Low emission is the air pollutants introduced into the atmosphere to a height ceiling of 40 m. Obsolete coal-fired boilers contribute largely to the formation of low emission, in which the fuel is burned in an inefficient way [1]. Household boilers often use cheap coal, which is dirty and with low heating parameters. In areas inhabited by people materially poorer, an additional problem is the phenomenon of combustion of heating waste in domestic stoves. Moreover, the main low-emission sources should include car transportation [2-3]. This problem particularly applies to older cars that do not meet environmental standards of currently produced cars. Smaller industrial plants also contribute to the formation of low emission. It should be noted that low emission occurs most often almost directly on the ground of 10 m to the ceiling. This is the reason for a particular hazard for people living nearby, as emissions introduced into the atmosphere at low altitude gather around the places of their emergence. This is the case especially in calm weather. Poor air quality has a negative impact on human health [5-6], and as stated previously, air pollution contributes to

Introduction

According to estimates by the World Health Organization, approximately 44,000 people die prematurely each year in Poland due to excessive air pollution. The European Commission brought a lawsuit against Poland to the European Court of Justice in Luxembourg in 2015 for failure to comply with EU air quality legislation. Due to poor air quality, Poland has been threatened with penalties that could reach €1 billion. Although Poland has managed to significantly reduce emissions from industrial plants, a very serious problem with low emissions persists. This article aims to identify the main sources of low emissions in Lubuskie Province and to indicate the environmental benefits resulting from the modernization of the central heating system, involving the replacement of boilers. The article points out that reducing low emissions from boilers in private houses, due to its significant share in air pollution and the fact that this is an underreported problem, could bring a significant positive ecological effect. Analysing the issue from an economic viewpoint, it should be noted that replacing inefficient coal-powered boilers so far provides the largest ecological effect in relation to the investment costs.
the premature death of some 44,000 Poles annually [4]. Contaminated air also affects plants, some of which are used for food production [7-8].

Against Poland, the European Commission brought a lawsuit in 2015 for failure to comply with EU air quality legislation to the European Court of Justice in Luxembourg. Due to poor air quality, Poland is threatened with penalties that could reach €1 billion. It should be emphasized that Poland is currently facing a solution to the problems which in most EU countries have not existed for decades (the “Great Smog” of London took place in 1952 [9]). An important reason for poor air quality in Poland is so-called low emission, which comes mainly from household stoves and local coal-fired boilers. The contamination of communication (especially in large cities) and industrial pollution will also contribute to the formation of low emission [10].

This article aims to identify the main sources of low emission in Lubuskie Voivodeship and to indicate the environmental benefits resulting from the modernization of central heating systems involving the replacement of boilers. The article points out the importance of reducing low emission from boilers in private houses, due to its significant share in air pollution and the fact that this is one of the most underreported problems in Poland.

**The Problem of Low Emissions in Lubuskie Voivodeship**

Polish households in urban and rural areas are characterized by a different structure of fuel consumption for space heating. Primarily network heat is used for this purpose in the city, where it warms 59.9% of dwellings, and natural gas (11.5%) and solid fuel less than 30% of households. In the countryside solid fuels predominate, where they are used in almost 90% of households, the heat from the network warmed only 4% of apartments, and natural gas 6.2%. The structure of fuels used for heating water also differed substantially. 38.5% of households located in the city have used for this purpose district heating, natural gas 34.9%, 19.1% electricity, and less than 10% solid fuels. In the countryside the district heating hot water was obtained by only 3% of households, while 11.8% of households consumed for this purpose natural gas, 32.7% electricity, and about 50% solid fuel [11]. This structure of fuel consumption causes the air quality in less densely populated areas to be even worse than in cities. It should be noted that the statistics do not include combustion in the boiler of household waste, which is often burned in the countryside due to the greater amount of the boiler room of the old type, where waste incineration is technically possible [12-13]. National data should be supplemented with information from Lubuskie Voivodeship. In 2014 one person using the gas network in the country accounted for up to 9 people in the city [14].

