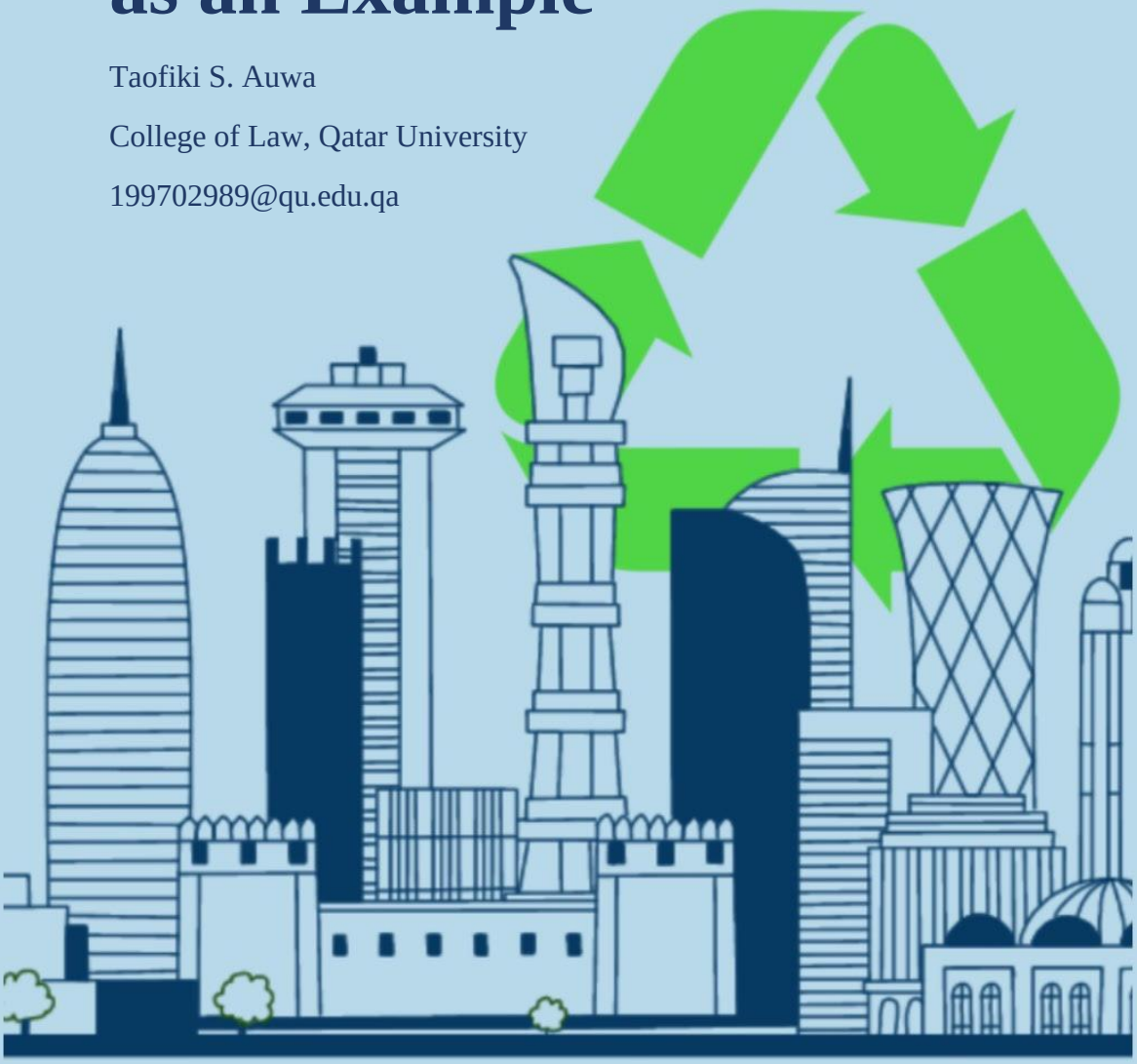
Creating an Emission Trading Scheme (ETS) in Qatar: European Scheme as an Example

Taofiki S. Auwa

College of Law, Qatar University

199702989@qu.edu.qa



Creating an Emission Trading Scheme (ETS) in Qatar: European Scheme as an Example

Abstract

In recent years, the quality of the Greenhouse Gas (GHG) emission disclosures has become a central area of concern for different stakeholders of companies. Especially, stakeholders of national enterprises want these companies to legalize their actions regarding carbon emissions reductions reporting. And while the developed country parties are urged to keep taking the lead by undertaking economy-wide absolute emission reduction targets, enhancing their mitigation efforts, and moving over the time towards economy-wide emission reduction or limitation targets in the light of different national circumstances as per Paris Agreement (PA). Therefore, businesses and climate change governance cannot be set apart, they rather get involve and form networks to influence policy. They are evidently important for the implementation of market-based emission trading schemes, and that is the case here in Qatar.

1. Introduction:

Post the Kyoto Protocol (KP) adoption that entered into force on 16 February 2005 and the Doha amendment on the KP which was adopted for a second commitment period, climate change policies are tightening around the globe. The KP is considered the keystone for any climate change`s policy, it transforms the United Nations Framework Convention on Climate Change from a theorical version to action by mandating industrialized countries and economies in transition to reduce and curb Greenhouse Gases (GHG) emissions in accordance with agreed individual targets.

