# LOVE THY NEW NEIGHBOR: New Entrant Participation of 'Environmental Marketization' within the European Union Emissions Trading Scheme

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#### ABSTRACT

The European Union has embarked on an unprecedented effort to implement a cap-and-trade system across its member statehood, called the Emissions Trading System (ETS). The ETS regulates carbon emissions via imposing an upper limit 'cap', and encourages participating industries to improve their operating practices with economics-based incentives—analyzed here as 'environmental marketization'—by attaching property rights to a unit of carbon emissions and promoting the trading of these specified credits on a free-market system. The 'cap' and 'trade' of pollution is designed to promote a least-cost opportunity to stimulate a more environmentally friendly and lower-carbon EU. Upon closer inspection of this wide-reaching scheme, the question of 'new entrants' has arisen as one that engenders a dilemma worthy of research exploration. While constraining emissions activity, the ETS makes room for new participants through the establishment of a New Entrant Reserve (NER), a designated cache of carbon credits for new participants or modified incumbent participants. Including a case study of the United Kingdom, this research discussion intends to highlight the true intentions of the actors involved in the execution of an NER, exposing the ETS dilemma as a way to serve the interests of business expansion at the expense of environmental improvement.

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# List of Abbreviations (Terms defined in thesis will not be defined here)

BAT – Best Available Technology: A guiding principle that encourages the setting of emission limit values "by tightening standards in the light of emerging technological possibilities." In Germany, BAT has evolved from the concepts of 'rules of technology,' 'best available scientific and technological knowledge,' and the 'best available scientific knowledge." Critics have argued that BAT relies too heavily on "technical fixes."<sup>1</sup>

 $CO_2$  – Carbon Dioxide

COP – Conference of the Parties; COP15 is the next conference taking place in Copenhagen, Denmark in December 2009

EC - European Commission

EP - European Parliament

ETS – Emissions Trading Scheme

- EU European Union
- EUA European Union Allowances
- GHG Greenhouse Gases
- IPCC Integrated Pollution Prevention and Control
- MS Member States (of the European Union)
- MtC Million tons of carbon
- NAP-National Allocation Plan
- NER New Entrant Reserve

<sup>&</sup>lt;sup>1</sup> Wurzel, R. <u>Environmental Policy-Making in Britain, Germany and the European Union</u>. Manchester University Press. (2002) Manchester.

NIE – New Institutional Economics

**CITATION NOTE**: Footnotes that appear at the end of a paragraph should be treated as the source of all information in that paragraph: all quotations, statistics and conclusive statements within that paragraph. The exception to this rule is where I have placed multiple footnotes within paragraphs; in this case, please refer to the specific reference placed at the end of that specific sentence.

## **CHAPTER 1: INTRODUCTION**

#### 1.1 Spotlight: Strength in Environmental Policy

Coordinating effective environmental policy is the key challenge to combating the pernicious and rapidly encroaching effects of climate change we are already witnessing today. The issue of concern is not the action of a single nation, or even a few nations, but the mutual agreement of all nations to change pollution behaviors so that we do not pass the climate threshold beyond which there is no turning back. The policy focus at hand, and the broad theme of this research, is regional policy that constrains polluting behaviors, and I will focus on the most extensive and in-depth anti-climate change policy in existence: the European Union's Emissions Trading Scheme (ETS). The establishment of ETS legislation and its implementation across the member states has been a seminal regional accomplishment and deserves praise for that alone. However, the existence of this innovative policy does not deem it impervious to criticism and questioning. Further investigation is warranted to determine the extent to which the current reality of an EU ETS policy system is functioning effectively and whether it should be a model upon which to base future policy debates.

#### 1.2 What is the EU Emissions Trading Scheme?

The EU ETS is a series of directives, established in 2003, with further amendments in 2004 and again in 2008, under the auspices of the European Parliament (EP) and European Commission (EC). Primarily a 'cap-and-trade' structure, the ETS is a system that distributes emissions credits, or allowances of carbon emissions, and assigns an upper limit (or 'cap') on the carbon emissions credits either according to region, or by sector, or by specific industry participant. It was designed to roll out in three phases: Phase I (3 years, 2005-2007), Phase II (5 years, 2008-

2012), and Phase III (8 years, 2013-2020). Industries that cannot reduce their carbon emissions to their 'cap' levels are able to 'trade' with other, more efficient industries to acquire their extra, unused surplus credits within a given trading period. The legislation also includes monitoring guidelines for member nations to report and verify their emissions levels.<sup>2</sup>

The goal of ETS legislation is to promote efficiency through a market mechanism; allowing industries to trade ETS credits will facilitate efficiency through innovation by providing incentives for technologically advanced and cleaner industrial practices to maintain the imposed 'cap' levels, all while simultaneously driving down carbon emissions. Specifically, the cap is only a portion of the overall Burden Sharing Agreement undertaken by the EU-15 Kyoto Protocol, covering only CO2 emissions, and a subset of the total economy. The participating sectors occupy about 50 percent of the EU's overall CO2 emissions and 40 percent of total greenhouse gases (GHG). Other emissions sources not covered under the ETS are expected to be regulated by other environmental policies <sup>3</sup>

# 1.3 Moving from the Macro to the Micro: ETS Under the Lens

Upon early exploration of the EU ETS, it became clear that an evaluation of a policy system with such breadth and depth could not be covered within the parameters of the present research discussion. Therefore, this research project will endeavor to explore one specific facet of the EU Emissions Trading Scheme in order to shine the appropriate and necessary analytical lens that will answer key research questions that aim to benefit the public policy sphere. At the onset of my research, I conducted an exploratory interview with a member of the UK government who was in charge of legal matters concerning the implementation of the ETS in the UK at its

<sup>&</sup>lt;sup>2</sup> "EU Action Against Climate Change: The EU Emissions Trading System." (2008). European Commission. http://ec.europa.eu/environment/climat/pdf/brochures/ets\_en.pdf

<sup>&</sup>lt;sup>3</sup> Ellerman, A. and P. Joskow. (2008). "The European Union's Emissions Trading System in Perspective." Pew Center on Global Climate Change.

nascent stage in 2003. (The interviewee has asked to remain anonymous to avoid any potential conflict). During our discussion, the narrow topic of focus fell into view. While it was feasible (though tedious and extremely difficult) for the UK to calculate the distribution of carbon credits for existing industries under the remit of the ETS "cap" set forth from Brussels, what was more challenging was how to handle new entrant industries that requested to join the ETS subsequent to a final allocation distribution at the start of Phase I, Phase II, or Phase III. Member states have applied considerable time and energy to ensuring that new industries are able to join the ETS under the label 'new entrant.' Hence, the topic of new entrants in a cap-and-trade system came into view. In a system of behavioral *constraints* such as the ETS, 'new entrants' was a new institutional vein through which *incentives* could be attained for further economic development and growth. Thus, new entrants are a crucial factor within ETS allocation calculation, distribution, and application. However, there is much to understand about the procedure for and justification for new entrants in the ETS, and therefore I have chosen to uncover this policy problem in my research.

It is worth mentioning that Phase I was designated as a 'trial' period in order "to develop the infrastructure to provide the experience that would enable the successful use of a cap-and-trade system to limit European GHG emissions during a second trading period" in order to meet the Kyoto requirements by 2012.<sup>4</sup> However rudimentary or experimental a pilot program, Phase I of the EU ETS was the basis for the more 'aggressive' Phase II, which aims to achieve real progress towards climate change abatement targets. Its statistics, procedures, and experiences of implementation are valuable nuggets of information towards this particular research discussion and question.

