

Fighting Against Climate Change: Denmark's Effort in Reducing Global Carbon Emissions

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Abstract

The problem of climate change is a global threat, which is driven by the production of global carbon emissions that continue to increase every year, reaching 36.4 billion metric tons in 2020. If this continues, climate change will cause various negative impacts on the lives of the global community in the field of environmental, economic, social, and health. Therefore, countries must commit and make real efforts to reduce global carbon emissions each year. Denmark is one of the countries that has big ambitions to reduce global carbon emissions, so it makes various efforts at the national, regional, and international levels, and becomes a role model for other countries. The purpose of this research is to find out Denmark's efforts to reduce global carbon emissions. The research used a qualitative descriptive method by using Green Diplomacy Concept in describing Denmark's effort. The results obtained are that Denmark has succeeded in becoming a country that has significantly reduced national carbon emission production, which was then continued by carrying out The Green Frontline Mission program in various countries, encouraging carbon emission reduction policies in the European Union, becoming chairman of COP26, and establishing the Beyond organization. Oil & Gas Alliance (BOGA). Denmark's various efforts in suppressing the production of global carbon emissions are part of green diplomacy which not only achieves the national interest but also the public interest, namely solving the problem of climate change.

Keywords: climate change, carbon emission, Denmark

Abstrak

Permasalahan perubahan iklim kian menjadi ancaman global, yang mana didorong dengan adanya produksi emisi karbon global yang terus naik setiap tahunnya, hingga mencapai 36.4 billion metric tons di tahun 2020. Jika terus dibiarkan, maka perubahan iklim akan terjadi memberikan berbagai dampak negatif bagi kehidupan masyarakat global di bidang lingkungan, ekonomi, sosial, dan kesehatan. Oleh karena itu negara-negara harus berkomitmen dan melakukan upaya nyata dalam mengurangi produksi emisi karbon global tiap tahunnya. Denmark merupakan salah satu negara yang memiliki ambisi besar dalam mengurangi emisi karbon global, sehingga melakukan berbagai upaya baik di tingkat nasional, regional, maupun internasional, sehingga menjadi role model untuk negara-negara lainnya. Oleh karena itu, tujuan penelitian ini yaitu untuk mengetahui upaya Denmark dalam mengurangi emisi karbon global. Penelitian menggunakan metode deskriptif kualitatif dengan memakai konsep Green Diplomacy dalam menggambarkan upaya Denmark tersebut. Hasil yang didapatkan yaitu Denmark berhasil menjadi negara yang mengurangi produksi emisi

karbon nasional secara signifikan, yang mana kemudian dilanjutkan dengan menjalankan program *The Green Frontline Mission* di berbagai negara, mendorong kebijakan pengurangan emisi karbon di Uni Eropa, menjadi ketua dalam COP26, dan mendirikan organisasi *Beyond Oil & Gas Alliance (BOGA)*. Berbagai upaya Denmark dalam menekan produksi emisi karbon global tersebut merupakan bagian dari *green diplomacy* yang mana tidak hanya mencapai kepentingan nasional tetapi juga kepentingan umum yaitu menyelesaikan permasalahan perubahan iklim.

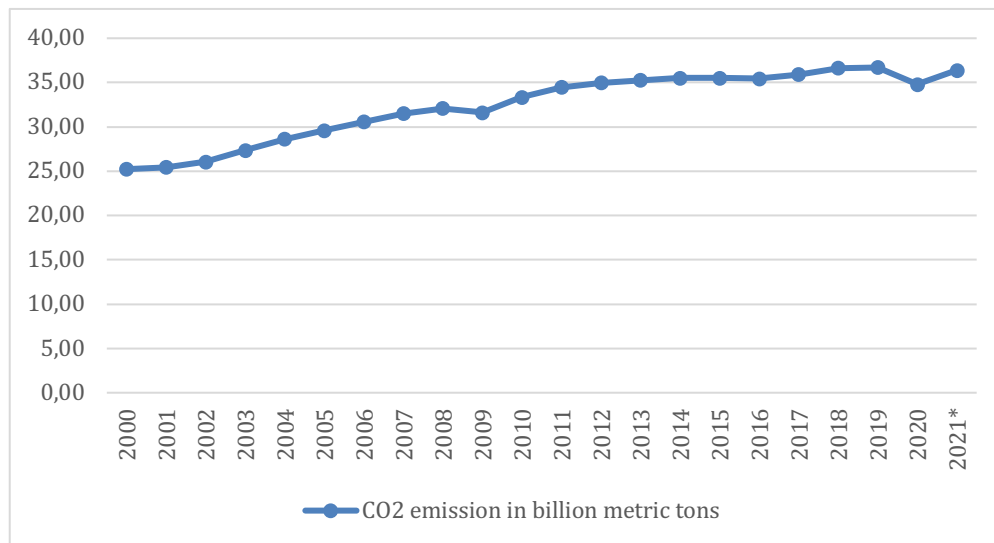
Kata kunci: Denmark, emisi karbon, perubahan iklim

INTRODUCTION

Climate change is a phenomenon where the temperature of the earth's surface increases so that it affects the climate and various fields of life on earth. From year to year the earth's surface temperature increased by 0.75° Celsius in 1995-2006 and it is predicted that in 2100, the earth's temperature will rise again to 2°C -5°C or more (Dervis, 2007). The existence of the phenomenon of climate change is a threat to the global

community because it provides various negative impacts in the fields of environment, economy, welfare, society, and health. Therefore, climate change can be said to be a "threat multiplier" and must be overcome (United Nations Trust Fund for Human Security, 2017).

The increase in global carbon emissions from year to year continues to experience an increasing trend. More clearly can be seen in Figure 1 below:



Source: Statista, 2022a.

Figure 1.
Annual Global CO2 Emission (1940-2020)

Based on the data above, it can be seen that global carbon or CO2 emissions are increasing every year initially in 1940 was only 4.85 billion metric tons (MtCO₂e) up to 9 times, and in 2020,

global carbon emissions reached 36.4 billion metric tons. This significant increase is influenced by the times that are still dependent on fossil fuels in daily life in various countries. If this condition

continues, the earth will become increasingly experiencing global warming.

