



## CARBON CREDIT OFFSET SUBSCRIPTIONS



## **Atmosphere Group**

### **Carbon Credit Offset Subscriptions**

#### **Introduction**

Climate change has been identified as an imminent challenge that calls for innovative solutions. One option proposed in the Kyoto Protocol is to use market mechanisms, such as carbon trading systems, to reduce emissions of greenhouse gases (GHGs) by capping them at a certain level according to geographical area and allowing entities who produce less than their baseline allowance of GHG emission offsets to sell those allowances on the open market. Other projects and technologies which eliminate GHGs or sequester carbon dioxide could also be implemented to help reach net zero total emissions levels.

Atmosphere Group Ltd. (Atmosphere) exists to ensure that everyone can take personal responsibility for his or her own carbon footprint. The goal is to democratize access to making an impact. Atmosphere has created a carbon credit that brings transparency, accessibility, liquidity, and standardization to the market. Every carbon credit is backed by a metric ton of certified emissions reduction. It's a virtuous circle that begins with landowners who agree to conserve or replant their deciduous forests, rainforests, and arable land. This removes the incentives for deforestation that have decimated the major carbon sinks around the world. It also includes technologies that permanently avoid or eliminate carbon dioxide, other greenhouse gases, and particulate matter pollution. This has the additional benefit of eliminating other sources of climate change as well as helping to reduce the deleterious effects on human and animal health. The emissions reductions from nature based projects and technological applications are combined into a single Super Carbon Credit. It provides for the certified emissions reduction of a metric ton of carbon plus the atmospheric reduction of other effluents.

#### **The Atmosphere Group**

Atmosphere is committed to helping businesses and individuals adopt sustainable business solutions. In order to be successful and safeguard our planet's future, sustainability must come first. Atmosphere's mission is twofold, to create a program geared toward rewarding sustainable

decisions and actions taken by individuals, businesses and partners alike while simultaneously pushing for positive progress towards preserving the world for generations to come. We understand that financial success is only one piece of an effective strategy. Long term benefits require socially responsible choices as well.

### **Greenhouse Gas Emissions**

GHG emissions have increased steadily for the past 100 years mainly due to the increase in CO<sub>2</sub> emissions from the emerging economies and are still increasing all over the world despite climate change mitigation agreements.<sup>1</sup> Present GHG emissions are about 57% higher than in 1990 and 43% higher than in 2000. Under the Kyoto Protocol (1997), seven greenhouse gases are considered as the significant contributors to global warming: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF<sub>6</sub>), nitrogen trifluoride (NF<sub>3</sub>). CO<sub>2</sub> emissions from fossil fuels are the largest source of global GHG emissions, with a share of about 72%, followed by CH<sub>4</sub> (19%), N<sub>2</sub>O (6%), and the F-gases (3%). The direct drivers of CO<sub>2</sub> are the combustion of coal, oil, and natural gas, representing 89% of global CO<sub>2</sub> emissions, with respective shares of 39%, 31%, and 18%. For CH<sub>4</sub>, there are three large sources: agriculture, fossil fuel production, and wastewater. Together, fossil fuel production and transmission account for a third of global methane emissions.<sup>2</sup>

Carbon dioxide is released into the atmosphere by four means: organic decomposition, respiration, ocean release, and industrial activity. The carbon footprint is the amount of carbon CO<sub>2</sub> emissions associated with all the activities of a person, business, or another entity, such as a building, community, country, etc. It includes direct emissions, such as those that result from fossil-fuel combustion in manufacturing, heating, and transportation, as well as emissions required to produce the electricity associated with goods and services consumed. In addition, the carbon footprint concept also often includes the emissions of other greenhouse gases, such as methane, nitrous oxide, sulfur dioxide, or chlorofluorocarbons.