Moreover, the KP sets up a flexible market mechanism, which are based on the trade of emissions permits. This mechanism can help the countries meeting their targets primarily through national measures. It also offers them an additional means to meet their targets by way of three market-based mechanisms: 1-International Emissions Trading, 2-Clean Development Mechanism (CDM) and 3- Joint implementation (JI). These three mechanisms ideally encourage GHG abatement to start where it is most cost-effective. In addition, it also establishes a rigorous monitoring, review, and verification system, as well as a compliance system.

According to this Protocol, countries are urged to monitor their actual emissions and actual records of the trades carried out to be kept and must be reported to the UN Climate Change Secretariat, based in Bonn, Germany. (UNFCC, 2008) In response to the KP`s call, 37 industrialized countries and economies in transition and the European Community committed are to reduce GHG emissions to an average of five percent against 1990 levels during the first commitment phase.

The objective of this report is to analyze whether a similar mechanism to the EU ETS currently exist in Qatar or whether such mechanism can be established from a legal perspective and the ways the EU ETS can be used as an example to that end. Finally, this report finds the Executive Regulation No. 4 of 2005 that limit air pollution and limit the emissions level which any regulated enterprises must not exceed, the allowed limits of air pollutants look like the ETS. Although the

regulation stipulates the penalties and sanctions for the violation of the provisions of this regulation which is differed from the ETS that based on economic incentive.

To achieve the objective of this report, this paper contains an introduction, follows by expatiating the background of such issue. Qatar and climate change is also discussed as well as review the existing climate control policy. The report also reflects Qatar's GHG Emissions profile, as it looks up to see if there is any existing emissions' reduction policy in Qatar. The report further discusses the ETS`s different pricing methods and Emissions allowance distribution methods. It also approaches effective ETS's requirements, proposes the utility of the ETS`s proceeds, and sums up this paper with a conclusion.

2. Background:

The ETS is one of the effective mechanisms for curbing the CO2 emission, once it's put in place. It is also one of the most efficient and effective ways of promoting green growth. It is scholarly proven that curbing emission through Emission Trading Scheme (ETS) contributes to economic efficiency and is considered the cheapest to achieve. Emitters that find it costly to reduce their emission may purchase emission allowances from the lower emitters who can abate at lower costs. In a 'perfectly' working market, the costs of reducing an additional unit of emissions would be equalized, and total costs of reaching a given environmental target would be minimized.as well as it will accelerate coal to gas switching, expanding the gas market which will begin to lose-out to lower or zero carbon options in the mid to long term. This latter stage has already been reached in the UK market, where all coal has now been removed, because of the higher overall carbon prices. Since 2014, the UK has added another £18/t Carbon Price Support (CPS) charge to the European Union Emission Trading Schemes (EU ETS) carbon price in its power sector. (The Peninsula, 2021 & OECD, 2004).

However, there are high emissions rates in the Gulf states, the carbon trading is stated as enormous and would cut down the CO2 emissions while generating revenue for renewable energy projects (Qatar Energy & Industry Sector, 2012). The EU ETS, the first and still the largest international carbon market, which is the EU`s key policy instrument for fighting climate change is a great example. It is based on the 'cap and trade' principle: A 'cap' is set on the total amount of GHG emissions that can be emitted by more than 11 000 installations (factories, power stations, etc.) included in the scheme. Each participating installation buys or receives 'emission allowances' auctioned by the Member States. These credits -corresponding to one tonne of CO2 each- can be traded with other installations if unused. Over time, the overall number of allowances is progressively reduced.

The EU ETS has recorded several achievements in the continent, it has been a great policy, during its first phase between 2008-2012, the EU states members overachieved the emission curbing`s target by a total of 4.2 Gt Co2-eq and jointly achieved their lowest levels since 1990. The EU`s total GHG emissions- without international aviation and Land Use, Land Use Change and Forestry (LULUCF)- were 19.2 % below its baseline year of 1990 levels and 21.6 % below Kyoto base years level in 2012.

The emissions were further decreased by 1.8 % in 2013 according to preliminary estimates then and continues to decrease throughout the second phase that starts from 2013-2020. The GHG emission intensity between 1990 and 2012 was reduced by almost half, these records make the EU on track to meet Kyoto target. Compared to 1990 level, the EU states member were projected to record lower emissions in 2020 by 21%, and they were tasked to accomplish their national targets, while 13 members need to put in additional policies and measures to achieve their national target. (European Commission,2014 & Bayera, P. et al.2020).

The proceeds of the EU ETS will be spent on two funds, a modernization fund and an innovation fund which will help to upgrade energy systems in lower-income Member States and foster innovation by funding renewable energy, carbon capture and storage (CCS) and low-carbon projects. Aviation emissions are also covered by the ETS, although the current exemption for intercontinental flights has been extended until the end of 2023, when the first phase of the International Civil Aviation Organization's (ICAO) Carbon Reduction and Offsetting Scheme for International Aviation (CORSIA) is set to begin. Emissions from sectors not covered by the ETS, such as road transport, waste, agriculture, and buildings, are subject to binding annual GHG emission reduction targets for each Member State."