Lubuskie is located in the central-western part of Poland, occupying an area of 13,987.88 km². The province has a small area on the background of the country, the share of which in relation to the surface of Poland amounts to 4.47% [15]. The average annual temperature is about 8ºC. The region is one of the warmest in the country. The population 1,011 million, approx. 36% of which live in rural areas [16].

Lubuskie Voivodeship has the largest forest cover in the country, reaching 49% of its area [17] – mainly pine. This information indicates that Lubuskie is a place where the air should not be contaminated due to the low share of industry, relatively low count of inhabitants per 1 km² on the background of the country, or the country’s largest share of forests in total area of the province. However, due to the air pollution, which mainly comes from residential space heating in many places in the voivodeship, there is a problem with air quality.

The measurements of emissions to the atmosphere in Lubuskie in 2013-2014 showed that a major problem in air pollution is too high concentrations of particulate matter PM10, which took place in the vicinity of the six surveyed areas. An additional problem was exceeding the allowable arsenic in PM10 matter in the area of three of the six zones in the voivodeship [18].

Analysing the data contained in Table 1, it should be noted that a decrease in emissions of PM10 was greatly affected by the category of combustion processes outside the industry. Although it was not the largest percentage drop, the reduction of PM10 emissions in 2014 in relation to 2013 amounted to 10546.3 Mg. A smaller but also significant decrease in emissions of particulate matter in the analysed period was recorded in the category of combustion processes in the production and transformation of energy. It should be emphasized that the total national emissions of PM10 did not reflect the category of forest fires, which is difficult to estimate. The data in Table 1 apply to the whole Poland, but Lubuskie has a similar structure of air pollution and low emission, which is derived mainly from the category of combustion processes outside industry and road transport – the dominant share in the total emissions of PM10 (Table 1).

The spatial distribution of air pollutant emissions in Lubuskie is not uniform. The largest amounts of pollutants are emitted in the areas of districts densely populated and industrialized. Low emission is a major problem in cities and suburban areas where there is a large number of single-family houses. Household boilers, especially coal, contribute to emissions that affect air quality reduction. The size of the low emissions is difficult to estimate. Its share is usually from a few to several percent of the total emissions in areas where there is a heating network. However, in places where there is no heating network, the share of low emission reaches tens of a percent. It should be emphasized that the problem of low emission also applies to rural areas, where there is not only a lack of heating network, but also they do not always have access to natural gas, which contributes to a much larger share of household boiler rooms powered by coal. A huge problem not only in Lubuskie, but throughout the country, is the quality of fuel used for heating. Very often
the fuel is coal, which when burned releases a large part of the harmful substances that represent a significant share of the total low emission in Poland. Very often individual boilers burn coal of low quality, which should be treated as a fuel in installations with efficient exhaust gas cleaning systems. Due to the fact that the flue gas cleaning installations are economically inefficient for small boilers in private houses and there is no obligation to install such exhaust gas cleaning systems, such systems practically do not exist in domestic boilers.

The problem in rural areas, in the context of low emissions, is not only the low quality of fuels used in home boiler houses but also the incineration of hazardous waste by farmers. According to research, there is still low awareness among farmers about the impact of waste incineration on human health and the environment [20]. The problem in terms of low emissions in rural areas is also burning leaves, grass burning, and residual straw and other crop residue.

Table 1. Emissions of PM10 in 2013-2014.

