improve the efficiency of food chains or promote consumption patterns that have a smaller nitrogen footprint.<sup>49</sup>

<sup>43</sup> E. Giannakis et al., *Costs and benefits...*, p. 9; M. Sutton et al., *Topic 5c...*, p. 54.

<sup>44</sup> D. Abler, *Economic evaluation of agricultural pollution control options for China*, “Journal of Integrative Agriculture” 2015, No 14(6), pp. 1045–1056.

<sup>45</sup> See e.g. M.R.Grossman, *Agriculture and the Polluter Pays Principle: An Introduction*, “Oklahoma Law Review” 2006, No 1, pp. 1–52.

<sup>46</sup> L. Duprez et al., *Clearing the air...*, p. 28.

<sup>47</sup> M. Sutton et al., *Topic 5c...*, pp. 57–58

<sup>48</sup> See J. Goździewicz-Biechońska, *The role of agriculture in circular economy (legal perspective)*, “Przegląd Prawa Rolnego” 2016, No 1, pp. 81–95.

<sup>49</sup> S. Hellsten et al., *Abating N in Nordic agriculture...*, p. 684; M. Sutton et al., *Topic 5c...*, p. 59.

5. To sum up, the role of the agricultural sector in the legal system of national air pollution reduction in the European Union is very significant. Currently, it sector belongs to of the major emitters of pollutants that are covered by this system. At the same time, when compared with other types of human activity, the agricultural sector has contributed the least to the efforts undertaken in order to reduce emissions of gases to the atmosphere. Hence the potential of agriculture to do something in respect, which has been recognised and taken into account in the legislative work on the reform of the Regulation that has been in force since 2001, and the new NEC Directive 2016/2284 resulting from it. Unfortunately, due to the abandonment of ambitious solutions proposed at the initial stage of the legislative process (e.g. inclusion of methane in the list of pollutants covered by the Directive, or higher reduction requirements for nitrogen), it may be claimed that these opportunities have not been fully exploited. All the more so since scientific studies show that significantly more ambitious reduction obligations for ammonia emissions could be applied in EU countries at a relatively minimal cost.<sup>50</sup>

Nonetheless, the potential gains in terms of pollution reduction would be enormous. However, they must be seen in a broader context. This was pointed out, for example, by the Court of Justice of the EU in its judgment of 13 March 2019 in Case C 128/17, concerning an action brought by the Republic of Poland for annulment of Directive 2016/2284 NEC. In response to the allegation that the Parliament and the Council ignored the social and economic costs associated with the implementation of the contested directive in particular with regard to Poland, the Court pointed out that “on the contrary, on the basis of all the information available to the institutions, they considered that the costs associated with the implementation of that directive were significantly lower than the social and economic benefits resulting from its implementation. These benefits included, for example, a reduction in health-care costs, improved productivity, reduced damage to buildings, increased yields and increased life expectancy in good health.”<sup>51</sup> Moreover, achieving the objectives of Directive 2016/2284 NECs for the period 2020–2029 may have significant health and economic benefits, not only within the European Union but also outside it.<sup>52</sup>

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<sup>50</sup> E. Giannakis et al., *Costs and benefits...*, p. 9.

<sup>51</sup> Judgment of the CJEU of 13 March 2019 in case C-128/17, *The Republic of Poland vs the European Parliament and the Council*.

<sup>52</sup> E. Giannakis et al., *Costs and benefits...*, p. 9.

Currently, Directive 2016/2284 NEC is one of the basic legislative acts regulating the environmental requirements for agricultural activities. Thus, it is the most important to target the regulation of ammonia emission reduction to the issue of air pollution from agricultural sources. Therefore, the requirements contained in this law set new, significant challenges for this sector. The concept of a system of national reductions adopted in the Directive is based on setting mandatory national targets, while the choice of the strategy for their implementation is left to the Member States. It is of utmost importance therefore that appropriate measures are chosen under national strategies, especially in view of the very high diversity of agricultural holdings (from small family farms to large scale agricultural enterprises). The requirements should therefore be optimally tailored to the different types of agricultural activity.