<sup>&</sup>lt;sup>4</sup> Ellerman, A. and P. Joskow. (2008). "The European Union's Emissions Trading System in Perspective." Pew Center on Global Climate Change.

#### 1.4 Definition of policy problem

The crux of the policy problem lies within the ideological conflict between constraining business activity and pollution levels on the one side (i.e., establishing a limit on emissions activity vis-àvis a controlled 'cap-and-trade' system) versus promoting a continuous positive growth economic environment that allows for industry entrance and expansion on the other. Seemingly, these two policy objectives are opposing; declining emissions traditionally means a reduction in conventional polluting business activity, while new entrants are an outlet for expansionary growth and increased overall pollution. An upper limit 'cap' on total carbon emissions, continuously declining in subsequent years, may send the message to polluting industries that the government is aiming for industrial demise via ETS policy. Energy efficiency is the desired alternative to a constrained emissions environment, yet this is an indirect objective in emissions trading and industries may often continue to use 'dirty' industrial practices if it is economically viable. Therefore, the policy problem at hand is to explore a way that constrains pollution while still allowing for new entrants, and to do so in such a way that follows the directives of the ETS system. The New Entrant Reserve as a policy solution has been one policy option undertaken in various MS. How well this policy decision has fared in balancing these dichotomous ideological realms is the policy challenge explored in this research.

#### 1.4.1 Key Question for Research

The predominant policy problem can be summarized in the following key research question: How can a single public policy address two seemingly opposing objectives—climate change abatement and accommodation for new industry entrants—in a system that is reliant on cooperation from a miscellany of actors, most especially industry leaders and environmental activists? The hypothesis in response to this research question is that the NER is a system that gives new industry participants the semblance of compliance towards carbon emissions abatement, yet still provides new entrants and incumbents adequate avenues for investment growth

The main policy challenge that the research aims to address is the extent to which the ETS has allowed new industry members into the ETS as 'new entrants' in its overall efforts to establish a cap-and-trade system in the European Union. In order to address this challenge, the following research discussion will evaluate the procedural aspects of new entrants: defining a 'new entrant,' establishing oneself as a new entrant within the already functioning ETS, and determining the level of allowance distributions for the new entrant. Also, I will search for parallels in these procedures between selected member states. As a case study for the practical understanding of this issue, I will explore the case of the United Kingdom and its use of the "new entrant" system within its experience of ETS implementation.

#### 1.5 Policy/Academic Relevance: Why is This Relevant to Public Policy?

Environmental policy is at the fore of public policy debates today. Developing an effective approach to reducing carbon emissions is atop the agenda of most nations around the world, and to do so within the norms of a capitalistic global society—'making it work' for both Environmentalists and Industrialists—is an issue for which every leader seeks a policy solution. For example, on 27 June 2009 the United States House of Representatives passed its first-ever bill aimed at carbon emissions reduction via a 'cap-and-trade' system similar to the EU ETS. The fate of the aforementioned Waxman-Markey legislation now rests in the hands of the United States Senate as to whether the United States will be able to use public policy to take a significant step towards a leadership role in turning the tide on the global environmental crisis. And, at the upcoming COP15 conference in Copenhagen, Denmark taking place December

2009, the global community will seek to advance a public policy solution to the original objectives of the 1997 Kyoto Protocol that allows for widespread participation, reduced carbon pollution, and a change towards renewable energy technology in order to alter the current reality of climate change progression. With so much global spotlight on climate change solutions— primarily through formalized legislation to reduce global carbon emissions—it is extremely relevant to contribute another policy research angle through which to critically evaluate one viable option.

Due to its singular prominence, the EU ETS should be treated as a leading standard upon which to base future emissions trading systems. Currently in the second of its planned tripartite structure, there is a significant amount of data and experiential evidence upon which to base this research discussion. Since the announcement of the EC Directive in 2003, planning and execution of the ETS has been underway, and since Phase I began in 2005, statistical analysis has been conducted on the allocation and functioning of the carbon credit market. The focus on 'new entrants' within the ETS is related to the overall policy debate. The EU has sought to handle the question of new entrants through public policy: 'new entrant reserves' (NER) have been created in various MS to serve as a cache for those businesses seeking to establish themselves as new members within the guidelines of the ETS. Through government decisions, specific resources have been designated for new entrants along with deliberate methodologies for the allocation of NER credits. This research discussion will further delve into these policy decisions and procedures in order to evaluate whether the established new entrant reserves are a viable and functional policy option.

Overall, the aim is to evaluate how the main characteristics of the NER within the EU ETS holds weight as a case for 'best practice' comparisons within the public policy debate.

#### 1.6 Analytical Framework: Terms of an Acute Lens

The analytical lens through which I will enter this research debate is *incentivising new actor* participation of environmental marketization. I will examine the establishment of the New Entrant Reserve as an institutional basis for (industrial) actors under environmental constraints. In other words, I will treat the NER (under the auspices of the wider ETS) as new 'rules of the game' that has created new incentives, constraints, and behavioral responses. In order to understand how the NER functions in the EU, it is best to approach this understanding by the options presented to the actors involved in the formulation, implementation, and participation stages, and the subsequent decisions taken. This framework is a New Institutional Economicsinformed (NIE-informed) approach, basing its assumptions on the principles of NIE and the new 'rules of the game' that the approach to Political Science development has brought. Due to the specific length and scope constraints of the thesis, this research discussion will not delve further into the theoretical tenets, principles, and foundations of NIE beyond the idea that NIE represents the actor-based norms created as an institutional "rules of the game" governing political and economic activity. The author of this research understands the benefits of presenting a fuller illustration of NIE-based theory in the form of additional thesis research at a later date and will take this topic into future consideration.

'Marketization' refers to the commoditization of a material good, that being carbon emissions in this case of the ETS. The same market rules of economics—namely, supply and demand apply to the 'Marketization' utilized in this analytical framework. Concomitantly, the same principles and assumptions under a market-based economy apply to the 'Marketization' analyzed in this research discussion. *Environmental marketization*' refers to the overall ETS design to implement a material attachment and market-based interactions to a system of credits allocated per unit of carbon emissions from designated industry participants. By examining the operational sphere under the ETS NER, we will begin to expose the extent to which the architects of the ETS intended to emulate the functioning of other tangible material markets within the market for carbon emissions.

Incentives and constraints are of crucial importance in order to understand new actor participation in this framework of analysis. For example, within the ETS, the main constraint for ETS industry participants is their obligation to stay within the parameters dictated by the legislation: number of credits available, and the upper limit 'cap' by which the ETS dictates and from which the NER will be made. Among the incentives in the NER is the practice of free allocation of emissions credits, which will be further explored. Both incentives and constraints affect actor behavior, and it is with this critical lens that we can uncover whether the resulting behaviors are aligned with the environmental goals within '*Environmental Marketization*.'

*New actor participation* refers to the new entrants within the ETS. As will be explored later, new entrants can either be newly established industries in their neophyte phase of operation, or industries which have been existing (i.e., incumbents) and reformulate their operational structure so that the level of carbon emissions changes—thereby altering their identity to that of a 'new entrant.<sup>5</sup>

Taken altogether, *incentivising new actor participation of environmental marketization* will give this research discussion its most acute and probing ability to uncover the reality of the EU ETS and the NER.