The increase in global carbon emissions can't be separated from the activities of big countries which have massive industries that contribute the most carbon emissions in the world. In 2016, China produced 10.4 billion tons of emissions (29.18% share of the world), the United States produced 5 billion tons of emissions (14.02% share of the world), and India produced 2.5 billion tons of emissions (7.09% share of the world) (Worldometer, 2016). The amount of carbon emissions produced by these big countries every year becomes a challenge in solving climate change problems. Therefore, there are various international agreements such as The Paris Agreement in 2015, in which countries agree and commit to reducing global carbon emission products in the future.

Denmark's activeness in responding to climate change problems at the global level also cannot be separated from the implementation of domestic policies that are very focused on protecting the environment. One of their medium-term policies is to reduce domestic carbon emissions by 70% in 2030 compared to their carbon emission levels in 1990. This is Denmark's response to global climate problems in the domestic sphere as a form of contribution to reducing global temperatures that are currently reaching 1.5 degrees Celsius (Klimaaradet, 2020).

The realization of Denmark's international commitment to climate is not only limited to that but can also be seen from its activity in various international climate forums such as COP26 and its leadership at the BOGA

forum. Denmark's presence in COP26 is because they use the forum to meet with countries with the largest carbon emitters and discuss the implementation of emission reductions in these countries (Hindustan Times, 2021). Denmark also used the forum to announce their 'green alliance' with Costa Rica called the Beyond Oil and Gas Alliance (BOGA). The alliance is intended to stop all forms of oil and gas exploration by 2050 to reduce global carbon emissions and at the same time realize the concept of a clean green economy (Abnett & Jacobsen, 2021). The BOGA Alliance is led by the two countries with core members namely France, Greenland, Ireland, Quebec, Sweden, and Wales, as well as associate members such as California, New Zealand, and Portugal. (State of Green, 2021).

The explanation regarding Denmark's efforts in fighting climate change at the domestic and international levels above makes this study important to be deepened again. Denmark's role in overcoming this phenomenon is important to know because the country has succeeded in becoming an international role model in reducing carbon emissions, which can be seen in the emission reduction of 28% from 2005 to 2018. This number is more significant than the European Union's carbon reduction figure of only 16.2. % in the same period (Simões & Victoria, 2021). The selection of Denmark as an object of research in this article has important significance due to its multi-level role.

This research takes various previous studies as references and comparisons in finding gaps in this study. In the domestic sphere, Thibault Menu explained that Denmark's success in reducing carbon emission

production/decarbonization policies can be seen from Denmark's ability to disengage from the use of coal as fuel which is replaced by utilizing the potential of wind power, as well as heat and power (Menu, 2021). Denmark's success cannot be separated from the problem of its large carbon production in 2011, as Albert Osei-Owusu et.al. explained that large cities in Denmark such as Copenhagen, Aalborg, Odense, and Rhus, contributed the largest carbon emissions of up to 41% (28 MtCO₂e) and 31% (27 MtCO₂e) which resulted from food production and consumption (Albert et al., 2020). Environment-oriented domestic policies above are also embodied in its foreign policy when Denmark uses the Danish International Development Agency (DANIDA) donor agency to tackle climate change problems in developing countries such as Indonesia by providing knowledge and technology transfer, green investment, and green development projects together (Prakoso et al., 2019). Based on the previous studies above, there is no research that discusses the role of Denmark on fighting the climate change issues in detail through the application of Green Diplomacy concept, therefore this is a novelty aspect of this research.

Through the various explanations above, the author formulates a research question *"How does Denmark's contribution to the reduction of global carbon emissions?"*. This article aims to find out the contribution of Denmark in reducing global carbon emissions at various levels. And to find out their role, this article uses the concept of Green Diplomacy as a point of view.

Green Diplomacy Concept

Green diplomacy or environmental

diplomacy is a new type of diplomacy that promotes international cooperation in the environmental field at various levels ranging from bilateral, regional, and globally based on sustainable development. Green Diplomacy is an instrument used not only to harmonize the interests of a country but much more broadly, namely concerning the public interest including all individuals, communities, and the state, so that the actions taken are collective and the problems faced are a shared responsibility. This diplomacy focuses on environmental issues including the protection and conservation of nature, energy, and humanity so that it can be said to fight for the present and the future (Ioan, 2013).

Green diplomacy at the bilateral level can be carried out with environmental cooperation between two countries, then at the regional level, it can be carried out on the cooperation agenda in regional organizations such as the European Union, ASEAN, etc. Then, green diplomacy at the international level can be carried out through the agenda of cooperation, dialogue, and international agreements such as the Rio de Janeiro Conference (June 1992), the Johannesburg Declaration (September 2002), and the Kyoto Protocol (March 1999) (Ioan, 2013). This concept can describe Denmark's efforts to reduce global carbon emissions as green diplomacy because Denmark promotes and invites countries to reduce carbon emission production at the domestic, regional, and international levels so that it can have an impact on reducing climate change problems in the future.

Research Methods

The type of research in this article

is descriptive-qualitative. Research with descriptive methods aims to look at the behavior of people, field events, and certain activities in detail and in-depth (Sanapia, 1992). Qualitative method in this research aims to understand the phenomenon of climate change, whereas Denmark has a significant role in combatting the endangering global issues in current situation and the future times (Moleong, 2018). The data collection method in this article uses library research and online data searches compiled by various data sources using secondary data sources such as the Danish Government website and other international forums/organizations, as well as books and journal articles related to the topics raised. The collected data are analyzed qualitatively to draw conclusions as well as answering the research question.