<table>
<thead>
<tr>
<th>Emission source</th>
<th>2013 Mg</th>
<th>2014 Mg</th>
<th>2014/2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combustion processes outside industry</td>
<td>123 350.1</td>
<td>112 803.8</td>
<td>91.45%</td>
</tr>
<tr>
<td>Combustion processes in the production and transformation of energy</td>
<td>23 267.7</td>
<td>21 586.4</td>
<td>92.77%</td>
</tr>
<tr>
<td>Combustion processes in industry</td>
<td>18 521.1</td>
<td>18 888.5</td>
<td>101.98%</td>
</tr>
<tr>
<td>Production processes</td>
<td>18 685.2</td>
<td>18 943.1</td>
<td>101.38%</td>
</tr>
<tr>
<td>Extraction and distribution of fossil fuels</td>
<td>7 145.2</td>
<td>6 857.4</td>
<td>95.97%</td>
</tr>
<tr>
<td>The use of solvents and other products</td>
<td>1 673.9</td>
<td>1 417.4</td>
<td>84.68%</td>
</tr>
<tr>
<td>Road transport</td>
<td>21 495.4</td>
<td>20 904.1</td>
<td>97.25%</td>
</tr>
<tr>
<td>Other vehicles and equipment</td>
<td>9 521.7</td>
<td>9 186.5</td>
<td>96.48%</td>
</tr>
<tr>
<td>Waste management</td>
<td>12 191.5</td>
<td>11 298.7</td>
<td>92.68%</td>
</tr>
<tr>
<td>Agriculture</td>
<td>10 380.5</td>
<td>10 607.9</td>
<td>102.19%</td>
</tr>
<tr>
<td>Other sources of emission and absorption of pollutants</td>
<td>153.7</td>
<td>298.6</td>
<td>194.27%</td>
</tr>
<tr>
<td>Total</td>
<td>246 386.0</td>
<td>232 792.4</td>
<td>94.48%</td>
</tr>
</tbody>
</table>

Source: [19]

Table 2. Emissions of dust and gas by companies especially aggravating the environment in 2004-2014.

<table>
<thead>
<tr>
<th>Years</th>
<th>Lubuskie (Mg/year)</th>
<th>Poland (Mg/year)</th>
<th>The share of companies from Lubuskie (%)</th>
<th>Emissions of dust</th>
<th>Lubuskie (Mg/year)</th>
<th>Poland (Mg/year)</th>
<th>The share of companies from Lubuskie (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>3100</td>
<td>123200</td>
<td>2.5%</td>
<td>2110600</td>
<td>213613800</td>
<td>1.0%</td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>2800</td>
<td>110500</td>
<td>2.5%</td>
<td>2189300</td>
<td>213706200</td>
<td>1.0%</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>2500</td>
<td>102500</td>
<td>2.4%</td>
<td>2214900</td>
<td>223353900</td>
<td>1.0%</td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>1600</td>
<td>94800</td>
<td>1.7%</td>
<td>2019100</td>
<td>223269500</td>
<td>0.9%</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>1400</td>
<td>76800</td>
<td>1.8%</td>
<td>1842300</td>
<td>216319000</td>
<td>0.9%</td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>1400</td>
<td>61700</td>
<td>2.3%</td>
<td>1952400</td>
<td>203125600</td>
<td>1.0%</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>1400</td>
<td>62500</td>
<td>2.2%</td>
<td>2080900</td>
<td>216155400</td>
<td>1.0%</td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>1300</td>
<td>57500</td>
<td>2.3%</td>
<td>2089600</td>
<td>220928000</td>
<td>0.9%</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>1200</td>
<td>52400</td>
<td>2.3%</td>
<td>2054200</td>
<td>216513700</td>
<td>0.9%</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>1100</td>
<td>49500</td>
<td>2.2%</td>
<td>2009500</td>
<td>217492000</td>
<td>0.9%</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>1000</td>
<td>47400</td>
<td>2.1%</td>
<td>2009100</td>
<td>209067300</td>
<td>1.0%</td>
<td></td>
</tr>
</tbody>
</table>

Source: [13]
The amount of dust pollution from plants that are particularly harmful to the environment has been greatly reduced in recent years. Analysing the data contained in Table 2, it should be noted that the problem is still gaseous pollutants that were managed to be reduced only slightly. It should be emphasized that the emissions of dust and gas by plants particularly burdensome is not evenly distributed across the country. Lubuskie Voivodeship is characterized by lower levels, especially of gaseous emissions in relation to the surface of the province or living population. The area of the voivodeship is 13.988 thousand km², which, with the surface of Poland (312.7 thousand of km²) is less than 4.5% [21]. However, the share of population of Lubuskie in 2014 amounted to less than 2.7% (1020 thousand in Lubuskie and 38479 thousand in Poland) [22].