<sup>&</sup>lt;sup>5</sup> BERR. (2005) "New Entrant Reserve (NER) for Phase 1 of the EU ETS (2005- 2007) – Q&A" www.berr.gov.uk/files/file27005.pdf

### 1.7 Moving Forward: Steps for Uncovering the Research Arguments

Having laid the foundational groundwork in the previous segments-identifying the topic of choice, understanding its policy relevance, purporting the key questions for research debate, and identifying the analytical lens through which to view the debate, the discussion can move logically forward. In Chapter 2, we will begin to unfold the story of the EU Emissions Trading Scheme: its legislative origins and key criteria for MS obligations. Along with this, the discussion will enter the policy process towards formation of the New Entrant Reserve and the decisions made by MS to accommodate new entrants. Further analysis of the NER will aid in understanding the multifaceted procedures and avenues for allocation and implementation of emissions credits. Following this analysis, Chapter 3 will introduce the case of the United Kingdom in order to study one member state's experience with the NER. Subsequently, we will briefly explore comparative illustrations between the UK and two of its EU MS counterparts. Once this is thoroughly explicated, we will once again revisit our original key research question and analyze the extent to which the dichotomous aspects of 'environmental marketization' can be reconciled. Finally, Chapter 4 will bring the discussion to a conclusion with a summary of the key research findings, and will draw policy recommendations for future application of the New Entrant Reserve system, and areas in which future research of the NER can be ventured.

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#### 1.8 Research Methodology

The proposed methodology in this research discussion will primarily be qualitative research, based on primary and secondary data. Secondary data will constitute the bulk of the literature, based on academic journal articles, books, and other publications including newspaper articles and industry literature on ETS. Examples of secondary literature include research articles from industry journals such as *Energy Policy* and *Journal of Policy Modeling*. In addition, I will cull information from environmental groups, think tanks, NGOs, and other sector members with

specific knowledge on ETS and its regional implications in the EU and elsewhere. These consultancy reports on the EU ETS include "The European Union's Emissions Trading System in Perspective," distributed by the Pew Center on Global Climate Change. Secondary literature will also focus on the incentives and constraints for actors within the ETS.

Primary data will consist of government documents including legislation on ETS and EU directives for ETS implementation. Government documents include original EU-wide legislation such as the EC 2003/87/EC Directive creating the EU ETS and domestic legislation such as the UK's National Allocation Plan (NAP) for Phase I and Phase II, as well as the UK government's Regulatory Impact Assessment (RIA) evaluating the experience of and making recommendations for changes within the ETS in the UK. Additionally, I have conducted telephone interviews with two members of the British government's ETS implementation team, holding various capacities in the domestic legislative process. I will also use gray material from government publications and reports.

## **CHAPTER 2: LITERATURE REVIEW**

#### **MOVING FROM LEGISLATION TO NER IMPLEMENTATION**

#### 2.1 Background: ETS & NER: Born in Bruxelles...Born-Again in MS

With the passage of the 2003/87/EC directive in October 2003, a blueprint was established for a European-wide greenhouse gas emission allowance trading scheme. However, while the directive was crafted as a top-down regionally uniform edict, each MS was subsequently responsible for translating the Brussels-led policy into a domestically applicable and functional scheme, tailored to the individual context of that nation. Each MS was responsible for delivering a National Allocation Plan (NAP) at the start of each phase of the ETS (2005-2007, 2008-2012), serving as a complete 'how-to guide' for all interested parties. Covering a spectrum of issues, the NAP outlines priorities such as its objectives for meeting emissions targets (i.e., Kyoto Protocol targets), the methodology used for calculating its apportionment among the participating incumbent sectors, the stipulations for allocations new entrants, and regulations on joint implementation (II) and carbon disclosure mechanisms (CDM).<sup>6</sup> Essentially, this twopronged legislative process gave the ETS two 'births': one from its inception 2003 Directivewhere consideration for 'new entrants' was in its embryonic stage-and another from the National Allocation Plans that emerged for the start of Phase I in 2005 and Phase II in 2008, fully delineating plans for new entrant allocation, as will be shown in the following sections. In order to understand these two 'births' more carefully, this chapter will begin by highlighting the stipulations from the Directive with regard to new entrants definition and allocation. Once understood, this will lead the discussion to the narrower domestic level implementation of these stipulations within the individual MS NAP.

<sup>&</sup>lt;sup>6</sup> Netherlands National Allocation Plan For Greenhouse Gas Allowances, 2008-2012. 26 September 2006.

#### 2.1.1 Implicational Constraints in Design: Annex III Directive

As context-specific as each MS was allowed to be, the Directive contained a region-wide mandatory eleven-point guideline located in 'Annex III' to maintain a sense of uniformity. A list of criteria for each individual NAP, Annex III set restrictions and limitations against behavior within the scheme such as unduly "[discrimination] between companies or sectors" and allowance distribution based on "average emissions of greenhouse gases by product in each activity and achievable progress in each activity."<sup>7</sup> Additionally, the criteria allowed MS to "base their distribution of allowances on average emissions of greenhouse gases by product in each activity and achievable progress in each activity."<sup>8</sup> As will be shown later in this chapter, this stipulation will have major implications on the methods of calculation for appropriate levels of allocation.

#### 2.1.2 ETS: General Statistics and Industrial Focus

The EU ETS puts a CO2 cap the "nine most polluting industrial sectors;" the combustion sector is at the top of this list, occupying the largest share of each member state NAP allocation. It is also placed under the most severe constraints within the cap, as it comprises 70 percent of the available EUA (non-combustion sectors maintain 30% of the total EUA).<sup>9</sup> Looking at the composition of allocation among EU MS, Germany occupied the largest EUA in the combustion sector (27 percent), followed by Poland (14 percent), United Kingdom (11 percent) and Italy (9%). Comparatively, for the iron sector (a non-combustion sector), Germany (20

<sup>&</sup>lt;sup>7</sup> Official Journal of the European Union. Directive 2003/83/EC of the European Parliament and of the Council. 13 October 2003.

<sup>&</sup>lt;sup>8</sup> ibid.

<sup>&</sup>lt;sup>9</sup> Alberola, E., J. Chevallier, B. Chèze. (2009). "Emissions Compliances and Carbon Prices Under the EU ETS: A Country Specific Analysis of Industrial Sectors." *Journal of Policy Modeling*. 31. 446-462.

percent) and France (17 percent) are the two largest shareholders of allocation, with Italy, Poland (both 8 percent), and Spain (7 percent) trailing far behind.<sup>10</sup>

## 2.1.3 The Directive and 'New Entrants' – Once...Twice...Three Times It's Stated (1)

In order to understand the situation of new entrants, it will help to first identify its origins in the Directive. There are only three mentions of the term 'new entrant' in the Directive nondescript and leaving a wide margin for interpretation—yet still bearing a weight on the impact of a subsequent NER. Foundationally, the term 'new entrant' is defined within Article 3 as:

"any installation carrying out one or more of the activities indicated in Annex I,<sup>11</sup> which has obtained a greenhouse gas emissions permit or an update of its greenhouse gas emissions permit because of a change in the nature or functioning or an extension of the installation, subsequent to the notification of the Commission of the national allocation plan."<sup>12</sup>

Under the Article 11 paragraph 3 heading 'Allocation and Issue of Allowances,' the EC bestows the authority upon the MS to "decide upon the total quantity of allowances" and "initiate the process for the allocation of those allowances" for each designated period. Furthermore, "Member States shall take into account the need to provide access to allowances for *new entrants*."<sup>13</sup> (This is its second mention). Finally, Annex III paragraph 6 calls upon NAPs to "contain information on the manner in which *new entrants* will be able to begin participating in the Community scheme in the Member State concerned." (This is the third and final mention).<sup>14</sup>

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<sup>&</sup>lt;sup>10</sup> Alberola, E., J. Chevallier, B. Chèze. (2009). "Emissions Compliances and Carbon Prices Under the EU ETS: A Country Specific Analysis of Industrial Sectors." *Journal of Policy Modeling*. 31. 446-462.