RESULTS AND DISCUSSION

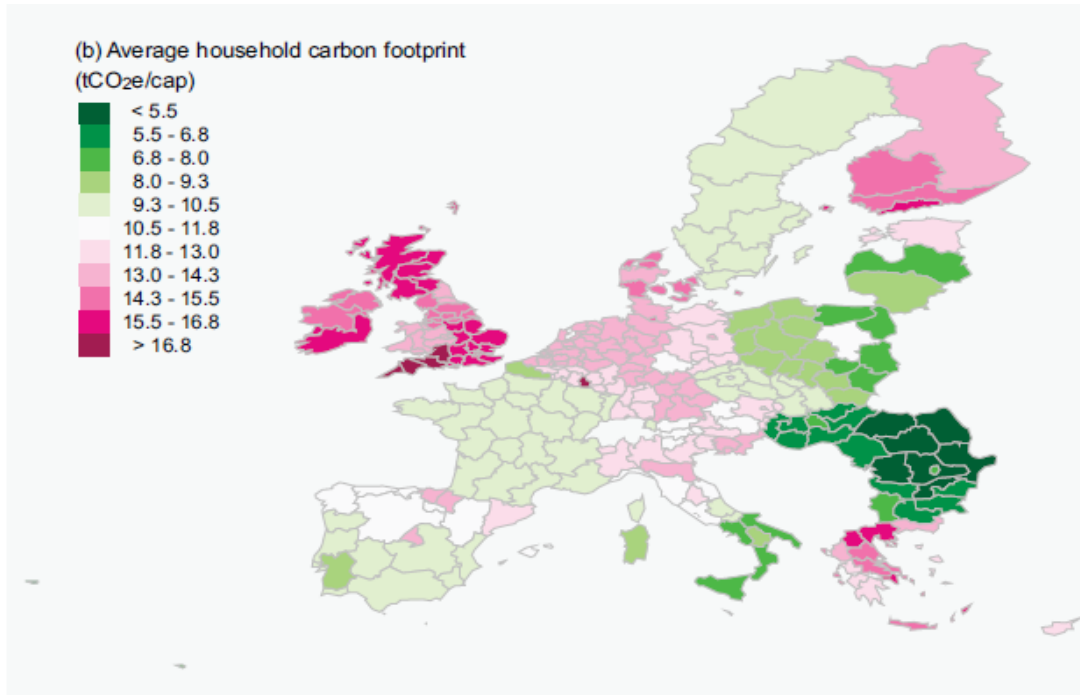
Denmark's Perspective on Climate Change Issue

At the country level, the issue of climate change is a threat to Denmark's security. Many things will be negatively impacted if climate change continues without significant solutions. Policymakers in Denmark expect this

phenomenon to lead to a warmer climate, more intense rain cycles in winter, droughts in summer, as well as more storms, and rising sea levels. (Lund et al., 2012). Where these impacts are also indirectly a form of threat to the human security aspect of the Danish society.

Based on a survey conducted by the European Investment Bank in 2021, the results show that 79% of Danes themselves consider climate change to be the biggest threat in the 21st century. As many as 55% of people think that the climate change that is happening is affecting their daily lives. This is also supported by 55% of public opinion which is more concerned with the issue than having to think about the government (European Investment Bank, 2021). Thus, through these two perspectives, a picture can be drawn that climate change is an issue as well as a significant threat to the sustainability of the Danish state and society.

The phenomenon of climate change that occurs in Denmark itself is not without reason. The reason is, in the country itself the number of CO₂ carbon emissions is still high when compared to the average figure in other European Union countries. This can be seen in Figure 2. below:



Source: Ivanova, et.al., 2017.

Figure 2.
Average Carbon Footprint in the EU

It can be seen that the number of carbon emissions produced in Denmark is higher than in other countries such as France, Spain, and other Balkan countries. Denmark's average carbon emission figure stands at 14.5 tonnes of CO₂, which is much higher than the EU average of 11.5 tonnes of CO₂ (Ivanova et al., 2017). This is one of the contributing factors to the phenomenon of climate change in Denmark.

Through the number of carbon emissions, which not all countries have reached the minimum level, Denmark also sees that the issue of climate change is also a global problem that requires collective action to mitigate it. They see that fulfilling the objectives of the Paris Agreement in 2015 is one of the effective steps to reduce the impact of this phenomenon. Keeping the earth's

temperature at no more than 1.5°C following the Paris Agreement is one of Denmark's foreign policy priorities, which is manifested in their leadership at the COP26 forum in 2021.

To realize these interests, Denmark is also actively issuing various foreign aid to developing countries and the largest emitting countries to reduce and support the transition process to greener technology. Denmark also contributed to donor distribution of USD 100 billion to target countries for 2020-2025. In 2023, Denmark targets to increase the amount of aid provided to reach USD 500 billion by 2025. This shows that climate change is indeed a significant issue for the country. (denmark.dk, 2022).

The efforts made by Denmark are not without reason. The reason is that if climate change continues to occur, it will

be able to affect natural conditions, ecosystems, and society. The impact is very significant, where they predict that if prolonged climate change continues to occur it will be able to affect various sectors, especially food security. This negative effect can be seen through changes in rain patterns which result in an increase in the length of the harvest season and increase the potential for flooding, to rising sea levels which affect the number of fish populations. It is these fundamentals that are feared to be the main source of problems that can spread to all aspects that cause threats to the Danish security aspect (Ministry of Environment of Denmark, 2022).

It is through this point of view that Denmark considers environmental issues as one of its priority agendas. Climate change caused by other countries in the medium to long term will have an impact on Denmark's environmental security. This encourages Denmark to be vocal on this issue and make climate change a global problem that must be addressed together. Therefore, ensuring the stability of the global climate and environmental conditions is part of Denmark's interest in protecting its security.

Denmark's Strategy on Reducing National and Global Carbon Emission

It should be noted that Denmark's efforts to reduce global carbon emissions stemmed from domestic policies that had success in implementation, and then the idea was brought to the international level to tackle climate change, which is becoming a global issue. The existence of threats as described above has made Denmark develop significant ecological and climate-based policies that have been implemented since 2008. Even

since 1992, Denmark has implemented a carbon tax which was introduced in several packages in 1993 and 1996 as an effort to reduce domestic carbon emissions. As a country that is considered to have been successful and has a lot of experience in fighting climate change, Denmark wants to achieve this goal even further by 2050. (The Danish Parliament, 2012).

Thus, in this section, we will discuss the step-by-step development of the climate policy. The author took the time frame policy starting in 2008 which is considered to have a significant influence in shaping various similar policies in the future. This also divides the stages of policy evolution into two periodizations, domestic orientation and international orientation. This is because the author sees a shift in policy orientation which initially focused on tackling domestic problems to become an instrument that can be a tool of diplomacy, without losing the original goal of fighting climate change.

Domestic Orientation (2008-2014)

Law on the promotion of Renewable Energy (2008)

Denmark has implemented a policy to combat the climate change issue even in 2008 as outlined in the Law on the Promotion of Renewable Energy (RES) to reduce carbon emissions and other greenhouse gases by 40% by 2020. This policy focuses on reducing the dependence of fossil fuels and at the same time to make the energy transition to renewable energy. In addition, through this policy Denmark wants to increase the share of national energy consumption towards the use of renewable energy (Nachmany et al., 2015). This policy became one of the main foundations for

Denmark's other pro-environment policies in the future.