The larger the carbon footprint, the greater the impact on the environment and on individuals. The ever increasing levels of CO<sub>2</sub> in the air leads to climate change with devastating weather events. GHG emissions also leads to air pollution. Toxic urban smog hangs over many of the large urban areas in the world which causes an alarming increase in respiratory infections and cancer. Sulfur

emissions lead to acid rain which has devastating effect on human health, fauna, and flora. Carbon emissions also add to coastal and ocean acidification. Acidic waters are the reason behind the extinction of many marine species. In combination with the rising temperatures and pollution, acid is bleaching the coral reefs that offer protection and serve as home to juvenile marine wildlife.

Sulphur dioxide is another GHG that affects human and animal health. The U.S. emits more than 6.4 million tons of sulfur dioxide each year. The largest sources of SO<sub>2</sub> emissions are electricity generation, industrial boilers, and industrial processes such as petroleum refining and metal processing. Diesel engines are also a major source, especially older buses and trucks, locomotives, ships, and off-road diesel equipment that lack precise combustion throughout the duty cycle. In addition to causing acid rain, sulphur dioxide attacks the lungs. Direct exposure causes wheezing, shortness of breath and chest tightness, and restricts physical activity.<sup>3</sup> Continued exposure reduces the ability of the lungs to function properly. It increases the rate of hospital admissions or emergency room visits, especially among children, older adults, and people with asthma.

### **Particulate Matter Emissions**

Particulate matter (PM) may be responsible for an even greater impact on the environment and climate as well as on human health. PM is a mixture of solid particles and liquid droplets found in the air. Some particles, such as dust, dirt, soot, or smoke, are large or dark enough to be seen with the naked eye. Others are so small they can only be detected using a microscope. PM is the black soot that can be seen pouring out of industrial smoke stacks and the tailpipes of vehicles. It is the portion of the hydrocarbon that was not fully burned during combustion. It then travels through the atmosphere before it is finally deposited on land and in the water. Also referred to as black carbon, you can see it in dramatic contrast to the brilliant white as it covers glaciers and arctic animals like polar bears, baby seals, and birds. It disrupts solar reflection, which increases the rate at which glaciers and polar ice are melting. That results in cascading effects on the food web which often begin in Arctic waters.

PM<sub>2.5</sub> are fine inhalable particles with diameters that are generally 2.5 micrometers and smaller. There is no known safe exposure level. PM<sub>2.5</sub> presents a global risk to human health and animal welfare. According to the World Health Organization (WHO), exposure to PM<sub>2.5</sub> was responsible for over 4.2 million premature deaths worldwide.<sup>4</sup> The WHO went on to state that there is strong

evidence to support the fact that PM emitted by diesel road vehicles is associated with an increased risk of heart attack, diabetes, several cancers, birth defects, dementia, and death. The U.S. Environmental Protection Agency (EPA) estimates that PM<sub>2.5</sub> causes 230,000 premature deaths annually in the United States. A comprehensive study from Harvard and other leading universities from around the world found that both short and long-term exposure to PM<sub>2.5</sub> were associated with increased mortality.<sup>5</sup>

Researchers are beginning to understand the health threats posed by exposure to fine particulate matter in the nanoparticle size range. Particulates this small can enter the bloodstream through the gut, lungs, and mucus membranes, cross the blood brain barrier, and affect multiple organs and metabolic systems.<sup>6</sup> As our understanding of the associations between PM<sub>2.5</sub> and inflammation, oxidative stress, and neurologic damage has grown, so too has the concern in medical, environmental, and community health research. Recent studies have found associations between PM<sub>2.5</sub> and the following medical conditions:<sup>7</sup>