<sup>&</sup>lt;sup>11</sup> Annex I categories of activities under the remit of EU ETS: energy activities, production and processing of ferrous metals, mineral industry, and other activities

<sup>&</sup>lt;sup>12</sup> Official Journal of the European Union. Directive 2003/83/EC of the European Parliament and of the Council. 13 October 2003.

<sup>&</sup>lt;sup>13</sup> *ibid*.

<sup>&</sup>lt;sup>14</sup> ibid.

As is evident, there was no official detailed explanation regarding how to handle the case of new entrants with the Directive, and yet it left no doubt that 'new entrants' was an unavoidable priority issue for MS when crafting their NAPs.

#### 2.2 More Background: The Policy Process Train of Thought

A new system like the ETS has specific starting and end points, yet the reality of industry activity does not conform within comparable timeframes. To accommodate such behavior, the NAP architects decided to include a way for participants to join the ETS after allocation occurs at the start of a phase, hence the need for a new entrant-specific policy solution. From a policymaker's point of view, the question of new entrants could be met with a few different policy option considerations. For example, during the United Kingdom's pre-Phase I implementation process, the architects of the ETS in the UK contemplated to:<sup>15</sup>

- 1) Do nothing—only concentrate on existing industries and force new entrants to wait until the start of the next phase to re-enter as incumbents
- 2) Conduct an Auction—either a general auction for all interested parties: new members and incumbents, or a new entrant-specific auction for all interested new entrants
- 3) New Entrant Reserve—establish a cache of allocations specifically designated for new entrants.

All MS were faced with the same three options as the UK, and the entirety of MS elected to implement the third option; all 25 EU MS participating in the ETS have allocated a certain percentage of the total allowances distributed under the 'cap' for New Entrants, as directed in each National Allocation Plan.<sup>16</sup> From this point, a new series of policy challenges arose regarding the construction and carrying out of such a system. The following policy challenges were faced by the EU MS at the time of creation of the NER, and are provided in this research context not as additional research questions, but simply to strengthen the debate surrounding

<sup>&</sup>lt;sup>15</sup> Based on interview with former UK ETS legal staff member (anonymous), April 2009

<sup>&</sup>lt;sup>16</sup> Ellerman, A. Denny. "New Entrant and Closure Provisions: How Do They Distort?" Center for Energy and Environmental Policy Research (CEEPR). June 2006.

our original key research question mentioned in Chapter 1. These five challenges have elevated the treatment of new entrants to one of the most contentious issues within the ETS, and this research discussion will address these issues in the line of analysis laid out across the chapter.

- 3a) Who is a 'new entrant'?
- 3b) How many allocations should be designated for the NER?
- 3c) Who should pay for the NER? Or, to rephrase, which industries would have to sacrifice a certain amount of their European Union Allocations (EUA) away from their designation to that of an NER?
- 3d) Should access to NER allocations be granted via a queue system (i.e., first-come, first-served)?
- 3e) Within an NER, should there be a 'ring-fenced' structure so that certain new entrant allocations can only be accessed by designated recipients? (e.g., The UK decided to establish a ring-fence within their NER for two recipients: Good Quality Combined Heat and Power, and a separate reserve covering missing and late installations.<sup>17</sup>)

#### 2.3 Literature Review: A Critical Lens of the NER

The majority of literature on the NER analyzes the procedures and systems created for implementation in Phase I and its modifications into Phase II. I have chosen to formulate the literature review—summarizing the main literary contributions to the understanding of the NER and the ETS—as a line of argumentation, presented in the following sections. The main contributions from the key authors within this field—e.g., Ahman, Betz, Burtraw, Ellerman, Kruger, etc.—are summarized in this section and are included as supporting evidence for the thesis analysis.

Once it was decided that the EU ETS would uniformly include provisions for an NER across the entire MS, the NER literature addresses the issue of relevance, or why it would behoove the ETS community to address specific allocations for new entrants Primarily, incumbents and new entrants should not be treated differently, whereas new entrants and incumbents both have extensive costs—albeit different types of capital costs—that should be taken into account with

<sup>&</sup>lt;sup>17</sup> BERR. "New Entrant Reserve (NER) for Phase 1 of the EU ETS (2005- 2007) – Q&A" www.berr.gov.uk/files/file27005.pdf

free allocation. Along the same vein, newly established companies face discrimination in capital markets; access to capital is restricted and new entrants face higher costs in response to the unavoidable hurdles of accruing debt, liquidity, and price volatility of factor inputs.<sup>18</sup> Free allocation in an NER would eliminate the need to purchase allocations, focusing all of a company's input costs on the production or operation itself, enhancing greater overall efficiency.

#### 2.3.1 Distribution of Credits: Understanding the NER's Balancing Act

At the heart of this issue is allocation; Article 10 of the Directive ordered that for Phase I (2005-2007) MS "shall allocate at least 95% of the allowances free of charge" and "at least 90% of the allowances free of charge" for the second phase (January 2008-2012).<sup>19</sup> The initial round of 2005 NAPs 2005 showed that all 25 member states followed suit and distributed the vast majority of its new entrant allocations free of charge.<sup>20</sup> The following diagram illustrates the process for allocation emissions credits, taking the example of the United Kingdom, moving from the total national cap down to the distinction between incumbents and new entrants for a given sector:<sup>21</sup>

<sup>&</sup>lt;sup>18</sup> Ahman, M. et. al. "A Ten-Year Rule to Guide the Allocation of EU Emissions Allowances." *Energy Policy.* 35 (2007) 1718-1730.

<sup>&</sup>lt;sup>19</sup> Official Journal of the European Union. Directive 2003/83/EC of the European Parliament and of the Council. 13 October 2003.

<sup>&</sup>lt;sup>20</sup> Ahman, M. and K. Holmgren. "New Entrant Allocation in the Nordic Energy Sectors: Incentives and Options in the EU ETS." *Climate Policy*. 6 (2006). 423-440.

<sup>&</sup>lt;sup>21</sup> DEFRA (2007). "EU Emissions Trading Scheme (EU ETS) – Phase II (2008-2012) New Entrant Reserve and Closure Full Regulatory Impact Assessment. p. 5



The logic behind free allocation—as opposed to auctioning credits or purchasing allocations on a market—is that allocating new projects free of charge "amounts to subsidizing investments (and output), and thus increases—*ceteris paribus*—the total costs to society of achieving climate targets."<sup>22</sup> Therefore, a free allocation system introduces a whole host of politically-motivated incentives for actors involved in the NER—if all 25 member states are operating under the same umbrella guidelines, there should be a way to differentiate one investment location from another, and to ensure that incentives for new entrant (investment creation and/or expansion) is greater than the incentive to close its operation and move to a different MS. Therefore, MS have to maintain a delicate balance between their allegiance to the ETS and its free allocation clause without "[compromising] the efficiency of the trading programme [sic] as a whole."<sup>23</sup>

Likening the choice between individual member state benefit versus the effectiveness of the system as a whole to the classic 'prisoner's dilemma,' Ahman and Holmgren (2006) review this balancing act along two lines: (1) in relation to the competitiveness of each MS within the ETS and (2) on the competitiveness of new entrants as compared to existing installations. The main point regarding the first line of analysis is that there are distortions among company

<sup>&</sup>lt;sup>22</sup> Betz, R. et. al. "EU Emissions Trading: An Early Analysis of National Allocation Plans for 2008-2012." *Climate Policy*. 6 (2006). 361-394.