The implementation of this policy is carried out by intensifying the development of renewable energy infrastructure, especially in the expansion of wind turbines and also the use of water as an alternative energy source. Energy utilization also includes energy production from biogas, biomass, diesel, wave & tidal energy, and geothermal heat. One of the targets of this RES policy is the existence of an energy production capacity of 75MW in 2010-2011 in each renewable energy infrastructure that has been built. Energy sources that come from sustainable use also allow the Danish Government to provide energy at a much cheaper price (Promotion of Renewable Energy Act, 2009). This is also a form of compliance with global values and norms by the Danish Government to fight the issue of climate change, although at that time the adoption of these values was not as massive as it is today.

Energy Agreement 2012-2020 (2012)

The policy was followed by the implementation of Energy Agreement 2012-2020 in 2012 which aims to improve energy efficiency by making a transition to green energy that can reduce Denmark's domestic carbon emissions. The agreement has a mission so that national energy needs can be covered from 35% green and renewable energy in 2020, and 100% in 2050. This is supported by the development of wind power which increases from 25% (2012) to 50% (2020) and the intensification of the use of other energy sources (wave, solar, and geothermal). In addition, other goals of this policy are to target 50% of wind power's contribution to national

electricity demand, reduce carbon emission levels by 34% from 1990 levels, and reduce national energy consumption by 7.6% from 2010 consumption levels. (Nachmany et al., 2015; The Danish Parliament, 2012).

Fossil energy itself can produce a carbon footprint which, if accumulated, can have an impact on increasing carbon emissions in general. Therefore, this policy has listed 62 action points that can help reduce the carbon footprint with several main points, namely energy efficiency, renewable energy for electricity production, district heating, combined heat and power production, use of renewable energy in households and industries, smart grids, biogas production, use of electricity and renewable energy for transport. To achieve this, this policy emphasizes, continues, and improves several previous policy agendas by building 400 & 600 MW onshore and offshore wind turbines, to the allocation of DKK 100 million funds for the research and development process of technology for the use of solar, heat and waves energy. (International Energy Agency, 2020). The 2012-2020 Energy Agreement can be seen as an effort to intensify Denmark in reducing carbon numbers, and accelerating the energy transition process so that it can make this country self-sufficient and not dependent on imports of fossil fuels. However, this policy only has a roadmap until 2020 without any detailed long-term planning until 2050 (The Danish Parliament, 2012).

Danish Climate Act (2014)

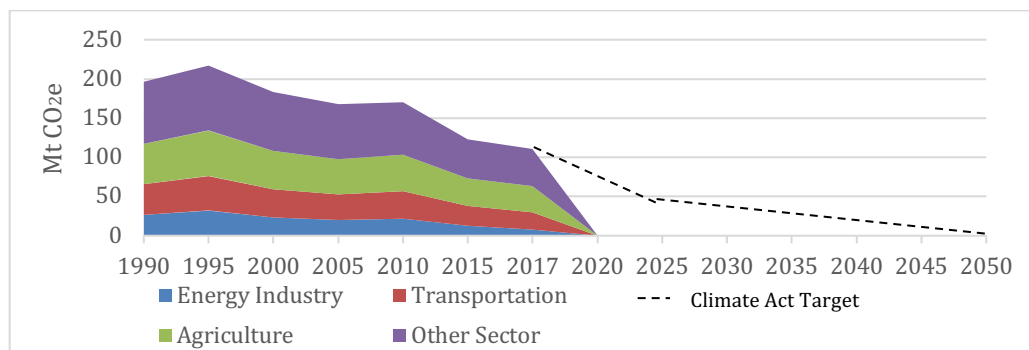
The two sets of policies were then followed by the ratification of the Climate Act 2014 which became a strategic

framework for the implementation of existing policies. The Act is a major milestone for the direction of Denmark's environmental policy in the medium to long term to achieve a low emission society. Through this Climate Act, Denmark targets a 40% reduction in carbon and greenhouse emissions by 2020, 70% by 2030, and carbon neutral in 2050, which is far above the target set by the European Union (Nachmany et al., 2015; Swedish Environmental Protection Agency, 2020). This policy is aimed at achieving the goals of the Paris Agreement to keep the earth's temperature from reaching 1.5 degrees Celsius.

This policy serves as the main foundation for Denmark's long-term climate policy, because it has set a carbon neutral target for 2050 although it has not yet defined its efforts in detail. Through this Climate Act, it is possible for relevant agencies such as ministries to develop targets or other acts every 5

years with a perspective for the next 10 years, which aims to keep policy implementation on track with the goal of 2050. This Act also initiates the formation of the Danish Council on Climate Change which acts as a climate policy-forming institution based on an academic approach in the decision making process. This combination can enable Denmark to become a frontrunner in the context of initiatives to fight climate change due to its long-term vision and mission in an effort to achieve the Paris Agreement targets, although the scope of implementation is still domestic oriented. (Swedish Environmental Protection Agency, 2020).

During the implementation of the Climate Act 2014, there was a study by Barker et.al. (2020) which refers to data by the UNFCCC in 2017 shows that Denmark's domestic carbon emission level managed to decrease since the existence of this Act, which can be seen in Figure 3 below.



Source: UNFCCC in Barker et.al, 2017.

Figure 3.
Denmark's Carbon Emission Since The Climate Act 2014 Implementation

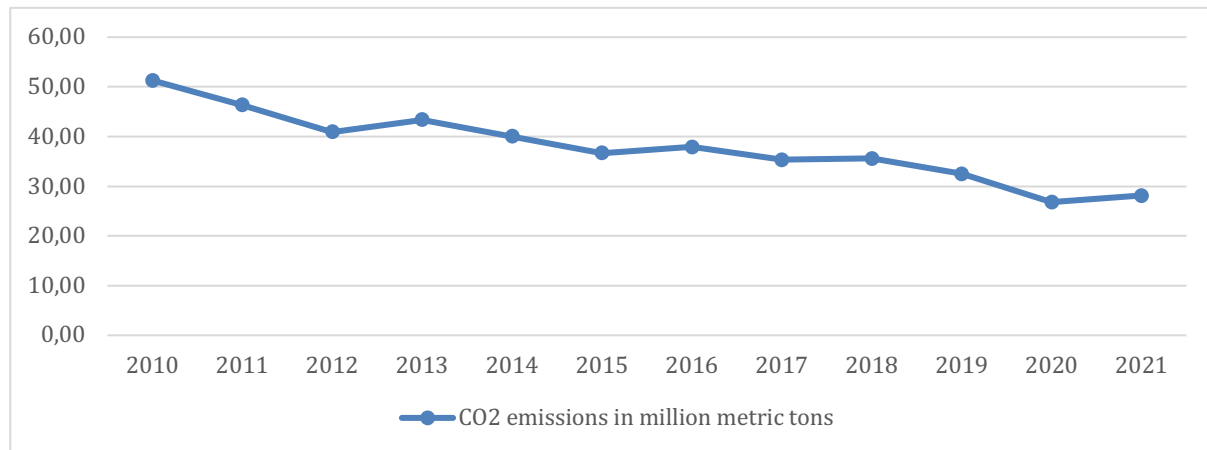
Based on Figure 3. it can be interpreted that the existence of this trend can contribute to the achievement of Denmark's long-term target in the coming years by reducing carbon

emissions generated by cross-sector. Through this downward trend, it can also be predicted that the 70% reduction target in 2030 can also be achieved if Denmark stays on track. This consistency

will also make the 2050 target more feasible to achieve.