- ***Alzheimer's and cognitive decline.*** Long-term exposure to PM<sub>2.5</sub> at levels typically experienced by many individuals in the United States is associated with cognitive decline in older women.
- ***Autism.*** Exposure to traffic-related air pollution, nitrogen dioxide, and PM<sub>2.5</sub> during pregnancy and during the first year of life was associated with autism.
- ***Heart attack.*** Exposures to PM for as little as a few hours can trigger heart attack and sudden cardiac death, even at levels 50% below the European Union limit values (25 µg/m<sup>3</sup> for PM<sub>2.5</sub>).
- ***Stroke.*** Short-term PM<sub>2.5</sub> exposure is also linked to elevated blood pressure, stroke, and stroke-attributed hospital admissions.
- ***Lung disease.*** Long-term exposure to PM<sub>2.5</sub> increases risk for chronic obstructive pulmonary disease (COPD) and lung cancer by approximately 20%.
- ***Asthma.*** Increases in ambient NO<sub>x</sub>, NO<sub>2</sub>, and PM<sub>2.5</sub> are strongly linked with childhood asthma attacks requiring hospital admission.
- ***Diabetes and metabolic disease.*** Both NO<sub>x</sub> and PM<sub>2.5</sub> are significantly associated with blood glucose levels, obesity and type 2 diabetes in children and adults.

- **Cancers.** Several cancers are more common in people exposed to PM<sub>2.5</sub>: lung cancer (~20%), liver cancer (~34%) breast cancer (~20%).
- **Birth defects:** Cardiac birth defects including atrial septal defects and atrial articulation are indicated by exposure to PM<sub>2.5</sub>. Surgical intervention is required to correct these abnormalities to prevent progression to adult cardiac disease and complications such as stroke, hypertension, atrial fibrillation, and heart failure.
- **Low birth rate.** PM<sub>2.5</sub> is associated with low birth weight, the leading cause of infant mortality in U.S. and Europe. Low birth weight has been associated with hyperactivity disorders, developmental issues, and cognitive deficits.
- **Adult-onset chronic diseases:** PM<sub>2.5</sub> exposure during gestation, infancy, and throughout lifespan increases long-term risk for multiple adult-onset chronic diseases, including:
  - Diabetes (kidney disease, cancer);
  - Ischemic heart disease (stroke, heart attack, sudden death);
  - Heart failure (pulmonary edema, cardiomyopathy, sudden death);
  - Cerebrovascular disease (stroke, dementia);
  - Thrombosis (stroke, pulmonary embolism);
  - Hypertension (stroke, kidney disease); and
  - Cardiac arrhythmias (stroke, heart attack, sudden death).

### **Carbon Credits**

In 1968, John Dales suggested creating marketable allowances as a means of controlling pollution.<sup>8</sup> December 2015, the Paris Agreement brought all nations into a common cause to undertake ambitious efforts to combat climate change. It required all parties to agree to put forward their best efforts through ‘nationally determined contributions.’ At the national level, policymakers have three options to reduce greenhouse gas emissions: (1) set a specific limit that an emitter cannot exceed; (2) introduce a carbon tax whereby the emitter pays for the amount of CO<sub>2</sub> they produce; or, (3) implement an emissions trading scheme and create a market for carbon offsets. This third option has become the most popular mechanism and has led to the creation of carbon credits.

A carbon credit is a tradable permit or certificate that gives the right to emit one ton of carbon dioxide or another greenhouse gas. There are currently two types of carbon credits: (1) Voluntary Credit Markets (VCM), whereby carbon offset is exchanged between project owners and emitters based on specified terms; and, (2) Compliance Credit Markets (CCM) where emissions units are created through a certified regulatory framework. The main difference between the two is a third-party certifies that the CCM credits comply with the specific specifications of an established standard while VCM's do not require third party verification and allow for the standards to be specified by the project owner. The same United Nations Framework on Climate Change apply to both types of credits, and they represent the same environmental impact.