3. Qatar and Climate Change:

While Qatar is believed to be the highest emitter with 79.3 tons per capita, it is concerned about taking responsibility in carbon emission reduction (Zhang, D., et al, without date), therefore, as per its contributions to the universal goal on climate warming, the Qatar government has disclosed its enhanced ambitious target to reduce the greenhouse gas emission by 25% in 2030 below 2019 level. It has set 2019 as baseline, where the greenhouse gas emissions were 109.9 MT CO2e. (Nationally Determined Contribution -NDC-2021). This 25 percent reduction would be equal to a 37 Mat CO2 eq dip by 2030 and will include various sectors such as oil and gas, power and water, transportation, and construction (Dohanews, 2021).

Qatar's economic prosperity depends on the oil & gas sector that contribute lion share to domestic GHG emissions. Accordingly, balancing economic stability and environmental sustainability is essential for long-term success in the mitigation of climate change and transition to a more sustainable economy is optimum without jeopardizing the economic prosperity of the nation. (Qatar Energy Sustainability Report, 2019 & NDC 2021).

In line with the national greenhouse gas emission target, QE -as a leading national energy company-also declared its ambition to cut the carbon intensity of its LNG facilities by 25% and achieve zero routine flaring and set a 0.2 wt.% methane intensity target by 2025, a significantly more potent gas than CO2 on the short term. (QESR 2019).

4. Policy Review:

The main environmental legislations in the Qatari legislative system are the permanent Constitution of the state of 2004, the law was published on the official gazette on 8th June 2005, where Article 33 stipulates that:" The State shall preserve the environment and its natural balance to achieve comprehensive and sustainable development for all generations". In addition, law No.

30 of 2002 Promulgating the Law of the Environment sets up general provisions for the protection of the environment in Qatar. It aims at maintaining environmental quality and natural balance. It also aims at avoiding damage and adverse effects from construction, industrial, agricultural, or economic development activities, and sustainable development of natural resources, safeguard the society and public health from harmful environmental actions.

As per this legislation, the Supreme Council for Environment (SCE) and Natural Reserves is the supreme authority on environmental matters, responsible for maintaining natural resources, controlling activities which harm the environment and issuing respective regulations, and put in place technical and operational restrictions as well as any necessary conditions, measures, and criteria for the protection of the environment. Based on the provision of Article 6, all public and private bodies must include an environmental protection and pollution control clause in local and international agreements and contracts which may be harmful to the environment. These agreements and contracts shall include applicable penalties and the obligation to bear the costs of repairing environmental degradation and harm. The law also includes environmental impact assessment provisions, it requires some mandatory approvals, control, supervision of private and public development projects by the SCE and Natural Reserves. In cooperation with relevant administrative bodies, the SCE shall set the required standards, criteria and control measures related to the environmental impact of projects and establishments that are subject to licensing procedures.

Furthermore, the Executive Regulation No. 4 of 2005 that limit air pollution outlines provisions for air pollution control and states that emissions must not exceed the allowed limits of air pollutants for any regulated enterprises and that all projects subject to this law must prevent the discharge or leak of air pollutants accordingly. Moreover, this regulation also defines pertaining penalties and sanctions. It is worthy to mention that while these legislations provide for general principles of protecting the environment, set up the SCE and its functions, there is no single legislation determining the limit of the GHG Emissions for the concerned agency or entity, in addition, there are also executive resolution or bylaw establishing other bodies with almost the same functions or equivalent without or with low interplay cooperation. And this is not going to help to achieve the given task in this regard and will likely jeopardize all efforts.

Professor Damilola S. Olawuyi[1] notes that addressing the urgency of the climate crisis requires clear and comprehensive laws. He further explains that the recent report from the Intergovernmental Panel on Climate Change (IPCC) uses the words "unequivocal" and "very likely" when reporting the role of human activity in exacerbating climate change, does not refer to the actions of individuals, rather it refers to sets of individuals in corporations that are at decision making levels," (Qatar Foundation). In addition, Meltzer, J. et al 2014 have warned against the autonomy and lack of interplaying between different institutions, when they recommended that Qatar should develop a more comprehensive climate change policy and strengthening the National

[1] Dr. Damilola S. Olawuyi, Associate Dean for Research, College of Law at Qatar Foundation's (QF's) Hamad Bin Khalifa University (HBKU), and the author of Climate Change Law and Policy in the Middle East and North Africa Region.

Climate Change and Clean Development Committee (NCCCDC) that was set-up according to the provisions of the ministries council`s resolution no. 15 of 2011 which will be responsible for consulting with stakeholders from government, industry, and academia. They further recommended a comprehensive climate change policy framework that must include mitigation and adaptation action, and a strategy for engaging with international on climate change in a way that will strengthen and support Qatar's domestic climate change framework. As they also emphasized on creating a single government agency for an effective interagency process with overall responsibility for climate change issues in an identified single body, which they considered as an important institutional development for Qatar.

Finally, when it comes to the legal implications of setting up ETS here in Qatar, there is no doubt that there are many things to put in place, starting with the existing legislation, it is very important to unify the laws related to the climate change initiatives and concerned regulatory bodies that seem indirectly duplicate, make it cleared and strengthen the NCCCDC, as well as scraping the existing duplicate regulatory bodies across the private sectors and unifying it at the national level to yield maximum result from its efforts. Moreover, comprehensive climate change law that will lay down the exact limit of greenhouse gasses (GHG) that any corporation can emit, and will simultaneously have a potential economic benefit, by attracting foreign investments in renewable energy development projects in Qatar, and in this regard, we cannot brush-aside the ETS based approach to reducing pollution.