Of course, at such an early stage of implementation it is not possible to assess the effectiveness of Directive 2016/2284 NEC as a legal instrument for air protection. Taking into account the optional nature of the measures provided for in it and the flexibility mechanism, it is also rather impossible to predict to what extent its provisions will become an effective instrument to reduce emissions of pollutants from agricultural sources. Therefore, substantial responsibility also lies with the Member States, in particular as regards the selection of appropriate strategies to achieve the objectives set. All the more so, as prospective research and analyses indicate, relying only on voluntary and economic measures is unlikely to be sufficient to achieve the reduction targets set out in the Directive.<sup>53</sup> Attention will therefore be necessary to be paid to the reciprocity and synergies resulting from various protective instruments and regulations both at national and EU level.

## **THE ROLE OF THE AGRICULTURAL SECTOR IN THE LEGAL SYSTEM OF NATIONAL REDUCTIONS OF AIR POLLUTION IN THE EUROPEAN UNION UNDER DIRECTIVE 2016/2284 NEC**

### Summary

The aim of the article is to define the role of the agricultural sector in the legal systems of national emissions ceilings in the European Union, and in particular the requirements of the amended legal basis in this respect – Directive No 2016/2284 of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants, amending Directive 2003/35/EC and repealing Directive 2001/81/EC. This law, in addition to the Nitrates Directive, is currently one of the most important regulations of EU law on protection against

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<sup>53</sup> M. Sutton et al., *Topic 5c...*, pp. 53–54.

environmental pollution from agricultural sources. Among the pollutants covered by the reduction obligation under Directive 2016/2284 NEC, ammonia is the most critical pollutant of agricultural origin, hence the crucial importance for agriculture of the measures aimed at reducing emissions of this substance. These measures are mainly of an optional nature and it is up to the Member States to determine how to achieve the national reduction target. It is therefore necessary to design the right mix of measures and match them with the different types of agricultural activities when developing relevant national strategies. It is also necessary to combine them with other regulations, in particular on industrial emissions and water protection, and to address the issues of nitrogen cycle in a systemic manner, not only at farm level but also throughout the entire food chain.

## **IL RUOLO SVOLTO DAL SETTORE AGRICOLO NEL SISTEMA GIURIDICO DI RIDUZIONE NAZIONALE DELL'INQUINAMENTO ATMOSFERICO NELL'UNIONE EUROPEA AI SENSI DELLA DIRETTIVA 2016/2284/NEC**

### Riassunto

L'articolo si pone l'obiettivo di determinare il ruolo che il settore agricolo svolge per il regime dei limiti di emissione nazionali di determinanti inquinanti atmosferici nell'Unione europea, e nello specifico i requisiti stabiliti dalla base giuridica modificata al riguardo – Direttiva n. 2016/2284 del 14 dicembre 2016 sulla riduzione delle emissioni nazionali di determinanti inquinanti atmosferici, che modifica la direttiva 2003/35/CE e abroga la direttiva 2001/81/CE. L'atto in questione, insieme alla direttiva sui nitrati, è, al giorno d'oggi, una delle regolazioni più importanti dell'UE in materia di tutela dall'inquinamento ambientale da fonti agricole. Tra quelli coperti dall'obbligo di riduzione, previsto dalla Direttiva 2016/2284 NEC, l'ammoniaca è l'inquinante più importante di origine agricola, pertanto le misure volte a ridurre le emissioni di questa sostanza sono fondamentali per l'agricoltura. Gli strumenti in oggetto sono in prevalenza facoltativi e gli Stati membri sono liberi di stabilire i mezzi che servono a raggiungere l'obiettivo di riduzione nazionale. È pertanto necessario scegliere misure adeguate nell'ambito delle strategie nazionali e adattare a diversi tipi di attività agricola. È inoltre necessario determinare connessioni con altre normative, in particolare con quelle che riguardano le emissioni industriali e la tutela delle acque, nonché creare un approccio sistematico ai problemi della circolazione dell'azoto, non solo a livello di aziende agricole, ma anche nell'intera catena alimentare.