Then this is also reinforced by data showing downward trend in Denmark's carbon emissions, which decreased in

2020. The implementation of this policy is also proven by real data where in 2020 Denmark succeeded in reducing the emission figure by almost 50% from 2014 as shown in Figure 4.



Source: Statista, 2022b.

Figure 4.
Denmark's Actual Carbon Emission Reduction Based on Climate Act
2014 Implementation

Based on this figure, it can be seen that in 2014 Denmark's domestic carbon emissions reached 40 M/T (metric tons), and experienced a downward trend in 2019, until 2020, which was 26.7 M/T. So the strategy adopted by Denmark is not only rhetoric but also emphasizes the country's seriousness on the issue of climate change.

International Orientation (2019-now) ***Green Frontline Mission (2019)***

Denmark's success in reducing its carbon emissions then brought Denmark

to the next step, which was to carry out various efforts to reduce global carbon emissions at the bilateral and international level. On the bilateral level, Denmark has 'The Green Frontline Mission' program, which is carried out by the Danish embassies in various countries with the aim of promoting a green agenda so as to support a global green transition. The various major Danish agencies that carried out this mission can be seen in the following picture:



Source: The Danish Government, 2020.

Figure 5.
The Danish Green Frontline Mission Map

Based on figure 6, it can be seen that Denmark has carried out The Green Frontline Mission in various countries through its embassies such as in 18 countries. Denmark cooperates with these countries in the areas of using renewable energy, energy efficiency, access to clean energy, reducing greenhouse gases, namely CO₂, methane, and nitrous oxide. Denmark is also in The Green Frontline Mission trying to influence countries in supporting the global green agenda (The Danish Government, 2020).

In addition, in The Green Frontline Mission, Denmark has strategic partnerships with various countries,

namely China, Japan, South Korea, Indonesia, and Mexico. This strategic partnership is an important step in accelerating the green transition in Denmark's partner countries, which together support the international green agenda. Then this partnership also becomes a means for Denmark to export green solutions or can be called the export of Danish environmentally friendly technologies to partner countries (The Danish Government, 2020). More clearly, the various programs carried out by the Danish embassies in other countries are as follows:

Table 1.
The Green Frontline Mission Programs in Denmark Embassy

Denmark Embassy	The Green Frontline Mission Program
Tokyo	<ul style="list-style-type: none"> • Exchange of knowledge and experience about renewable energy transition. • Renewable energy partnership, and expansion of offshore wind.
Seoul	<ul style="list-style-type: none"> • Formed Green Growth Alliance (High level dialogue). • Sharing knowledge and experience about renewable energy transition.
Beijing	<ul style="list-style-type: none"> • Sharing knowledge and experience about renewable energy transition with businesses, researchers, cities, provinces, and central authorities of China. • Climate sharing on the public agenda through events, SoMe, and interview. • Reducing carbon footprint.
Jakarta	<ul style="list-style-type: none"> • Creating long term strategies and cooperating with Indonesian Energy and Mineral Resources in renewable energy transition. • Support investigation on how Indonesia can achieve net-zero carbon emission (Energy Transition Council initiative in COP26). • Cooperation with several Indonesia's province in energy planning and waste management.
Hanoi	<ul style="list-style-type: none"> • Cooperation in long-term energy planning, integration of renewable energy, and energy efficiency in industrial sector. • Sharing knowledge and experience.
New Delhi	<ul style="list-style-type: none"> • Formed Green Strategy Partnership (strong bilateral political cooperation framework). • Partnership in green solution and Danish green technology business.
Abu Dhabi	<ul style="list-style-type: none"> • Formed strategic partnership with IRENA (International Renewable Energy Agency) in Abu Dhabi. • Take part in Abu Dhabi recycling efforts.
Cairo	<ul style="list-style-type: none"> • Sharing knowledge and experience in renewable energy transition. • Partnership in renewable energy.
Nairobi	<ul style="list-style-type: none"> • Supports incubation of local climate-smart business, increased access to sustainable water service, and resilience of local communities. • Enhanced public awareness on climate issues.
Pretoria	<ul style="list-style-type: none"> • Formed long-term strategic sector cooperation on renewable

	<p>energy, water and sustainable cities.</p> <ul style="list-style-type: none"> • Support creating job for people who lost job as the result of the green energy transition. • Sharing knowledge, experience, and green technology for green investment. • Implementation of innovation to reduce water consumption and water waste.
Berlin	<ul style="list-style-type: none"> • Green energy dialogue with important institution in Berlin, and some regional authorities. • Sharing knowledge and experience. • Cooperation in renewable energy sector (wind energy, climate-neutral heat supply, and energy efficiency).
Brussels	<ul style="list-style-type: none"> • Increased EU's ambition in climate goals, which is set out in the new European Climate Law. • Strengthening cooperation between Members State and supporting EU's green development partnership initiative.
London	<ul style="list-style-type: none"> • Promotion green energy transition through diplomacy and political channel. • Sharing knowledge, experience, and Denmark green technology.
Paris	<ul style="list-style-type: none"> • Sharing knowledge, experience, and Denmark technology in wind energy. • Organise an annual Oceans Conference.
New York	<ul style="list-style-type: none"> • Accelerating the implementation of Paris Agreement and the 2030 Agenda. • Spread partnerships and initiatives on green hydrogen and shipping, in addition to energy transition.
Distric of Columbia	<ul style="list-style-type: none"> • Increased awarnes of green transition, and introducing Denmark green technology. • Cooperation in offshore wind, water technology, and energy efficiency.
Mexico City	<ul style="list-style-type: none"> • Formed energy partnership programme on knowledge sharing about energy efficiency. • Promoting Danish energy compenies to export initiatives and business planning.
Brasilia	<ul style="list-style-type: none"> • Formed political dialogue and cooperation with Brazil on the Climate Agenda, include deforestation issue. • Partnership in Energy Planning and Off Shore Wind.