5. Qatar GHG Emissions Profile:

Strategy Report reveals that Qatar is considered the highest per-person CO2 emissions in the world in 2014. It emitted 106.02 million tones CO_2 equivalent in 2010 and 85.25 million tones CO_2 equivalent in 2012, of which 93% was carbon dioxide, 5% was methane, and the rest was nitrous oxide and fluorinated gases. An estimate of greenhouse gas emissions by activity was also carried out by using data from Kahramaa (a utility provider) and publicly available emissions inventories has established a baseline of 14.7 metric tonnes CO_2 equivalent per capita. It further reveals that Qatar also had the highest per capita GHG emissions from transportation in 2012. Based on the 2014 data, private passenger vehicles including taxis and motorcycles contributed approximately 99% of the transportation GHG emissions (Ministry of Municipality & Environment, State of Qatar, without Date, Strategy Report,).

According to Mohammed, S. 2016, LNG&NG was the highest contributor to the GHG emissions Qatar emitted in 2012 with 51% share of the total GHG emission, followed by the Power and utilities sectors which contributed 12%, while Petrochemicals with 11% share, as well as Mining, Minerals and Others with only 9%, Oil & Gas (E&P) and refining also contributed 8% each. Transport, Storage and Distribution also contributed their quota with 0.4% of the total emissions. In 2007, the total amount of the GHG emissions in Qatar was 62.4 MT with CO_2 accounted for 93% share, Methane 6%, while N2O contributed less than 1%. It is worthy to mention that the major source of the GHG emissions-as in everywhere across the globe- is the energy sector with 52,816 Gg of CO_2, 136 Gg CH4, and 1.4 Gg N2O from combustion activities which include productive and fugitive emissions that represent 92% of the total national inventory

of CO_2 and N2O, approximately 81% of the methane emissions. The oil and gas production operations contribute 43% to 50 % of the methane and sulfur dioxide emissions. Out of the total emission by the energy sector the oil & gas was responsible for 50%, power & water was approximately responsible for 27%, while the road transport accounted for 7%. The industrial process activities emitted 5.3 million tones of CO2 equivalent, mostly in the form of CO2 (97%). This amount represents 8.5% of the Qatar national emission in 2007. The combined total of GHG emissions from the waste and agriculture sectors in Qatar was relatively small which was accounting for <1%. Most of the emissions were in the form of methane. (Ministry of Municipality & Environment, State of Qatar, without Date, Strategy Report)

On the other hand, energy and water productions accounted for 19.9% in 2006, while Transportation contributed 10%, Oil and gas responsible for 19.6%, with the refining shared 0.6% and Petrochemicals accounted for 9.6% in the same year. The Total GHG emissions (carbon dioxide, methane, nitrous oxide) in CO2 equivalent exceeded 59,700 kilotonness in 2006, with 47 per cent increment compared with 2001. Majority of the GHG emissions were in the form of CO2. This increment was due to expansion of upstream oil and gas operations, increased road transport and construction activities and accelerated growth in the electricity and water services sector. (General Secretariat for Development Planning, "GSDP", 2009)

6. Existing Emissions Reduction Policy

Due to its small population, Qatar is presumed the highest emitter per capita and was 60th for the total CO_2 emissions in 2006. (GSDP 2009). It is therefore concerned with taking responsibility in carbon emission reduction as the government`s prime responsibility according to the provisions of Article 33 of the permanent Constitution of 2004 which states that: "The State shall preserve the environment and its natural balance in order to achieve comprehensive and sustainable development for all generation". This article provides a constitutional rank, adopts, and enhances the principle of sustainable development. (Hayajneh, A., et al, 2017).

Moreover, Articles 2 & 3 of the Qatari Environmental Protection Law No. 30 of 2002 stipulates the objectives of the law and mandates all stakeholders and policy makers to take the necessary measures and precautions to protect the Environment, combat pollution, conserve natural resources and ensure their sustainability to meet the development requirements for the present and future generations, as well as development of natural resources. It further states that new projects should use a technology available and economically feasible to control the pollution and prevent the environment from damage and adverse effects from construction, industrial, agricultural, or economic development activities, safeguard the society and public health from harmful environmental actions (Hayajneh, A. 2017, Ibid).

As per the provisions of this law, the council of ministries issued resolution No:15 of 2011, which provides for setting up Committee of Climate Change and Clean Development. The committee is responsible for national climate change policies and its implementation in the country. In accordance with the provisions of this resolution, Carbon emission disclosures are mandatory on different stakeholders; either governmental or non-governmental entities; being investors or the public to legalize their environmental performance due to global warming, the

respective agencies must propose policies and action plans to reduce GHG emissions and set up a database within the requirements of the UNFCCC convention and Kyoto protocol.

Nevertheless, as up to 2016, some companies did not comply with this requirement due to its voluntary process and absence of incentive for these companies. It was only one communication that was published under the initiative of then QP and now Qatar Energy (QE)- HSE. Recently the situation has changed, and these companies have started publishing their emissions disclosure in their sustainability report. (Mohammed, S. 2016), particularly government-owned companies.