<sup>&</sup>lt;sup>23</sup> Ahman, M. and K. Holmgren. "New Entrant Allocation in the Nordic Energy Sectors: Incentives and Options in the EU ETS." *Climate Policy*. 6 (2006). 423-440.

competitiveness—certain companies in one MS are more competitive than other MS under the ETS—and in order to create an equal playing field (thereby eliminating competitiveness among MS), a solution would be "to regulate at the EU level," altering the foundational Directive of the EU ETS and its emphasis on NAP.<sup>24</sup> On the second line of analysis—new entrants versus incumbents—the main argument rests on the basis that most MS NAPs include stipulations regarding the owners of closing incumbent industries (allocations will subsequently be withdrawn from that participating company). Thus, Ahman and Holmgren identify this as an "implicit subsidy of existing installations," creating incentives not to shut down older plants and establishing an inherent impediment for new entrant investment incentives and the types of new technologies that may be less profitable to receive investment under the new entrant allocation scheme.<sup>25</sup>

#### 2.3.2 Key terms for understanding the ETS and the NER

In order to fully comprehend the literature surrounding the policy decisions and procedures used in the ETS and the NER, it is important to define key terminologies that are associated with such processes. The following section summarizes the main procedural avenues for distributing emissions allowances in the Scheme.

'Grandfathering' – Used for incumbent installations (rather than new entrants), this method of allocating allowances grants free allocations based on an historic performance measurement. In other words, those installations that had been performing at a certain level will be given allocations for a previously-documented activity level.<sup>26</sup>

 <sup>&</sup>lt;sup>24</sup> Ahman, M. and K. Holmgren. "New Entrant Allocation in the Nordic Energy Sectors: Incentives and Options in the EU ETS." *Climate Policy*. 6 (2006). 423-440.
<sup>25</sup> *ibid*.

<sup>&</sup>lt;sup>26</sup> Ahman, et. al. "A Ten-Year Rule to Guide the Allocation of EU Emissions Allowances." *Energy Policy*. 35 (2007) 1718-1730.

'Free Allocation based on historic measurements' – Most member states use 2005 data as a base line 'historic' point by which to base allocations to individual installations. For the year 2005, verified emissions data at the installation level were made available for ETS consideration.<sup>27</sup>

\*N.B. These first two methodologies are linked to the ETS stipulation (in the EC Directive) that ex post adjustments of allocations are prohibited, thereby forcing a backward-looking rationale when arriving at EUA levels.

'*Auctioning'* – Just like any commodity, auctioning can be used to sell allocations to the highest bidder. This method of distribution has been minimized during the first and second phases of the ETS—95% and 90%, respectively, are mandated as being the amounts of free allocation— although as will be explored later, there are benefits to auctioning the remaining 5 percent and 10 percent.

'*Benchmarking'* – This method allows allocation bases its calculations on "specific emission values per unit of production for a particular group of products or installations."<sup>28</sup> While there are no official or standardized benchmarking values in the ETS, MS select their own benchmarking techniques when arriving at allocation levels.

<sup>&</sup>lt;sup>27</sup> Betz, R. et. al. "EU Emissions Trading: An Early Analysis of National Allocation Plans for 2008-2012." *Climate Policy*. 6 (2006). 361-394.

<sup>&</sup>lt;sup>28</sup> Betz, R. et. al. "EU Emissions Trading: An Early Analysis of National Allocation Plans for 2008-2012." *Climate Policy*. 6 (2006). 361-394.

#### 2.3.3 'Ex-Post' Historic Measurements Take Hold

A central characteristic of the allocation process in the EU ETS is that "ex post adjustments of allocations are disallowed."<sup>29</sup> This means that at the start of each allocation period, every MS regulator must have the amounts of EUA and the proportional distributions for its recipients set in policy stone. Once the period begins, no changes or redistributions can be made. This has significant implications on the operation of the ETS in general and new entrants in particular. Primarily, ex post adjustments force MS to refer to historic measures of industrial performance when calculating allocation distributions at the start of a period (this is also referred to as "grandfathering"). By looking to a preceding activity period, the policy designers would hope to have an accurate estimate of the activity for the subsequent ETS period.<sup>30</sup>

#### 2.3.4 Free Allocation Versus Auctioning

Critics of free allocation point to the benefits of an alternate method: auctioning credits to ETS participants, citing increased revenues which can substitute for other taxes and reducing the overall social cost of regulating the ETS. Also, an auction reduces the difference between price and marginal cost, ensuring that the ETS remains economically competitive.<sup>31</sup> And, auctioning would allow NAPs to "be much simpler, more transparent, and more efficient." By forcing companies to purchase credits through an auction, it would restrict the windfall profits that could be more easily attained through free allocation. Additionally, auctions abide by the 'polluter pays' principle, perhaps embedding an added layer of fairness into the system.<sup>32</sup>

<sup>&</sup>lt;sup>29</sup> Ahman, M. et. al. "A Ten-Year Rule to Guide the Allocation of EU Emissions Allowances." *Energy Policy.* 35 (2007) 1718-1730.

<sup>&</sup>lt;sup>30</sup> *ibid*.

<sup>&</sup>lt;sup>31</sup> *ibid*.

<sup>&</sup>lt;sup>32</sup> Betz, R. et. al. "EU Emissions Trading: An Early Analysis of National Allocation Plans for 2008-2012." *Climate Policy*. 6 (2006). 361-394.

Despite these advantages, only four MS chose to conduct a partial auction of the total budget allocation during phase I—Denmark, Hungary, Ireland, and Lithuania. The partial auctioning trend is increasing between phase I and phase II; the total number of annual allocations auctioned increased from 4.5 million to 24.5 million allocations, albeit approximately still only 1.3 percent of the MS opting for the auction. As previously mentioned, the Directive allows a total of 10% of Phase II allocations to be distributed via an alternate method from free allocation.

<sup>33</sup>Nevertheless, Ahman et. al. point to some significant advantages in using the free and historic method of allocation. First, the historic aspect creates efficiency through an "underpinning of intertemporal consistency." This means that over time, a basic uniformity remains within pre-ETS and the ETS era, giving rise to standardized efficiencies in the performance operation of its industry participants. Additionally, participants will be less inclined to resist strict targets if allocations are freely distributed, and similarly, political acceptance will be more attainable if the costs for allocations are eliminated. Finally, free distribution mixed with historic comparison embodies a rationale that compensates incumbents affected by regulation. Referring to Schultze's (1977) argument that public policy should "do no direct harm," the authors claim that proportional compensation should be set in place to offset the change in economic value accrued by the program installation.<sup>34</sup>

#### 2.3.5 A 'Ten-Year Rule' for Allocation

Taking the debate surrounding free allocation based on historic measurements one step further, Ahman et. al. (2007) propose an alternative system "designed to address the intertemporal

<sup>&</sup>lt;sup>33</sup> Betz, R. et. al. "EU Emissions Trading: An Early Analysis of National Allocation Plans for 2008-2012." *Climate Policy*. 6 (2006). 361-394.

<sup>&</sup>lt;sup>34</sup> Ahman, M. et. al. "A Ten-Year Rule to Guide the Allocation of EU Emissions Allowances." *Energy Policy.* 35 (2007) 1718-1730.

inconsistency" of the current one. Their 'ten-year rule' system would maintain the historic approach with updating capacity currently in use, but instills an allocation level based on activity from ten years previous to the year of allocation. The following diagram represents this allocation methodology.<sup>35</sup>



Figure 2

While this scheme may lead to an inefficient price signal, it would reduce actor-based incentives for updating allowances levels to serve the interest of the firm. Additionally, it may alleviate the situation of ETS closures by continuing allocation to the closed facility until it no longer had economic activity in the period 10 years prior, thereby "diminishing incentives to continue operation."<sup>36</sup> In other words, if a firm closes in 2002, it will receive allowances until 2012 to facilitate its closing operational costs, rather than redistributing allowances to the NER. The motivation behind this scheme is to alter the current flawed allocation system, providing avenues for EUA allocation that adhere to the core principles and targets of the ETS, rather than redistributing allocations. Ahman et. al. recognize their literary contribution as an alternative lens through which to question the status quo of ETS regulations, rightly asking provocative questions for modifying the current system. Their insight contributes to this research discussion's original conundrum; alternative systems of

<sup>36</sup> *ibid*.