Source: The Danish Government, 2020.

Based on the table above, it can be seen that Denmark takes a different approach in different countries. Denmark emphasizes growing awareness and knowledge in developing countries. Then, for the largest polluting countries, Denmark formed a partnership in the field of renewable energy and offered a solution, namely with Danish green technology. Then for African countries, emphasizing on solutions to water problems related to renewable energy.

On the international/multilateral level, Denmark's actions can be seen by being actively involved in various international forums, both at the regional and multilateral levels. Denmark's efforts to reduce global carbon emissions at the regional level continue to encourage the European Union to issue carbon emission reduction policies. Then, at the multilateral level, Denmark became a leader in COP26 which is an international forum to discuss reducing global carbon emissions. In addition, Denmark is also one of the founding countries of the international organization Beyond Oil & Gas (BOGA).

Encouraging European Union in Carbon Emission Reduction Policy (2019)

The European Union is one of the important actors in reducing the level of carbon emissions of European countries. Therefore, Denmark, which is also a member of the European Union, often makes various efforts to encourage the realization of commitments to reduce carbon emissions in Europe. Denmark is a member country of the European Union that is active in voicing carbon emission reductions, one of which is by suggesting a policy of banning the sale of diesel and gasoline-fueled cars to the European Union in 2019 (Ekblom, 2019). This

policy was suggested by Denmark because diesel and gasoline-fueled cars are considered to have contributed greatly to generating global carbon emissions. Previously in 2018, the Danish Government had approved a national regulation prohibiting the sale of diesel and gasoline cars, but this could not be realized due to obstruction by European Union regulations. Therefore, Denmark voiced its policy of banning the sale of diesel and gasoline cars directly to the European Union during a meeting of EU environment ministers in Luxembourg (Ekblom, 2019).

One of the impacts of Denmark's efforts on the European Union's carbon emission reduction policy can be seen in the planning of the Green Deal policy. From its understanding, the Green Deal is a collection of European Union legislative proposals to deal with climate change, including reducing carbon emissions. The goal of the Green Deal is to achieve the EU's target to become climate neutral by 2050 (European Commission, 2022). Denmark has made a major contribution to setting the EU's carbon emission targets, by encouraging the EU to have bigger ambitions on its carbon emission targets by 2030. Denmark is then supported by 11 other European Union countries such as France, Austria, Italy, Netherlands, Sweden, Finland, Latvia, Luxembourg, Slovenia, and Spain. As a result, Denmark's suggestion was accepted and the European Union's carbon emission target was initially only 40% in 2030 but later became 55% (State of Green, 2020).

The New Climate Act (2020)

Denmark's New Climate Act 2020 is an update of the Climate Act that was passed in 2014. In this policy, Denmark

updated its greenhouse gas emission reduction target to 70%. The target was set to demonstrate Denmark's strong commitment to achieving its climate neutrality target by 2050 (Klimaraadet, 2022). This target also represents a new direction for Danish climate policy which focuses not only on reducing greenhouse gas emissions at the domestic level but also at the international level, so it can be said that New The Climate Act has the spirit to reduce greenhouse gas emissions through foreign policy instruments, one of which is the Green Frontline Mission which is already in its various embassies.

The New Climate Act will focus on how Denmark can achieve its 70 percent target by 2030. The existence of this law binds the Danish Council to make policy recommendations to fight climate change and achieve reductions in greenhouse gas emissions, so that they can be implemented in the future. Then, with the New Climate Act, Denmark continues to pressure the European Union to increase its greenhouse gas emission target by 2050, so that it can become a strong commitment to fight climate change and achieve a green energy transition (Klimaraadet, 2022). Therefore it can also be interpreted that Denmark must continue to work closely with other European Union members to realize the climate targets along with the accompanying instruments, so as to contribute to the reduction of global emissions.

In achieving this target, Denmark is doing various ways, including getting used to the use of green energy in everyday life, so that it can slowly achieve the transition to green energy. For example, the use of electric cars, electric heat pumps, and others. Then, another

way is through development which emphasizes that the short-term political focus should be on investment in strategic development and planning how this transition element can make the necessary contribution by 2030 (Klimaraadet, 2022). Green energy technologies must continue to be developed, tested and commercialized, so that Denmark not only improve green technology but also gain economic advantage against it. This has been Denmark's focus in the international orientation period, during which Denmark not only strengthened its commitment to reducing greenhouse gas emissions but also developed and promoted its green energy technologies at the international level.

Becoming The COP26 Leader (2021)

The 26th annual United Nations Conference of Parties in Glasgow or abbreviated as COP26 is a high-level conference that discusses the issue of global climate change, continuing the commitments of the Paris Agreement (COP26, 2021). COP26 will be held in November 2021 in Glasgow, with 200 countries in attendance. COP26 was not only attended by state actors but also business parties, negotiators, and citizens so it became one of the conferences composed of various layers of actors. At COP26, Denmark was chosen to be the lead country for the conference, due to Denmark's good achievement in reducing its carbon emissions so that it becomes a good role model for other countries (Government UK, 2021).

Denmark's leadership in implementing COP26 resulted in various agreements which later formed the Glasgow Climate Pact (GCP). This pact contains the commitment of 200 member

countries of COP26 to fight climate change problems, including by addressing the production of dense carbon emissions by various related industries. GCP is also an aggressive step to achieve the target set in the Paris Agreement, which is to prevent the atmospheric temperature from growing more than 2 degrees (Czapla, 2021). The commitment of the GCP can be seen in the call for the elimination of subsidies for coal and fossil fuels because they contribute to large carbon emissions in the atmosphere, which are then approved by countries. Another result obtained at COP26 is the establishment of commitments to fight other causes of climate change such as deforestation, reduced financing for oil and gas projects, steel and aluminum, and methane reduction (Czapla, 2021).

Denmark's success in leading COP26 has been praised by the President of COP26, Alok Sharma. During COP26, Sharma considered that Denmark had shown good action against climate change, saying that "Denmark's climate leadership, particularly its long-standing climate action across its economy, is very welcome" (Government UK, 2021). This shows that Denmark has succeeded in leading the formation of long-term commitments and plans against climate change that can balance the economic interests of countries.