### **Carbon Credit Markets**

Kyoto protocol regards the market mechanism as a way to solve the greenhouse gas emission reduction problem. In this view, carbon dioxide emission is considered a commodity, forming a carbon trading system. According to the United Nations, carbon offsetting is particularly crucial for meeting the Paris Climate Agreement's goal. Carbon offsetting allows companies and individuals to reduce carbon emissions by purchasing carbon credits from carbon reduction projects. These projects include planting new trees, avoiding deforestation, investment in renewable energy, carbon capture, permanent avoidance, and sequestration projects. The VCM coexists with the CCM and is driven by regulatory caps on GHG emissions. The New York Times reported that GHG emissions trading held the potential to become the world's largest commodity market.<sup>9</sup> According to the World Bank's tally, the carbon emission trading market reached about \$10.9 billion (USD) in 2005 when the Kyoto Protocol took effect and continued to grow at an annual rate of 108%, increasing to \$143.7 billion (USD) by 2009,<sup>10</sup> \$215 billion (USD) in 2019, and \$2 trillion in 2021. It is expected to expand at a 29.9% annual rate, reaching \$9.6 trillion million by 2027.<sup>11</sup> Over 80% of the global volume through 2019 was accounted for by the EU's Emissions Trading System.<sup>12</sup> The recent entry of North American and Gulf Region countries as well as Australia and China into the carbon credit markets have accounted for the majority of the subsequent increases. The current cost of a carbon credit ranges from under \$1.00 to about \$150.00 (USD), depending upon the source, structure, and certification of the underlying project.

The number of permits in the market is capped. At the beginning of a trading phase, emission permits are either allocated to businesses for free or are purchased at auction. The number of available permits decreases over time, putting pressure on the participating companies to invest in cleaner production options to reduce their CO<sub>2</sub> outputs. In the long run, this drives innovation and reduces the cost of new technologies. Carbon reduction projects are also awarded offsetting credits for the removal of GHGs from the atmosphere. These projects include planting new trees, avoiding deforestation, investing in renewable energy capacity, implementing direct air carbon capture projects, carbon sequestration projects in deep saline aquifers or depleted oil wells, among others.

### **The Atmosphere Group Super Credit**

#### ***Nature-Based Carbon Credits***

The Atmosphere Group Super Credit is a novel, innovative type of carbon credit. It combines the benefits of multiple projects and multiple types of carbon credits into a single Super Credit. First, Atmosphere identified nature-based projects that have a positive potential environmental impact and make significant contributions to their communities. Some of these projects support indigenous nations; others preserve land that has spectacular features. This eliminates the perverse incentives of additionality that reward landowners for clear cutting their forests one year then replanting them the next.

All have sufficient vegetation to sequester carbon on an annual basis. They have also been rigorously evaluated to ensure that all issues relating to land title, contractual restrictions, afforestation, reforestation, and others, are documented and disclosed. In addition, all nature-based projects are verified by a reputable, third party to certify compliance with the United Nations Framework on Climate Change standards. These nature-based credits are secured and pooled together to provide for diversification and broad, global impact.



### *Carbon Dioxide Avoidance Credits*

Atmosphere has also secured carbon dioxide avoidance credits from Viscon California LLC (Viscon). Viscon developed and markets a high molecular weight polymer enriched diesel fuel (HMWPED). After years of research and development, formulations of HMWPED were created for emission reductions in fuels. It is well known that diesel engine combustion behavior can be enhanced by improving air-to-fuel mixture formation. Scientific evidence shows that blending the Viscon fuel additive in diesel fuel reduces a wide range of harmful emissions, including CO<sub>2</sub> and particulate matter (PM), making Viscon a unique product in the global fight against release of greenhouse gases. Viscon treated diesel fuel improves the fuel/air mixture formation by modifying the fuel rather than the engine. At best, the fuel behaves like an ordinary liquid. Under conditions of sudden stress, however, such as being sprayed from an injector, the fuel has greatly increased viscosity.

A viscoelastic fuel has different spray and vaporization behavior. The injector spray is more controlled, producing a more uniform droplet size and more uniform distribution of fuel over the cross section of the spray cone. Super fine satellite droplets are eliminated, and the overall Sauter Mean Diameter is reduced. The benefits gained from changes in spray and vapor behavior in fuel penetration, dispersion, and homogeneity of light and heavy fuel species in the air-to-fuel mixture are both essential to ideal mixture formation. Increased spray penetration and improved dispersion are achieved by having more uniform droplet size, more uniform droplet distribution, and reduced droplet growth by collision. The result is a more homogeneous air-to-fuel equivalency ratio.