Lubuskie Voivodeship, like the rest of Poland, is characterized by the growth of low emission in the heating season. Analysing the problem of low emission in the region of Lubuskie it is impossible not to mention the pollutants that are emitted by road transport. This applies particularly to cities and roads with heavy traffic. During the combustion of fuels in automobile engines the gaseous components leak into the atmosphere (mainly nitrogen oxides, carbon monoxide, aromatic hydrocarbons). Another problem of Lubuskie is transit traffic. The places with elevated levels of nitrogen dioxide emissions coincide with the course of the A2 motorway (east-west), which in the voivodeship is part of the Berlin-Warsaw route. An increased level of nitrogen dioxide emissions also takes place near Road S3 (north-south). Voivode authorities and those of various cities in the region will have to consider a ban on entry of older cars to the cities that do not meet current environmental standards. Similar solutions have been successfully used for many years in many cities in the EU.

An important substance, which is a component of PM10 [24-25], which significantly pollutes the air, is benzo(a)pyrene [26]. The data from 2015 indicate exceeding the target level of benzo(a)pyrene (1 ng/m³). Due to this, all zones in Lubuskie were classified as class C, which causes the need to develop air protection programmes for this area (Fig. 1).

**The Possibility of Low Emission Reduction in Lubuskie Voivodeship**

Reducing the level of low emission in Lubuskie requires a range of actions at various levels. Due to the fact that a significant part of the low emission is the air pollution generated during the heating of homes (including single-family houses), the main burden of prevention activities should be directed at buildings inefficient in energy coal-fired boilers [27]. It should be noted that in Lubuskie Voivodeship there are solutions allowing for thermal modernization of public buildings. An example of such support may be funding by the Lubuskie Regional Operational Programme (Priority Axis 3 - Low-carbon economy). The amount dedicated for the implementation of the projects is €10 million. Their objective is to reduce emissions and the consumption of fossil fuels [28]. The projects are supposed to include the thermal modernization of public buildings. A significant part of the projects also included the exchange of boilers used for heating, and some of the applicants also planned to use the plants based on renewable energy sources [29]. In order to receive support the projects must meet a number of conditions, e.g., reducing CO₂ emissions by at least 30% in relation to the existing system, significantly improving energy efficiency, and providing system monitoring and energy management. It should be noted that the support may be granted only to projects that involve the installation of heating appliances fuelled by sources other than carbon¹. However, efforts to reduce low emission, formed during the heating of buildings (including single-family dwellings) are rare.

An interesting solution that can significantly contribute to the reduction of low emissions in Lubuskie is funding the replacement of old coal stoves for heating houses. The problem is that this is only the first solution of its kind in Lubuskie, which was passed in October 2016 by the Council of the City of Żary (in the southwestern part of Lubuskie Voivodeship). The residents of Żary, who decide on the liquidation of coal stoves, can get funding.

¹ This knowledge was acquired during the evaluation of applications by one of the co-authors of this article.
financial assistance of up to €2300. Unfortunately, the amount planned for this task (about €50,000) will only allow for the exchange a few dozen old household coal stoves. Nevertheless, this is a step in the right direction and this type of solution should be implemented by other cities in Lubuskie.

Analysing the possibility of low emission reduction in Lubuskie, it should be emphasized that the greatest ecological effect can be achieved with the total liquidation of the old coal boiler and connecting the building to the district heating network or by using electric heating and heat pumps with the installation of a gas boiler. These measures may be more effective if both buildings are subjected to thermal modernization [30].

However, the elimination of coal-fired boilers and connection of buildings to the district heating network is not always possible due to the lack of this type of installation in rural or less densely populated urban areas. Therefore, it is necessary to consider replacing old energy inefficient coal-fired boilers with more modern ones, which will have a smaller impact on the environment. Choosing the right, less aggravating environmental installation used to heat buildings can be supported by life cycle assessment (LCA) technique [31-34].

LCA indicates environmental hazards, helping to choose an eco-efficient installation and it is still at the stage of deciding on the heat source [35-37]. LCA has been described by the International Committee for Standardization in the standards series ISO 14040: PN-EN ISO 14040:2009 [38] and PN-EN ISO 14044:2009 [39]. The results of LCA (Table 3) are expressed in eco-indicator points (Pt), where 1 Pt of eco-indicator is the value representing one-thousandth of the annual burden on the environment attributable per capita in Europe [40].