<sup>&</sup>lt;sup>35</sup> Ahman, M. et. al. "A Ten-Year Rule to Guide the Allocation of EU Emissions Allowances." *Energy Policy.* 35 (2007) 1718-1730.

EUA allocation better serve to highlight the inefficiencies of the current one, and warrants reconsideration of a misguided free allocation system.<sup>37</sup>

#### 2.3.6 NER In Practice: How New Entrants are Treated

In the design of the ETS, there are no set rules for the treatment of new entrants, and the EU Commission requires scant justification or explanation for NER procedures that are decided upon at the MS level. Nevertheless, each MS has created an NER that have followed suit with the overall ETS free allocation methodology based on a first-come, first-served basis. Where possible, benchmarks are used for forecasting purposes to determine the appropriate allocation levels-activity levels, and emission rates are standardized based on the available statistical data for 'best practice' (or even just 'practice'). These benchmarks are not officially standardized across the EU and can vary significantly between MS even for the same production type. When benchmarks cannot be identified, MS then turn to free allocation based on the Best Available Technology (BAT) benchmark values for a standard class of technologies or production methods. BAT can be defined as "using established techniques which are the most effective in achieving a high level of environmental protection as a whole and which can be implemented in the relevant sector under economically and technically viable conditions, taking into account the costs and advantages."38 As with benchmarks, BAT classifications vary across MS, either referring to existing EU research, or domestic legislation, or to the EU Directive on Integrated Pollution Prevention and Control (IPCC) which permits a case-by-case definition of BAT values.39

<sup>&</sup>lt;sup>37</sup> Ahman, M. et. al. "A Ten-Year Rule to Guide the Allocation of EU Emissions Allowances." *Energy Policy.* 35 (2007) 1718-1730.

<sup>&</sup>lt;sup>38</sup> Commission of the European Communities. (2007). Proposal For a Directive of the European Parliament and of the Council on Industrial Emissions (Integrated Pollution Prevention and Control). http://eur-lex.europa.eu

<sup>&</sup>lt;sup>39</sup> Ahman, M. et. al. "A Ten-Year Rule to Guide the Allocation of EU Emissions Allowances." *Energy Policy*. 35 (2007) 1718-1730.

After MS choose the appropriate benchmark process, the next step is to multiply the benchmark by the level of activity to calculate the total allocation level. Depending on the type of benchmark used, certain technologies will reach a more favorable outcome (greater allocation level) than others. This approach puts a greater responsibility on the effectiveness of ETS allocation in terms of the types of technology investment incentives that arise. MS thus have a greater power in their national development for energy technology when crafting ETS and NER policy. Once the methodology is selected, the benchmark level is multiplied by the activity level, most commonly reached via a "forecast of future production" resulting at an allocation level for energy sources. Large variations exist among MS in the calculation of forecasts. For example, while some countries base this figure on the specifics of the new installation, others base the allocation on the size of the installed capacity of the new installation.<sup>40</sup>

#### 2.3.7 Calculating Allocations: Four categories

Ahman and Holmgren categorized the plethora of allocation methodologies into four distinct types:<sup>41</sup>

- 1) *input- or output based* calculation is achieved by multiplying input factors (e.g., fuel use or installed capacity) or output factors (e.g. emissions or generated energy) with a designated benchmark. Highly efficient technologies are at an advantage by using output-based calculations.
- 2) Fuel-neutral or fuel-specific methodologies are used when multiple benchmarks are established for different fuel types. Fuel-neutral benchmarks provide incentives for the use of low-carbon fuel, while fuel-specific benchmarking is akin to basing allocations on emissions only, and does not stimulate investment flows towards low-carbon energy sources.
- 3) Technology-neutral or technology-specific methods are used when seeking to promote one particular technology type, or to promote different technologies that are simultaneously used in different climates. For example, this bifurcated allocation method is implemented when generating electricity in condensing plants and in combined heat and power (CHP) systems. This method does not work well in

<sup>&</sup>lt;sup>40</sup> Ahman, M. et. al. "A Ten-Year Rule to Guide the Allocation of EU Emissions Allowances." *Energy Policy.* 35 (2007) 1718-1730.

<sup>&</sup>lt;sup>41</sup> Ahman, M. and K. Holmgren. "New Entrant Allocation in the Nordic Energy Sectors: Incentives and Options in the EU ETS." *Climate Policy*. 6 (2006). 423-440.

promoting least-cost emissions reductions.

4) *Product-specific* or *product-neutral* refers to electricity or heat production, since heat and power have different characteristics when calculating investment opportunities between countries. Therefore MS choosing this methodology take the difference between the two into account.

Placing so much emphasis on forecast-based calculations creates an inherent systemic problem for NER allocation; as rational actors, MS are better off being "generous to new entrants." Firms have the incentive and ability to inflate forecasts for future production due to the ex-post adjustment preclusion in the ETS. If inflated forecasts are used, higher allowance levels are then distributed, which can only be reduced by regulators at the start of the next trading period.<sup>42</sup>

#### 2.3.8 Closures: Understanding their Relation to New Entrants

Although the literary focus of this research discussion centers on new entrants, it is beneficial to also briefly delve into the case of closures within the ETS as the two are closely intertwined. Closures within the ETS are defined as "the ending of permanent operation which will result in the return of the allowances."<sup>43</sup> These operations receive allocations at the start of a given period as full-fledged participants of the ETS—either as incumbents or new entrants—before ceasing operation. The aspect of closures with relative importance to this discussion is the treatment of the allocations once the closure occurs. The following questions must be addressed by policy designers of an ETS system with regard to closures and their ETS allowances:

- 1) Should the closed operation be able to keep the allowances for the remainder of the trading period?
- 2) If not, how should the returned allowances be treated?
  - a. Free distribution or auction/sale?
  - b. Returned solely to the NER or also made available to incumbents?

<sup>&</sup>lt;sup>42</sup> Ahman, M. et. al. "A Ten-Year Rule to Guide the Allocation of EU Emissions Allowances." *Energy Policy.* 35 (2007) 1718-1730.

<sup>&</sup>lt;sup>43</sup> Betz, R. et. al. "Designing National Allocation Plans for EU Emissions Trading—A First Analysis of the Outcome." *Energy and Environment*. 15(3). 375-425.

Depending on the decisions taken to the questions mentioned above, there can be two types of consequences—both favoring the productivity of industry over the abatement of carbon emissions (referring back to this research discussion's original conundrum). First, by transferring the allocations back into the NER instead of keeping them until the end of the trading period, it allows other ETS participants to acquire the additional allowances, thereby preventing a decrease in the overall carbon emissions levels due to the closure's inactivity. Taking back the allowances will allow either other new entrants to begin emitting carbon emissions, or will allow certain incumbents to emit more carbon. In fact, this practice is "rational from a Member State point of view" to transfer allowances from closures to new (domestic) installations "in order to create incentives for continued production in one's own country."<sup>44</sup>

From an economic rationale, the treatment of re-allocation of closures' emissions allowances is very pertinent to this discussion. If allowances stayed with the closing participant, it would "[preserve] correct incentives for individual firms to consider private financial costs of resources that are equivalent to their social opportunity cost when making decisions about changes in economic activity, thereby minimizing overall social cost."<sup>45</sup> Installation owners should base decisions on investment and operations on marginal costs, which would include the costs of emissions allowances. An operation might not choose to close if it knows it will lose its emissions allowances directly thereafter, spurring the continuation of an inefficient installation, and "transforms the allocation into a production subsidy."<sup>46</sup> Concomitantly, withdrawing allowances from closures can affect the private cost to a firm (whether or not to continue operation), that is misaligned with the overall social welfare and adversely affecting the ETS.