According to Bloomberg, QE and Pavilion Energy Pte recently announced their 10-year agreement greenhouse gas emissions. Under this agreement, each cargo delivered will disclose how much greenhouse gas emissions it caused. The accord covers as much as 1.8 million tons per year from 2023. As per this contract, none of the parties is obligated to offset the carbon, rather the objective of this accord is to reduce emissions. Although, this partnership may pave the way for carbon offsets through projects that will help mitigating the carbon footprint such as forest conservation or major renewable power generation, that would not have otherwise occurred. (AlJazeera, 2020).

In addition, Bloomberg, 2021, also revealed QE`s commitment to set up facilities to store 7m tons per year and supply carbon-neutral fuel to Singapore effectively from 2023, as well as building facilities capable of capturing and storing more than 7 million tons of carbon dioxide per annum in Qatar by 2030. In its 2019 sustainable report, Kahramaa- a utility entity-disclosed that it saved around 73,602 mcf of natural gas and 4,401 million kgs of CO2 emissions saved through its Tarsheed initiative, it also disclosed that the KAHRAMAA signed a tripartite power synergy agreement with Qatar GTL and GASAL QSC to start producing electrical energy from steam, a step towards transition to sustainable power source.

As one of the government owned corporations, Qatar steel also disclosed that it commences a different system for calculating GHG emissions which covers direct emissions from natural Gas at the plant by using emission factors developed from the gas characteristics, while the emissions from materials process are calculated based on the Intergovernmental Panel on Climate Change (IPCC) and EU Emissions Trading System emission factors. It also covers indirect emissions from the consumed electricity by using Kahramaa's emission factors provided by QE. Moreover, Qatar steel revealed that it has successfully completed the initial verification process conducted in November 2020 by SGS, UK, - a third party appointed by QE- and received the verification certificates from SGS, UK (Qatar Steel sustainability Report, 2019). Its worthy to note that all these reports and their initiatives are individual efforts and reveal what they achieved in curbing the greenhouse gases without disclosing any target nor associating it with the national emission reduction goal except QE.

Qatar has maintained a pioneering role in the global efforts to tackle climate change and promote sustainable development through the export of natural gas and its derivatives to the world's energy market. This gas and its derivatives are considered cleaner and efficient energy sources compared to conventional fuels. They contribute to both CO2 emission reduction and improvement of air quality conditions.

Finally, while the environmental protection law embraces Polluter Pays Principle, which is an environmental policy principle that requires that the costs of pollution be borne by those who cause it and requires the polluter to compensate for the harms caused to the environment by his/her activities. The ETS -if introduced-will be more effective due to its economic incentive component, it is also in line with the Rio declaration that states that: "National authorities should endeavor to promote the internalization of environmental costs and the use of economic instruments, considering the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment".

7. ETS Pricing methods:

There are two main methods of carbon pricing; it can be either by taxing or by cap-and-trade approaches; taxes or, by setting overall limits on pollution limits (a cap). Although cap and trade system is commonly used approach in the ETS, where each entity is placed on a cap of CO_2 emissions and receives an allowance that is equal to its individual cap value. A Cap gives its holder right to emit one tonne of theCO_2, or the equivalent amount of other powerful greenhouse gases, nitrous oxide (N2O) and perfluorocarbons (PFCs) (Qatar Foundation & OECD, 2016).

These entities can sell or buy the allowances if they have lower or higher CO_2 emissions than the cap values on a yearly base. From the cost-effective perspective, the ETS encourages these entities to reduce the CO_2 emissions by investing in more effective technology or utilizing renewable energy. An economy-wide carbon price is considered the most efficient way of reducing GHG emissions, it will simultaneously guarantee an environmental outcome by setting a limit ("cap") on the total amount of carbon emissions. It will enable the issuance of allowances in quantities corresponding to the emissions cap, which can be allocated to the companies covered by the scheme. One of the incentive elements of this system is that it will allow the covered companies to trade its unused allowances, while maintaining the obligation that participating companies regularly report sufficient allowances to match their actual emissions. Every company will realize that it is in its own interest to cut emissions and sell allowances when the market price for allowances is higher than the costs to reduce its emissions, and those companies with reduction costs exceeding the market price will prefer to purchase allowances (European Union, 2016).

On the other hand, a carbon tax is another system for the Emissions reduction pricing method which can never be brushed out, it sets a price on emissions instead of a quantity of emissions and is applied based on the carbon content of the fuel (Leard, B., et al, 2020). However, the experts agreed that both Carbon taxes and cap-and-trade programs share several major advantages over alternative policies, they also agreed that the real differences exist among them and each of these differences has distinct advantages. Notwithstanding, the cap-and-trade policy can increase certainty of achieving the target emissions reductions and evade the government from legal jurisdiction battle, especially, when it concerns taxing the CO_2 in the transportation sector or aviation industry (Kaufman, N., 2016). In a judicial review proceeding issued by the Air Transport Association of America (ATA) in England's Administrative Court to quash the UK's implementation of the EU legislation which included aviation in the EU ETS, on the basis that such inclusion breached international treaties and customary international law. England High

Court referred certain questions in the case to the European Court of Justice (ECJ) for a ruling on the validity of the EU law in this instance. Among the arguments of the plaintiff was that Directive 2008/101 breached the Open Skies Agreement between both the United States and the EU that imposes obligation on the parties to (a) exempt aviation fuel from taxes and charges, and (b) not to charge foreign aircraft more than national aircraft. And since this agreement specifically exempted aviation fuel from taxation, the plaintiff argued that the inclusion of aviation within the EU ETS breached the agreement on the basis that the payments required by the EU ETS constituted a tax.