To achieve this goal, Denmark as a leader in the COP26 forum took a different approach, especially to the largest emitting countries such as China, India, and Mexico. The focus of the approach to the three countries is to conduct strategic cooperation to accelerate the transition to green energy. Denmark promotes technological assistance to these countries to optimize

the transition process to green energy through the transfer of technology process and development assistance on green energy infrastructure such as wind turbines, solar panels, etc. To ensure that the cooperation process remains intense, Denmark relies on its embassies in each country to hold dialogues, collaborate with the government, and also raise public awareness about green energy through various public events held (Promotion of Renewable Energy Act, 2009).

Meanwhile, Denmark takes a more diplomatic approach through their Climate Diplomacy strategy to the countries that are considered successful in making the transition to green energy such as Belgium, France, and the UK. The focus of cooperation with this group of countries is through technology investment and knowledge sharing which aims to further encourage the percentage of their transition to green energy. Denmark takes a collaborative approach with the governments of each country to develop green solutions that can be applied at various levels (Promotion of Renewable Energy Act, 2009). Based on the explanation above, Denmark has taken a more intensive approach to the group of the largest emitting countries compared to countries that have succeeded in transitioning and reducing carbon emissions.

Forming The Beyond Oil & Gas Alliance (2021)

The Beyond Oil and Gas Alliance (BOGA) is an alliance or coalition between the government and stakeholders that seeks to organize a managed and fair transition from the oil and gas production sector, one of which

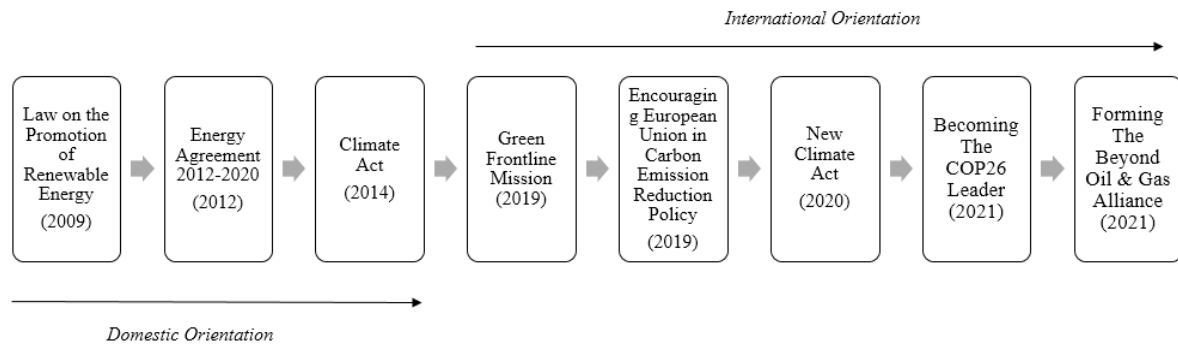
is to phase out oil and gas production. BOGA was founded at COP26 in Glasgow by Denmark and Costa Rica, with the support of the 11 national governments in attendance (State of Green, 2021). More clearly, there is the BOGA Declaration which contains commitments between national governments, local governments, and other interested actors that must work together to limit oil and gas production and manage oil and gas production fairly and equitably. Therefore, members who agree to this must comply with these principles and rules, so that they can lead to changes, namely the reduction of global carbon emissions (BOGA, 2022). The creation of BOGA is one of Denmark's big steps to further strengthen commitment and cooperation in reducing global gas emissions.

More clearly, the goals of BOGA consist of 4, namely: 1) Strengthening global climate ambitions through aligning oil and gas production, following the target in the Paris Agreement, namely pursuing efforts for 1.5°C; 2) Strive to raise the issue of fossil fuel supply in the international climate and energy agenda, and continue to promote the gradual and managed cessation of oil and gas production; 3) Become a home and a driving force for actors who are committed to supporting the halt to oil and gas, and taking these actions together; 4) Creating an international

community of practice that can support the governments of countries in realizing the commitment to stop oil and gas production in a managed and fair manner (BOGA, 2022).

The BOGA membership consists of 3 parts, namely Core Members, Associate Members, and Friends of BOGA. Core Members are obligated members to commit to terminating new licenses for oil and gas exploration and extraction, and to set an end date for production in line with the Paris Agreement, of which the core members are currently Denmark, Costa Rica, Sweden, Quebec, Wales, Ireland, France, and Greenland. Later, Associate Members are members who are not required to adopt a full licensing ban, but have taken steps to limit the supply of fossil fuels, currently, Associate Members consist of California, New Zealand, and Portugal. Lastly is the Friends of BOGA, which are governments and organizations that express support for the alliance's goals, but have no responsibility for licensing or there are no plans to take more radical steps, currently the Friends of BOGA are Italy, Finland, and Luxembourg (Kleczka, 2021).

Based on the step-by-step explanation of policy evolution above, it can be illustrated in Figure 6 below.



Source: Author processed, 2022.

Figure 6.
Evolution of Denmark's Policy to Combat the Global Climate Change

It can be observed that there has been a shift in policy orientation from domestic to international, which began in 2019 through the existence of a Green Frontline Mission in each embassy. But what's interesting is why did Denmark adopt the shifting strategy? Although PM Dan Jorgensen explicitly stated that "Decarbonized economy could provide its people with a high quality of life" (Yale School of The Environment, 2021), however, if we analyze it again, we can see that Denmark has actually developed, owned, and become a leader in the green technology sector which allows them to make the issue of climate change one of the country's interests. (Milne, 2021; Ministry of Foreign Affairs of Denmark, 2021; Royal Danish Embassy Japan, 2021). The evolution of domestic policy has contributed to Denmark's foreign approach which has a heavy interest in fighting climate change. So that through this description, it can contribute to answering why there is orientation shifting in the policies carried out by Denmark.