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<sup>&</sup>lt;sup>44</sup> Ahman, M. et. al. "A Ten-Year Rule to Guide the Allocation of EU Emissions Allowances." *Energy Policy.* 35 (2007) 1718-1730.

<sup>&</sup>lt;sup>45</sup> *ibid*.

<sup>&</sup>lt;sup>46</sup> *ibid*.

Thus, the ETS and MS have disregarded the environmental affects in favor of subsidizing business growth in the treatment of closures within the ETS.<sup>47</sup>

#### 2.3.9 Too Big, Too Small, Or Just Right? Determining the size of the NER

The size of the NER is another contentious issue; if the NER is too large or too small, the operation of the ETS can be affected in drastically opposite manners. For example, an NER that is too small would warrant a strict first-come, first-served basis, with the NER being replenished through the purchasing of additional allowances. A reserve that is too large would force the cancellation of excess reserves and selling them on the allocations market.<sup>48</sup> Across the MS, the size of the NER when compared to the total level of EUA varies significantly, with the majority being between 2 and 8 percent. For example, Germany's NER was approximately 2 percent of its EUA while it was approximately 45 percent of Latvia's overall EUA cache.<sup>49</sup>

Another factor in determining the size of the NER is whether to consider a distinction between known and unknown new entrants. Some MS already recognize this distinction with their NAPs, such as Austria, Luxembourg, and the Netherlands. Unknown new entrants are those which either form and begin operation after the trading period begins or exist at the start of a trading period but are not counted in the total allocation. These unknown new entrants will be given allocations from the NER, while known new entrants—those which are newly entering the ETS at the start of an allocation period—will be included in the general allocation plan rather than the NER.<sup>50</sup>

<sup>&</sup>lt;sup>47</sup> Ahman, M. et. al. "A Ten-Year Rule to Guide the Allocation of EU Emissions Allowances." *Energy Policy.* 35 (2007) 1718-1730.

<sup>&</sup>lt;sup>48</sup> Betz, R. et. al. "EU Emissions Trading: An Early Analysis of National Allocation Plans for 2008-2012." *Climate Policy*. 6 (2006). 361-394.

<sup>&</sup>lt;sup>49</sup> *ibid*.

<sup>&</sup>lt;sup>50</sup> Betz, R. et. al. "Designing National Allocation Plans for EU Emissions Trading—A First Analysis of the Outcome." *Energy and Environment*. 15(3). 375-425.

#### 2.4 Gaps In Literature—Raison d'être for Key Research Focus

This chapter presented the main literary contributions to the understanding and analysis of the NER in the ETS. The main authors within the literature have laid out fundamental issues surrounding the operation of an NER: free allocation versus auctioning, size of NER, recipient categorization, distribution calculation, and new entrants' relation to closures, to name a few. However, when arriving at a central research question, I still felt that the literature had not sufficiently unmasked the key intentions of ETS actors participating in these new 'rules of the game'—the policy origins and main procedural aspects of an NER—while wearing the guise of climate change abatement for the benefit of business expansion. Therefore, it is necessary to take the lessons from this chapter and revisit the original research question with its double-edged conundrum: how can a single public policy system that puts a limit on economic activity in the name of climate change abatement also accommodate new industrial growth? This dilemma is the core of the research discussion, and once elucidated, these divergent puzzle pieces begin to connect and form an explanatory picture.

In the presentation thus far, the principle of free allocation mixed with historic measurements appears to be the primary loophole through which the ETS MS has been able to give the appearance of economic restriction, yet still provide a way for new industry to minimize the costs of entry and accession into the ETS system with the new entrant reserve. Evidence compiled throughout the chapter buttresses our hypothesis that the NER is a system used to circumvent true emissions reductions while still adhering to ETS guidelines. Free allocation in the NER sends the wrong message by subsidizing continued industrial emissions activity; lowcarbon industrial technology and operation should be the steep barrier to entry into the NER instead of a near-free barrier into the current system.

While there are no EU-level guidelines for the establishment of the NER, every MS has

proceeded with a system of free allocation, much like its incumbent participants. One unavoidable explanatory factor for this is competition; even though the EU MS are acting as members of a team to reach a unified ETS goal, each member state is very much independent in its economic activity. Therefore, in order to provide the best incentive structures for business growth, free allocation—mixed with the appropriate forecasting and benchmark calculation methodologies, previously mentioned in this chapter—has been the tool with which to achieve a minimum cost environment for emissions reductions and ETS compliance.

#### 2.5 Summary: What It's All About

This chapter was designed to highlight the blueprint details within the architectural design hat is the New Entrant Reserve, and to understand the key literary contributions surrounding some of the issues that MS face when implementing this policy. The chapter began with NER legislative origins: how the 2003 Directive paved the way for subsequent NAPs and the MS decision to create a new entrant reserve. Analyzing the predominant free allocation method in the NER, the discussion justified this methodology as compared to the auctioning of allocations. Additionally, in order to understand how MS create the NER allocations, this chapter highlighted the four typologies of calculating allocation levels across sectors. Furthermore, the treatment of new entrants was explored in terms of their relations with and procedural comparisons to incumbent installations. The goal of this chapter was to highlight the literary arguments surrounding the main aspects of an NER and the key issues that MS face when designing their NAPs. Finally, we revisited the original research question to highlight the key aspects of the NER that begin to answer this research discussion's conundrum of environmental control mixed with economic growth. Taking this analysis of the NER in general, this research discussion will now move to a case study of one MS' experience with the NER: the United Kingdom. We will place the structure of this chapter into the context of the country case study, in order to see how one particular country handles the implementation of the NER.

# CHAPTER 3: NER IN PRACTICE: THE CURIOUS CASE OF THE UNITED KINGDOM

#### 3.1 Recap: The Story Thus Far

In the preceding chapter, the aims of the research discussion were to provide an overview of the architectural framework within the ETS policy and the key decisions leading to the establishment and operation of the new entrant reserve (NER). In addition, a literature review of the key contributors to the academic field of ETS policy critique was conducted, incorporating the main arguments and research findings into the overall discussion. Starting with the 2003 Directive (2003/87/EC), which laid the foundations for a system of free allocation for incumbents, we noted the particular albeit scant attention given to the treatment of 'new entrants.' The argument went on to extract the policy developments at the MS level from those initial Brussels-based articles within the legislation, in effect highlighting the two 'births' of the ETS. Continuing on, the distinction between auctioning and free allocation was given, with the implications of pursuing each strategy explicated. Furthermore, the effects of an NER based on free allocation was given, thus bringing the discussion full circle back to its original research dilemma of balancing the desires for constrained carbon emissions with a route through which new industry participants can enter.