The ECJ dismissed by distinguishing the operator's costs under the EU ETS as a market-based measure and not a 'tax, fee or charge' on fuel consumption that would be prohibited under the agreement. It found that the costs under the scheme were based on the market allocation of allowance and were not linked to fuel consumption, so were not an obligatory levy on fuel consumption. Unlike a tax, the scheme was not intended to generate revenue and the rates for the year were not defined in advance. It further found that an operator could benefit from participating in the scheme, which is permissible under the agreement since the measures had been applied in a non-discriminatory manner for environmental purposes. (Truby J., 2012). Additionally, under the CAP-and-Trade approach, the GHG emissions reductions are incentivized when costs of abatement are lowest, and the environmental outcome remains guaranteed by the overall emissions ceiling. When a variety of sectors is covered, it allows continued growth for individual sectors by purchasing allowances from other sectors, where emission reductions are cheaper to make. (European Union, 2016).

Qatar will surely benefit from Setting up carbon prices and expanding the coverage, as it will support the economic viability of clean energy technologies like CCS and add costs to many areas of business. An economy-wide carbon price is considered the most efficient way of reducing GHG emissions. It will equate the marginal cost of abatement with the carbon price, when emissions costs are equalized across the economy and would incentivize the development of technologies for reducing CO2 emissions, namely Financing for CCS Support which will also need to address the costs not only for development in Qatar, but also for economic viability on the global level. As noted, Qatar should also consider how it can support efforts to price carbon globally and consider a role for carbon pricing in Qatar and the GCC as means for improving the economic viability of CCS. It is worthy to mention that Qatar has provided a basic regulatory framework to enable work in this area. Law 30 of 2002 of environmental protection -as mentioned above-, sets the general basis for all Qatari environmental protection legislation. One of the aims of this law is to "counteract the effects of pollution in its various forms and prevent damage as well as instant and long-term environmental effects of construction, industrial, agricultural and economical activities." Qatari efforts to mitigate greenhouse gas emissions with technologies such as CCS fall under the auspices of this piece of legislation. (Meltzer, J., et el, 2014).

8. Allowance Distribution Methods:

When it comes to discussing the allowance distribution methods, it is apposite to emphasize that the EU ETS was not built up over night, it was rather built based on Learning-by-doing principle

which has turned out to be a key feature. It applies that complex problem of climate change means that every stakeholder, being consumers or producers need to change their habits and reduce the GHG emissions. (European Union, 2016)

As per the lesson learnt from the EU ETS practice, the allowances were freely allocating to the participated firms at the commencement, considering, the target emissions reductions declared by the government, in other word 25% of the GHG emissions over the period from 2021 to 2030. Each year will get share from the 25%, this will be transformed to either CAP or Tax depending on which is suitable for Qatar, and distribute it to each participant proportionately in form of Cap. To achieve both economy efficiency and environmental objective of the ETS, it is recommended that Qatar applies the same principle the EU ETS is built on, i.e:"Learning by doing principle". And Cap allowance`s price shall be carefully designed to maintain incentive of the ETS and either trading like any market stock or auctioning it.

Furthermore, Auction is a default method of allocating allowances to the covered installations, the auction`s regulation should ensure it is conducted in an opened, transparent and non-discriminatory manner and set down the required criteria for good auctioning practice, such as reliability, cost-efficiency, fair access to auctions and simultaneous access to relevant information for all operators.

9. Effective ETS`s Requirements:

It's obvious that climate warming is of global issue and many initiatives and mechanisms have being laid down to address this matter, namely, UNFCCC and the KP conventions.

According to the UNFCCC Convention, All the Parties – Annex I and non-Annex I -are required to report national inventories and national communications. Whereas the Annex I Parties must submit a GHG emission inventory, which includes detailed information regarding methods and uncertainties and then proceeds with a multistage peer review process. The non-Annex I Parties should submit national communications, including climate change activities and report on emission removals inventory every two years. (UNFCCC, 2011). In addition, the KP also requires non-Annex status -with no legal commitments to reduce GHG emissions-to provides a national GHG inventory that contains critical information about every party country's emissions profile, which will be an important tool for assessing progress toward meeting national emissions reduction goals and for prioritizing policies and actions. Emissions data are very important to understand how to influence the emissions trajectories of different sectors, make suitable policies for a competent ETS that require emissions information from the covered installations, set realistic policies and evaluate their competence, assist the covered entities in reporting and assessing their climate risks and opportunities, and provide information to stakeholders. Consequently, building an authoritative, reliable and accurate GHG emissions inventory is essential for any effective ETS and every party of the conventions as well. As a matter of fact, there is no any successful ETS operates against the above conventions and therefore, any competent ETS must be complied with the provisions of the concerned conventions and operates accordingly. (UNFCCC,2008).