LCA is characterized by a certain type of limitation that forms the limits of the system for the analysed heat sources [41-42]. The results presented in Table 3 include the production of a specific unit of heat energy

<table>
<thead>
<tr>
<th>Type of the heat source</th>
<th>Coal boiler</th>
<th>Coal boiler with feeder</th>
<th>Gas boiler</th>
<th>Oil boiler</th>
<th>Heat pump</th>
<th>Biomass boiler</th>
<th>Coal boiler with feeder and solar collector</th>
</tr>
</thead>
<tbody>
<tr>
<td>The fuel</td>
<td>Coal different assortment</td>
<td>Coal</td>
<td>Natural gas</td>
<td>Fuel oil</td>
<td>Electricity</td>
<td>Biomass</td>
<td>Coal peas</td>
</tr>
<tr>
<td>The energy efficiency of the heat source (%)</td>
<td>70</td>
<td>82</td>
<td>94</td>
<td>92</td>
<td>420</td>
<td>85</td>
<td>82</td>
</tr>
<tr>
<td>The parameters of fuel MJ/kg</td>
<td>24</td>
<td>26</td>
<td>42.8</td>
<td>42.8</td>
<td>12</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>Fuel consumption (MJ/year)</td>
<td>7.3</td>
<td>5.7</td>
<td>3629.5</td>
<td>3708.4</td>
<td>8033.0</td>
<td>11.9</td>
<td>5.4</td>
</tr>
<tr>
<td>Cost of fuel (EUR)</td>
<td>956</td>
<td>882</td>
<td>1469</td>
<td>4150</td>
<td>861</td>
<td>708</td>
<td>836</td>
</tr>
<tr>
<td>Total cost of operation (EUR)</td>
<td>995</td>
<td>913</td>
<td>1505</td>
<td>4150</td>
<td>861</td>
<td>772</td>
<td>865</td>
</tr>
<tr>
<td>Save/increase in operating costs (EUR/year)</td>
<td>-</td>
<td>-82</td>
<td>-510</td>
<td>-3155</td>
<td>134</td>
<td>223</td>
<td>130</td>
</tr>
<tr>
<td>The total emission of pollutants (kg/year)</td>
<td>604</td>
<td>423</td>
<td>1.03</td>
<td>131.08</td>
<td>0</td>
<td>131.08</td>
<td>399</td>
</tr>
<tr>
<td>CO₂ emissions (kg/year)</td>
<td>14600</td>
<td>11400</td>
<td>7128</td>
<td>7098</td>
<td>0</td>
<td>0</td>
<td>10800</td>
</tr>
<tr>
<td>CO emissions (kg/year)</td>
<td>329</td>
<td>257</td>
<td>0.98</td>
<td>3</td>
<td>0</td>
<td>78.72</td>
<td>243</td>
</tr>
<tr>
<td>SO₂ emissions (kg/year)</td>
<td>93</td>
<td>46</td>
<td>0.01</td>
<td>82</td>
<td>0</td>
<td>2.38</td>
<td>43</td>
</tr>
<tr>
<td>NOₓ emissions (kg/year)</td>
<td>7</td>
<td>6</td>
<td>0.00</td>
<td>22</td>
<td>0</td>
<td>8.33</td>
<td>5</td>
</tr>
<tr>
<td>Emissions of dust (kg/year)</td>
<td>175</td>
<td>114</td>
<td>0.04</td>
<td>8</td>
<td>0</td>
<td>41.65</td>
<td>108</td>
</tr>
<tr>
<td>Ecological effect in relation to the building representative:</td>
<td>X</td>
<td>181</td>
<td>603</td>
<td>489</td>
<td>604</td>
<td>473</td>
<td>231</td>
</tr>
<tr>
<td>– reduction of emissions of pollutants (kg/year),</td>
<td>X</td>
<td>3200</td>
<td>7472</td>
<td>7502</td>
<td>14600</td>
<td>14600</td>
<td>3800</td>
</tr>
<tr>
<td>– reduce carbon dioxide emissions (kg/year)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LCA value of the environmental impact of heat sources (Pt/year)</td>
<td>264</td>
<td>150</td>
<td>16.4</td>
<td>58.5</td>
<td>193</td>
<td>12.6</td>
<td>139</td>
</tr>
</tbody>
</table>