Analysis in Green Diplomacy Perspective

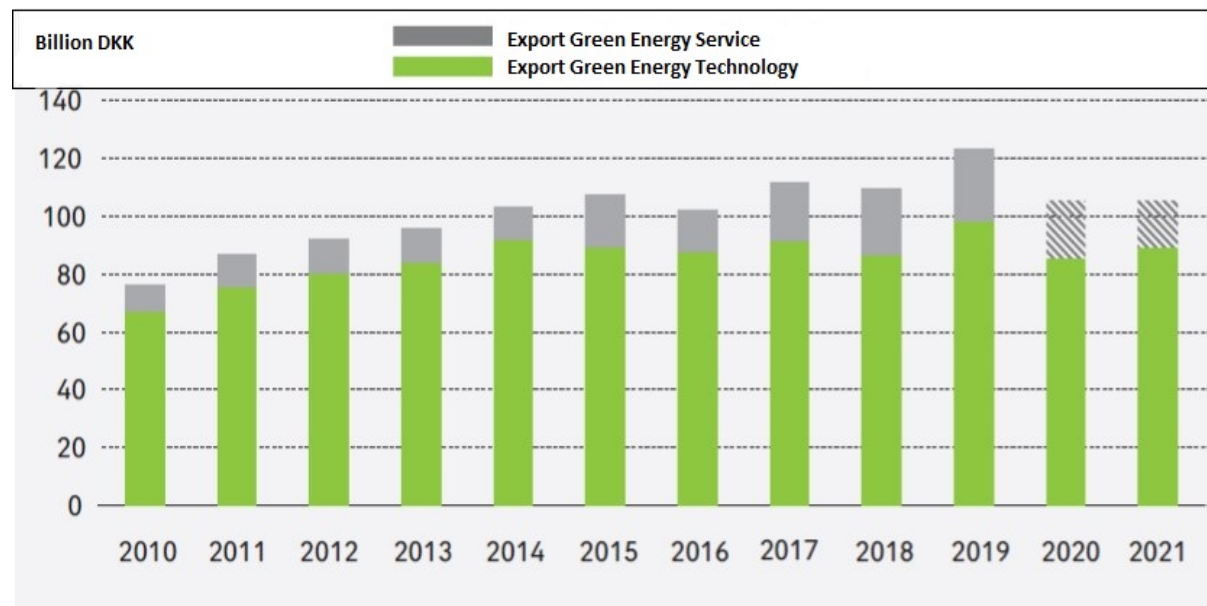
Denmark's various efforts in reducing global carbon emissions are part of Denmark's green diplomacy. This is because Denmark is a country that makes green action the basis of all policies, and green diplomacy is a tool used to communicate with other countries in promoting a global green transition. In its goal, Denmark is in line with green diplomacy, in which Denmark's various efforts to reduce global carbon emissions are of global importance, because climate change that occurs will affect all countries in the world. Therefore, Denmark's efforts both in the bilateral and international fields are of mutual interest and struggle in supporting sustainable development and fighting climate change.

In addition, behind Denmark's various efforts at the bilateral, regional and international levels, there are distinct interests for Denmark. This is Denmark's interest in building an image as a leading country or 'Front-runner' in the global green agenda. This interest aims to further enhance partner countries, business partners and civil

society to support Denmark in bilateral and multilateral climate diplomacy, so that it becomes a country with a large role in preventing global climate change.

Denmark's green diplomacy also has an interest in encouraging an increase in its green technology trade. Denmark is seeking to increase its green technology exports to partner countries where it benefits economically. This can be seen from the development and profits of Danish green technology companies which in 2019 managed to export wind turbine technology and services worth EUR 8.9 billion, which is EUR 1.6 billion higher than in 2018. There are

various Danish green technologies exported, but wind turbine technology is the largest contributor to Denmark's total energy exports, accounting for up to 55 percent. But not only wind turbine technology, other Danish green technologies also consist of bioenergy, technology for energy production, energy efficient products and components, and others (State of Green, 2020). In general, Denmark's green diplomacy increased the total exports of green energy technology and services from the start in 2019 until now, which can be seen in the following figure:



Source: Larsen & Nielsen, 2022.

Figure 7.
Denmark's Export on Green Technology & Service 2010-2021

Based on the figure above, it can be seen that there has been a significant increase in Denmark's exports of green energy technology and services starting from 2019, which reached 122 billion Danish Krone (DKK) in the green energy service sector and 99 billion DKK in the

green energy technology sector. This is because Denmark has carried out a massive green technology promotion strategy through the Green Frontline Mission, which was then followed by Denmark's active involvement in international forums on renewable

energy. However, this impact has not yet increased exports in 2020 and 2021 due to the pandemic conditions that have resulted in weakening international trade, including in the green energy sector. Denmark in this condition still maintains its green diplomacy and in 2021, is actively involved in COP26 and forms BOGA, in order to increase its exports of green energy technology and

services.

Denmark's efforts to continue to carry out green diplomacy in the midst of the global economic recovery after the Covid-19 pandemic, are gradually producing results, namely increasing exports of green energy technology, which can be seen more clearly in the following table.

Table 2. Top 10 Recipient Countries of Denmark's Energy Technology
(In Billion DKK)

	Country	2019	2020	2021	2020-2021
1.	UK	11,4	6,3	13,0	106%
2.	Germany	18,1	10,2	10,4	2%
3.	USA	7,1	7,2	6,7	-7%
4.	Sweden	5,7	4,8	5,7	20%
5.	Netherlands	7,3	13,3	5,4	-59%
6.	China	4,6	4,7	4,3	-9%
7.	France	3,5	3,3	3,5	9%
8.	Norway	5,3	4,1	3,3	-19%
9.	Poland	2,6	2,9	2,6	-11%
10.	Italy	1,9	1,6	1,9	20%
Total Export		67,5	58,4	56,9	-2,5%

Source: Larsen & Nielsen, 2022.

Based on the table above, it can be seen that despite the decline in exports of green energy technology in various countries, Denmark has also succeeded in increasing its exports significantly in various countries such as Italy, Sweden, and the UK (United Kingdom). The biggest result is an increase in exports of green energy technology to the UK that reach 13.0 billion DKK in 2021, which is an increase of 106% compared to the previous year that only gained 6.3 billion DKK. Due to the positive trend of the rise of green energy technology, the Danish government has strengthened its commitment to the energy transition and continues to carry out green diplomacy.

CONCLUSION

Denmark's efforts to reduce global carbon emissions are carried out at every level, domestic, bilateral, regional and international, thus making Denmark one of the country's role models in fighting climate change. However, Denmark's efforts to reduce global carbon emissions are not only a practice of green diplomacy, but is also in Denmark's interest in shaping the country's positive image and export interests. This can be regarded as a Danish soft power which is unique because apart from being able to form a positive image as a leading country fighting for the fight against climate change, it also has a side effect of promoting and increasing exports of green technology to partner countries.

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