Improved uniformity of the air-to-fuel equivalency ratio throughout the mixture leads to greater cyclic uniformity. Less understood, but equally important in air-to-fuel mixture formation, homogeneous distribution of fuel components leads to lower peak temperatures and faster flame propagation. The light ends of the fuel which normally dominate and drive initial combustion are moderated by the slower burning molecules. During flame propagation the normally slow burning molecules are heated and thereby aid in burning the fast-burning light end molecules. Overall, uniformity of the air-to-fuel mixture results in more uniform and complete combustion of the fuel. Viscon treated fuel achieves optimal uniformity of the air-to-fuel ratio by transforming the raw

polyisobutylene polymer to a liquid state via a temperature-controlled mixing process. When mixed with fuel, Viscon will:

- improve torque;
- improve air quality;
- improve fuel combustion;
- reduce fuel consumption;
- reduce harmful emissions; and
- reduce operating temperatures.

The California Environmental Protection Agency (CalEPA) formed the interagency Multimedia Working Group (MMWG) to oversee fuel evaluations. The MMWG includes representatives from the California Air Resources Board (CARB), State Water Resources Control Board (SWRCB), Office of Environmental Health Hazard Assessment (OEHHA), and Department of Toxic Substances Control (DTSC). Viscon is the only fuel additive to have completed the CalEPA Interagency Multi-Media Working Group evaluation. CARB verified HMWPED as a strategy for controlling emissions of PM from diesel engines under its Diesel Emissions Control Strategies Verification program. The required CARB testing, as well as subsequent testing that was performed for the Texas Low Emission Program (TxLED) and for governments in Latin America and Asia concluded that the Viscon product reduces CO<sub>2</sub> emissions by 4.41% on a full carbon life cycle basis and reduces PM by more than 35%. The full Multimedia Report is available for review online.<sup>13</sup>

Pyrolysis, heat-induced chemical decomposition, is responsible for the formation of the solid carbon particles that are the nucleus of the particulate emissions from a diesel engine. Pyrolysis occurs in an engine cylinder when there is insufficient oxygen for combustion but sufficient heat to cause fuel to decompose. By increasing the availability of oxygen throughout the air-fuel mixture in a diesel engine, HMWPED inhibits pyrolysis and reduces the production of PM emissions. This is the only fuel blending component approved by the CARB as a Diesel Emission Level-1 Control Strategy (DECS) for reduction of greenhouse gasses with greater than 35% reduction of particulate matter. This has profound consequences for health, and as stated in the multimedia report, **“OEHHA staff concludes that the use of Viscon-treated diesel fuel may reduce morbidity and mortality due to pulmonary diseases, including lung cancer in adults**

**and allergic asthma in children, caused by substances in the particles contained in diesel exhaust.”**

Carbon dioxide avoidance credits are calculated by multiplying the total number of gallons of diesel fuel treated by 22.4, the number of pounds of CO<sub>2</sub> emitted by the combustion of one gallon of diesel fuel, then dividing that total by 2,200 to determine the metric tons of CO<sub>2</sub> emitted from that volume of diesel. The net percentage reduction of CO<sub>2</sub> that is realized by the addition of Viscon (4.41%) is then multiplied by the total tons of CO<sub>2</sub> to calculate the tons of GHGs that were permanently avoided from being emitted into the atmosphere.

Viscon’s accomplishments are unmatched as a technology that changes the combustion of fuels. Certifications have been granted by the Texas Commission on Environmental Quality (TCEQ) for NO<sub>x</sub> reduction, the California Air Resources Board (CARB) for particulate matter (PM) reductions and the California Environmental Protection Agency (CalEPA) for health risks review, as well as for the permanent avoidance of CO<sub>2</sub> emissions. No other additive in the world can claim to successfully meet the stringent requirements. The use of HMWPED for carbon footprint strategy planning can and should be used by every fuel refiner today.