Source: [45]
without environmental impact, which took place during the production of boilers and environmental impacts associated with the formation of infrastructure needed to transport and/or store fuel. A functional unit, that is the unit adopted in the study, which is the quantitative effect of the production system, is a demand for thermal energy in kWh of the considered building, representative within a year. For calculations we used the eco-indicator 99 assessment, which allows for the presentation of the results of impact in relation to the 11 impact categories and 3 damage categories [43].

Table 3 shows the operating and emission parameters of 8 analysed heat sources together with the results of LCA. After analysing Low-Carbon Economy Plans in communities locating within the Lubuskie Voivodeship, it should be noted that the parameters of analysed heat sources are close to the household boilers located in Lubuskie. On the other hand, developing Low-Carbon Economy Plans allows municipalities to obtain EU funds in 2014-2020. Thanks to EU funds, municipalities will be able to carry out projects involving thermal modernization of buildings, implementing renewable energy sources, and carrying out activities aimed at upgrading public transport, which will reduce emissions. The second column of Table 3 corresponds to the most pervasive case, in the old individual heat sources. The third and eighth columns show a situation that used coal boilers with the feeding of a newer type from old-type boilers from the second column. Although they are economical and easy to use, they are not sufficiently environmentally friendly, as evidenced by the worst result, which is the highest impact on the environment (the result is shown in the last row of the table). Analysing the results contained in the last column of Table 3 shows that coal-fired boilers, even if they are supported by solar collectors, do not guarantee an environmental effect that could be acceptable. Although the lowest impact on the environment is attributed to boilers fuelled by natural gas and biomass (columns 4 and 7), the biomass is preferable from the economic point of view [44-46]. In contrast, it should be emphasized that the combustion of biomass in the boilers without an effective capture dust installation can contribute to excessive concentrations of PM10, especially if a large number of this type of boiler equipment was located in one place [47-50]. It should be highlighted that in Lubuskie there is good access to biomass in the local market, which means that it does not have to be transported over long distances, which would significantly reduce the environmental effect of the use of this fuel for heating purposes [51-55].

Conclusions

These activities, although they must be gradually implemented, will meet the resistance of residents along with a strong mining lobby in Poland. The reason for this is the fact that coal is an energy resource extracted in Poland and its extraction can employ tens of thousands of miners, not to mention companies that operate in the immediate vicinity of the mining industry. It should be noted that most EU coal miners work in Poland.

Previous attempts to reduce the combustion of coal in Poland have encountered obstacles. Low emission in the Polish legal system relating to the protection of the environment is not treated as a separate issue. Currently used legal instruments, which are aimed at limiting low emission, are often ineffective and do not sufficiently mitigate the impact of air pollution on the environment. A possibility for reducing the environmental impact of low emission is the so-called Anti-smog Act of 2015. Before the entry of the law into force, it was only possible to completely prohibit the use of certain fuels used during the heating of residential buildings. However, this was not an effective solution, which is reflected in the decision of the Regional Administrative Court in Krakow, which rescinded the anti-smog resolution of the Malopolska Regional Council, introducing in Krakow ban on the use of coal in domestic boilers from 1 January 2018. Only the Anti-smog Act allowed for the introduction of regulations limiting the negative impact of low emission on the environment. In Krakow under the Anti-smog Act there was introduced a resolution that imposes limits for boilers, fireplaces, and stoves, and it is effective from 1 September 2019. The Anti-smog Act allows local governments to specify types of fuel with which it will be possible to heat rooms and to set technical standards for boilers. The amendment to the Environmental Protection Law allows regional parliaments to determine the resolutions of the kind and quality of solid fuels that may be authorized. Regional parliaments can also pass a ban on the use of certain heating installations. It should be noted that Krakow is one of the most polluted cities in the EU, and despite it, the introduction of legal solutions that allow for reducing low emission was a problem.

Acknowledgements

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Conflict of Interest

The authors declare no conflict of interest.

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