Moreover, along with the NDC that outlines the reduction of the GHG emissions by 25% for the coming 9 years, makes 2030 Qatar`s target year and 2019 as its baseline years, which means

the reported emissions for that year is the assigned amount for Qatar. It is very important to emphasize on need to have clear and comprehensive climate change laws, the laws that will send a crystal-clear message to all stakeholders and the participating companies on the necessity of cooperation and compliance with rules of the related laws. (Mohammed, S., 2016). Additionally, to set up an effective ETS, this demands for a law to establish it, determines the companies that will be covered, as well as determines the limit of the GHG that every covered installation can emit. And in this regard every company will have three choices; it can choose either to limit its emissions to the exact limit that the permit allows; or to emit less than its permits and sell the excess permits to other companies; or to buy permits from other companies if they emit more than the set limit (Qatar Foundation).

Furthermore, as per Kyoto Protocol (KP) -that under its umbrella the EU ETS is operating- it is highly required for the successful of any ETS, to set up accounting and compliance systems for the GHG emissions, which will be based on two corresponding information flows; 1-GHG inventories and 2-assigned amount information (European Union, 2016). Likewise, it aims at having competent ETS, there is need to pass a law that sets up national GHG inventory body and central data agency that provides accurate data and assigned amount information which will be compiled in national reports, verified and confirm actual transactions of the ETS (European Commission, 2015 & Mohammed, S., 2016).

Additionally, competent ETS requires central registry system, and as we are in technology era, a computerized registry system will play a vital role in the success of the ETS, it will help to make the Allowances -as the currency of the carbon market- available in electronic form, and help to keep track the ownership of allowances held in electronic accounts, and as a result, computerized registry system is one of the essential technical requirements for a functioning carbon market. The registry just plays custodian role and keeps record of allowances of the participating companies, it is the mechanism by which delivery of allowances from the buyer to the seller takes place, while trading activities will be carried out at exchanges that are also involved in trading a range of energy commodities. The system must attain high standards of security to avoid emissions allowance cyber fraud and theft.

Finally, according to the KP, countries are urged to monitor their actual emissions and actual records of the trades carried out must be kept and must be reported to the UN Climate Change Secretariat, based in Bonn, Germany (UNFCC, 2008). The same applied to the EU ETS which is under the EU Commission that continuously monitoring and evaluating the EU ETS functioning through its carbon market report and therefore, any competent ETS requires establishment of a rigorous monitoring, reviewing, verification and compliance system. The evaluation of progress on the implementation of the ETS mechanism will requires the policy makers/stakeholders to submit to the monitoring body an annual report covers issues including the allocation of allowances, operation of the Registry, application of monitoring and reporting, verification and accreditation and issues relating to compliance. (European Commission, 2015)

10. Utility of ETS Generated Revenues

The ETS is not a goal by itself but a tool and experts have warned against ditching objectives of the KP as a mechanism for managing global carbon trade and the issue of emission cuts for atmospheric carbon stabilization could become secondary goal or neglected (OECD, 2004). Therefore, the EU, in consideration of industrial sectors that are energy intensive and the power sector to meet the innovation and investment challenges of the transition to a low-carbon economy, the EU has decided that the proceeds of the EU ETS will be used to Fund low-carbon innovation and energy sector modernization and therefore, created two new funds. The fund can be divided into several low-carbon funding mechanisms which can be set up to help energy-intensive industrial sectors and the power sector (European Commission).

Meanwhile, Qatar's economic prosperity depends on the oil & gas sector that account for lion share of domestic GHG emissions, Qatar has determined to balance economic stability and environmental sustainability on long-term basis in mitigating the climate change without jeopardizing the economic prosperity of the nation. (NDC, 2021). As a result, Qatar can also emulate the EU ETS practice and use ETS`s revenues to support low carbon energy by growing renewable energy capacity, support innovation to leverage technological breakthroughs in the sustainability space develop sequestration technology (CCS) and clean energy which can position Qatar as a leader in the development of climate change and clean energy technologies.

The proceeds can be spent on the development of public transport systems and address this sector`s challenge in term of the emission. In addition, the revenues can be used to fund the initiation of a national team on "environmental policies for renewable energy and the national plan for energy efficiency, optimization and resource utilization (QPEERU), which will serve as a driver for the GHG mitigation initiatives under the UNFCCC and other climate change initiatives. (Meltzer, J., et al, 2014).

11. Conclusion

As this report has demonstrated, the ETS has already been used to deal with various environmental or resource problems and considered as a possible tool for mitigating greenhouse gas emissions since the early 1990s. Among the methods of pricing the carbon, there are two major ways for carbon pricing and cap and trade system is commonly used approach in the ETS, every participating installation is placed on a cap of CO_2 emissions and receives an allowance that is equal to its individual cap value.

It's worthy of note to mention that Emissions trading is not a goal by itself, only a tool and there is a danger that Kyoto could become so much of a mechanism for managing global carbon trade and the issue of emission cuts for atmospheric carbon stabilization could be neglected, or at least delayed.

Nevertheless, the ETS policy can increase certainty of achieving the target emissions reductions and evade the government from legal jurisdiction battle when it covers international or multinational companies. It makes the GHG emissions reductions incentivized when costs of abatement are lowest and guarantees the environmental outcome by the overall emissions ceiling.

As well as it allows continued growth for individual sectors by purchasing allowances from other sectors where emission reductions are cheaper to make.

It also encourages the covered entities to reduce the CO_2 emissions by investing in more effective technology or utilizing renewable energy. An economy-wide carbon price that is considered the most efficient way of reducing GHG emissions which will simultaneously guarantee an environmental outcome by setting a limit ("cap") on the total amount of carbon emissions. The similar policy to the ETS is air pollution control resolution that determines maximum emissions of air pollutants that any regulated enterprises must not exceed.