### **Super Carbon Credit**

Atmosphere has combined the benefits from each type to create an Atmosphere Super Carbon Credit. A portion of the Super Carbon Credit comes from the nature-based carbon credits and a portion from the Viscon carbon avoidance credits. Each Super Carbon Credit provides for the sequestration of one metric ton of carbon dioxide. It also reflects a reduction in atmospheric levels of NO<sub>x</sub>, SO<sub>x</sub>, and PM. **It may be the carbon credit that offers the most comprehensive reduction in greenhouse gas emissions while also providing the opportunity to save lives!**

Atmosphere has developed a technology platform that provides a one-stop solution for carbon credit transactions. Landowners and project sponsors can apply to have their projects evaluated for inclusion in a Super Credit. Individuals and companies can use the carbon calculator to estimate their annual carbon footprint. Then, individuals and businesses can purchase Super Carbon Credits to offset their annual carbon footprint. The Atmosphere platform is designed to make the process extremely user-friendly. Individuals and companies can purchase Carbon Avoidance and Super

Carbon Credits in any quantity they desire, including on a recurring basis. The platform allows payments to be made by credit card, Apple Pay, Venmo, the Cash App and other popular fintech solutions. It also features extensive educational resources and information on the underlying sources of nature-based credits.

The onboarding process is designed to ensure that the Carbon Avoidance and Super Carbon Credits, as well as the underlying projects, comply with Atmosphere's stringent requirements. This process starts with verifying the ownership of the associated land through government records, including title and deeds. It then requires support for the vegetation on the property and the amount of carbon sequestration provided using a proprietary suite of imaging and information databases. Finally, the landowner enters into a contract agreeing to restrict the land from development and deforestation for the term that the carbon credit is in force. Compliance with this provision is monitored on a quarterly basis thereafter. Atmosphere relies on an independent agency, the Institute for Global Education (IGE) to verify all of the information submitted by the project sponsor. IGE is a United Nations ECOSOC NGO, the highest level of UN delegate, chartered to support the sustainable development goals. Only those projects that meet all of these requirements are minted and registered with Verified Credits, a leading carbon credit registry and exchange. The Verified Credits "green check" may then be used by Atmosphere and the holders of the carbon credits. Verified Credits also maintains all of the transaction details about the creation, subsequent transfer of ownership, and ultimate extinguishment of these credits to ensure their integrity and to prevent forgeries.

Individuals and businesses can offset their own GHG emissions by purchasing a sufficient quantity of Super Carbon Credits. The typical individual in the United States is responsible for 16 tons of carbon dioxide emissions. This is based on the average mileage driven each year, the amount of electricity used, travel onboard airplanes and cruise ships, and consumption of food, and the manufacturing of other goods. Atmosphere provides a subscription service where consumers can purchase 1.33 Super Carbon Credits per month to achieve a net zero carbon footprint on a personal basis. The individuals or businesses are issued a digital certificate to reflect the purchase. Individuals and businesses can hold their credits, trade, or donate them. The credits are retired after one year to make the environmental impact permanent. A sample of the digital certificate is as follows:

# COMBUSTION EMISSION AVOIDANCE + NATURE BASED CARBON CREDITS



ATMOSPHERE CREDITS • VERIFIED CREDITS EXCHANGE & REGISTRY



THIS CERTIFIES THAT:

HAS PURCHASED AND IS THE OWNER OF:

**CARBON OFFSET  
SUPER CREDITS**

VSCON  
Production 2004 - 2023  
Location: Texas  
Country: United States

Emission Reductions Created By:  
VSCON USA  
2121 Grandd Street  
Beverly Hills, California 90208

Nature Based Carbon Offset Credits Created By:  
Global and indigenous Stewards to Conserve and  
Reforest Deciduous Forest, Rainforests, Arid/Land,  
and Other Natural Habitats Worldwide

Emissions Reduction Mechanism:  
United Nations Framework on Climate Change  
Small Scale Methodology: Emissions  
Reductions Through Improved Efficiency of Fleet Vehicles  
Vehicle CO<sub>2</sub> - Sectoral Scope: 01  
Carbon Avoidance Reductions: 4.41%  
Particulate Matter Avoidance: 30.0%  
Data Source: State of California, California Environmental Protection Agency  
Staff Report: Evaluation of VSCON - Trucked Diesel Fuel, June 2011

Emissions Reduction and Nature Based Offsets Verified By:  
Institute for Global Education (IGE)  
2555 SE 43rd Avenue  
Portland OR, 97215

Registry Certification:  
Verified Credits LLC  
30 N Gould St, STE 7277  
Shepherd, WY 82101

US Certificate # \_\_\_\_\_ Plan Type: \_\_\_\_\_ Date: \_\_\_\_\_

This certificate represents the permanent avoidance of \_\_\_\_\_ metric tons of CO<sub>2</sub> and the creation and assignment of all the emission reduction rights associated with the reduction activities to the project holder. The certificate represents reductions achieved by the project holder. These Emission Reductions can be traded, sold or given away.

WWW.ATMOSPHEREGROUPLTD.COM • WWW.VERIFIEDCREDITS.COM

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<sup>1</sup> Olivier, J.G.J., and Peters, J.A.H.W., (2019), Trends in global CO2 and total greenhouse gas emissions: 2019 report. PBL Netherlands Environmental Assessment Agency, The Hague.

<sup>2</sup> European Commission, Joint Research Centre (EC-JRC)/Netherlands Environmental Assessment Agency (PBL). Emissions Database for Global Atmospheric Research (EDGAR), release EDGAR v5.0 (1970 - 2015) of November 2019.

<sup>3</sup> Grzywa-Celińska A, Krusiński A, Milanowski J. 'Smoging kills' - Effects of air pollution on human respiratory system. *Ann Agric Environ Med*. 2020 Mar 17;27(1):1-5. doi: 10.26444/aaem/110477. Epub 2019 Jul 30. PMID: 32208572.

<sup>4</sup> Gladstone, Neandross and Associates. Ultrafine Particle Matter and the Benefits of Reducing Particle Numbers in the United States. MECA. July 2013.

<sup>5</sup> Liu C, Chen R, Sera F, et al. Ambient Particulate Air Pollution and Daily Mortality in 652 Cities. *N Engl J Med*. 2019 Aug 22;381(8):705-715. doi: 10.1056/NEJMoa1817364. PMID: 31433918; PMCID: PMC7891185.

<sup>6</sup> Schraufnagel DE. The health effects of ultrafine particles. *Exp Mol Med*. 2020 Mar;52(3):311-317. doi: 10.1038/s12276-020-0403-3. Epub 2020 Mar 17. PMID: 32203102; PMCID: PMC7156741.

<sup>7</sup> Gladstone.

<sup>8</sup> Dales, J. H. (1968). *Pollution, Property and Prices: An essay in policy*.

<sup>9</sup> Kim, S.-K., and Huh, J.-H., (2020), Blockchain of Carbon Trading for UN Sustainable Development Goals, *Sustainability*, 12, 4021; doi:10.3390/su12104021 6. Nordeng, A., et al., (2020), Refinitiv Carbon Market Survey, May 2020.

<sup>10</sup> Sovacool, B.K., (2011), Four Problems with Global Carbon Markets: A Critical Review, *Energy & Environment* · Vol. 22, No. 6, 201.

<sup>11</sup> Absolute Reports (2022), *Global Carbon Credit Trading Industry Research Report, Competitive Landscape, Market Size, Regional Status and Prospects*, report id: 21739436.

<sup>12</sup> Gale, K., Langer, D., Waterman, R. (2010), *Global Carbon Credit Markets – Issues and opportunities*, pfi market intelligence/Financing clean energy, Section 4, chapter 39.

<sup>13</sup> [http://www.visconusa.com/wp-content/uploads/Mulitmedia\\_Evaluation\\_Staff\\_Report.pdf#zoom=100](http://www.visconusa.com/wp-content/uploads/Mulitmedia_Evaluation_Staff_Report.pdf#zoom=100)