As one of the pioneer players in the global efforts to tackle climate change and promote sustainable development, Qatar can help and surely benefit from Setting up carbon prices and expanding the coverage as it will support the economic viability of clean energy technologies like CCS and add costs to many areas of business not only for development in Qatar, but also for economic viability in the region and global level.

To get maximum outcomes of the existing policies and regulatory bodies addressing environmental and climate change, its highly recommended to have a single climate change agency and prevent the autonomy and lack of interplaying between different institutions and scrap the existing duplicate regulatory bodies across the private sectors and unifying it at the national level to yield maximum result from its efforts.

Finally, there are needs for a comprehensive climate change policy and strengthening the National Climate Change and Clean Development Committee (NCCCDC) which will include a law that determines permissible emissions limit for each regulated firm, mitigation and adaptation action.

REFERENCE:

1) **Al-Jazeera, 2020,** www.aljazeera.com/economy/2020/11/9/bbnew-qatar-singapore-natural-gas-deal-seeks-to-reduce-emissions, 3-11-2021, 12:45.

2) **Bayera, P. and Aklin, M. 2020,** The European Union Emissions Trading System reduced CO2 emissions despite low prices.

3) **Bloomberg, 2021,** www.bloomberg.com/news/articles/2021-01-13/qatar-raises-carbon-capture-ambitions-touting-green-credentials, 21-10-2021, 10:00

4) **Dohanews**,www.dohanews.co/qatar-to-cut-greenhouse-gas-emissions-by-25-percent-as-part-of-new-climate-action-plan/, 02-11-2021, 21:00

5) **European Commission,** https://ec.europa.eu/clima/eu-action/eu-emissions-trading-system-eu-ets/revision-phase-4-2021-2030_en,18-10-2021, 23:00

6) **European Commission, 2015**, Proposal for a Directive of the European Parliamen.t and of the Council amending Directive 2003/87/EC to enhance cost-effective emission reductions and low carbon investments, Brussels.

7) **European Union, 2016,** EU Climate Policy Explained, eu_climate_policy_explained_en.pdf (europa.eu), 20-10-2021, 16:00

8) **General Secretariat for Development Planning, 2009,** Advancing Sustainability Development -Qatar National Vision 2030 Report

9) **Hayajneh, Z., A., Elbarrawy, H., Elshazly, Y. and Rashid, T., 2017**, "Tracing Environmental Law Principles within the Qatari Legal System", British Journal of Humanities and Social Sciences, Vol. 18 (2), "P102-115"

10) **Kahramaa sustainable report, 2019.**

11) **Kaufman, N., 2016,**Carbon Tax vs. Cap-and-Trade: What's a Better Policy to Cut Emissions?, World Resources Institute, https://www.wri.org/insights/carbon-tax-vs-cap-and-trade-whats-better-policy-cut-emissions, 06-12-2021, 13:30

12) **Meltzer, J., Hultman, N. and Langley, C., 2014**, Low-Carbon Energy Transitions in Qatar and the Gulf Cooperation Council Region, Global Economy and Development, Brookings.

13) **Ministry of Municipality and Environment, without Date,** Climate Change Strategy for Urban Planning and Urban Development Sector in the State of Qatar, Strategy Report.

14) **Mohammed, S., 2016,** QATAR'S NATIONAL EMISSION INVENTORY REPORT. Figshare. Journal contribution. https://doi.org/10.6084/m9.figshare.4154238.v1

15) **Organization for Economic Co-operation and Development (OECD), 2004,** Emission Trading: Taking Stock and Looking Forward, Head of Publications Service, OECD/IEA, 2 rue André Pascal, 75775 Paris Cedex 16, France

16) **Organization for Economic Co-operation and Development (OECD), 2016,** Effective Carbon Rates, pricing CO2 through Taxes and emission trading System, OECD Publishing, Paris.

17) **Qatar Foundation, 2021,** https://www.qf.org.qa/stories/immediate-need-for-climate-change-laws-in-the-country-says-qf-environmental, 24-10-2012, 11:00

18) **Qatar Petroleum, 2019**, Sustainability Report

19) **Qatar Steel, without Date,** www.qatarsteel.com.qa/creating-a-balanced-ecosystem/reducing-emissions, 21-10-2021, 9:50
20) **Truby J., 2012,** Extraterritoriality or an Illegal Tax? A Challenge to the Inclusion of Aviation in the Eu Emissions Trading Scheme. Environmental Law Review. 14(4), pg:301-306. doi:10.1350/enlr.2012.14.4.168
21) **United Nations Framework Convention on Climate Change (UNFCCC), 2008,** Kyoto Protocol Reference Manual on Accounting of Emissions and Assigned Amount, https://unfccc.int/kyoto_protocol, 3-11-2021, 18:00
22) **Zhang, D., Alhorr, Y., Elsarrag, E., Marafia, A.H, Lettieri, P., Papageorgioua, L.G.,** "Fair design of CCS infrastructure for power plants in Qatar under carbon trading scheme", Centre for Process Systems Engineering, Department of Chemical Engineering, University College London, London WC1E 7JE, U.K., Gulf Organization for Research and Development, Qatar.

This working paper was published under Qatar University Student Grant number QUST-1-CLAW-2022-325.