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#### 3.2 Case Study: Information

Moving forward, we will now bring in a country case study of the NER at the MS level, tracing the experience from the pre-phase I stage with the passing of the EC Directive, moving into Phase I (2005-2007), summarizing the lessons learned from that introductory phase, detailing the changes (if any) that were made for the progression into Phase II (2008-2012). Finally, we will review the UK's plans for the future of the ETS, particularly its policy changes (if any) for Phase III (2013-2020). Keeping in mind our original research question and its associated hypothesis,

This trajectory of events will be explored by means of two complementary discussions: first, a narrative account from an interview with Peter Roscoe, Senior Economist, Energy Efficiency, Teak and Metering within the UK Government's Department for Energy and Climate Change (DECC). Mr. Roscoe gave an anecdotal reflection of the Phase I and Phase II periods of ETS implementation, with evaluative lessons learned in moving forward towards Phase III, starting in 2013. In addition to the interview, the arguments presented in this chapter will be augmented through the usage of key UK government documents, official reports, accounts, and summaries of the experience of an NER in the UK.

#### 3.3 Case Study: Justification

I chose the United Kingdom as the primary case study focus for a number of reasons. Foremost, the UK is a country with which I am thoroughly familiar in its structure, organogram, and operations: e.g., government information resources, portals for contacting various agencies. I had access to conduct interviews with two key actors inside the implementation process, and I felt this combination of anecdotal evidence with factual publications would be a unique approach to understanding the realities of the NER in the UK. Efficiency of research methods aside, the UK is an ideal case study for my research question and hypothesis; it is a main source of investment in the world, and is also a major operator of the ETS and a significantly sized functional NER. The UK has been scrupulous in its publication of information regarding the planning, consultation, implementation, and review of the NER, with great access to these reports via government websites.

#### 3.4 Building the UK ETS and the NER

For the pre-Phase I period of the ETS, the actual timeframe between the EC directive announcement (13 October 2003) and the completion of the preparatory period before Phase I actually commenced in 2005 was inadequate to prepare the foundational infrastructure for such a complex system. Key decisions for a new ETS system had to be made; most importantly, the major issue at the time was whether a new entrant reserve (NER) should be the main source of distribution for additional entrants to an ETS. This inherent question, whether or not to have an NER, was compounded by the methodological issue of how to run such a system. The necessary 'nitty gritty' work had to be postponed in order to handle the behemoth necessary establishing phase. Any systemic decisions for a New Entrant Reserve creation must adhere to the policy dictation arising from Brussels. The question of eligibility was the immediate obstacle for the Phase I UK NER. Those who were eligible to receive credits from this supply had to meet strict eligibility rules, outlined in Annex C of the UK Phase I NAP.<sup>51</sup>

In order for a legitimate system to be formed, the UK government engaged with the major stakeholders for a thorough a tri-partite debate on the establishment of this new system: business (polluters), environmental, pro-"green" activists (anti-polluters), and government forces intermingling, and a resulting tradeoff ensued between free allocation of carbon allocations and strict rules guiding the distribution of the credits. Despite its efforts, Phase I of the UK ETS left many questions unanswered: Who (or what) determines the rules? What are the criteria upon which to base the rules? And, once established, are the rules being obeyed?<sup>52</sup>

This lacuna in governmental control is perhaps one avenue through which business interests gained the upper hand when establishing the rules of the game; the actors' involved—business

<sup>&</sup>lt;sup>51</sup> Personal interview with Peter Roscoe. Senior Economist, Energy Efficiency, Teak and Metering. UK Department for Energy and Climate Change (DECC). June 2009. London, England.

<sup>&</sup>lt;sup>52</sup> ibid.

leaders and government [constituency] leaders. And, it seems that it was at this point where these groups of actors were able to shape their incentives towards an 'environmental marketization' ETS that resulted in favoring their bottom-line interests ahead of Brusselsmandated targets.

#### 3.4.1 UK ETS & NER: Statistics

At the start of Phase I in 2005, the UK's total allowance cap was 736.3 MtCO<sub>2</sub> (approximately 245.4 MtCO<sub>2</sub> per annum).<sup>53</sup> In terms of scope, Phase I of the UK ETS covered approximately 1,500 installations, or 38 percent of the nation's greenhouse gases (GHG) and 46 percent of its CO<sub>2</sub> emissions.<sup>54</sup> In the Phase I NAP, the UK drafted a special annex (Annex C) specifically delineating the rules and regulations for its treatment of new entrants. The main points of the Annex announced the establishment of a designated NER, consisting of 46.8 million allowances, representing 6.3 percent of the total ETS cap. A special priority ring fence within the NER was made available to Good Quality Combined Heat and Power (CHP). Moreover, provisions were established for leftover NER allowances at the end of the allocation period to be auctioned or sold by the regulators, should the need arise.<sup>55</sup>

# 3.5 Regulatory Impact Assessment: Guidelines for Real Change, or Business As Usual?

Transitioning from Phase I to Phase II, the UK government conducted a Regulatory Impact Assessment (RIA), and subsequently released the RIA report in February 2007 in order to determine the most effective emissions cap level for Phase II. The overarching elements

<sup>&</sup>lt;sup>53</sup> BERR. (2005) "New Entrant Reserve (NER) for Phase 1 of the EU ETS (2005- 2007) – Q&A" www.berr.gov.uk/files/file27005.pdf

<sup>&</sup>lt;sup>54</sup> Betz, R. et. al. "Designing National Allocation Plans for EU Emissions Trading—A First Analysis of the Outcome." *Energy and Environment.* 15(3). 375-425.

<sup>&</sup>lt;sup>55</sup> Personal interview with Peter Roscoe. Senior Economist, Energy Efficiency, Teak and Metering. UK Department for Energy and Climate Change (DECC). June 2009. London, England.

evaluated in the report reflected both the level of impact on policy-driven targets towards climate change abatement (i.e., emissions targets), as well as the level of impact on economic and businesses productivity, with its related costs to the general public:<sup>56</sup>

- National and international objectives and guidelines
- Domestic emissions reductions
- Security of supply
- Impact of the ETS and its cap on electricity prices
- Energy company windfall profits

The main purpose of the RIA report was to present four options for a Phase II cap level, and recommend the most appropriate cap level—i.e., viable, feasible, yet environmentally stringent—that would facilitate a progression in the UK ETS from a Phase I to Phase II NAP. The policy options presented varying emissions cap levels and the level of effective impact it would have on Phase II, moving forward:<sup>57</sup>

Option 1: Do not set a cap limit

Option 2: Allocation of 252 MtCO2 per annum, (a reduction of 3.8 MtC effort below business-as-usual (BAU) projections)

Option 3: Allocation of 245 MtCO2, per annum, (a reduction of 5.8 MtC effort below BAU projections)

Option 4: Allocation of 237 MtCO2 per annum, (a reduction of 8 MtC below BAU projections)

The DEFRA RIA report concluded with one resounding declaration: "Taking all of these [costs and benefits] into account, this RIA recommends option 4." As an addendum, the report included the fact that the EE Committee approved option 4 in June 2006 as the way forward. In its justification for the fourth option, the report stated that the tighter cap "[signals] the UK's long term commitment to the Scheme" as it is "the only option that sets the UK on a path that

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<sup>&</sup>lt;sup>56</sup> DEFRA (2007). "EU Emissions Trading Scheme Phase II (2008-2012) Overarching Full Regulatory Impact Assessment."

<sup>&</sup>lt;sup>57</sup> *ibid*.

falls within the range of 15-18% emission reduction below 1990 levels by 2010 as indicated by the CCPR [Climate Change Programme Review].<sup>758</sup> Despite the fact that costs to businesses and industrial electricity prices will increase in comparison to Phase I, security of supply will remain minimally affected, and "dynamic incentives to invest in low carbon technology will be maximized.<sup>759</sup>

#### 3.5.1 Discrepancy Found in Phase Transition: A Reminiscent Conundrum

With reality seeping in, Phase II of the UK ETS had a per annum cap of **246,175,998**, totaling 1,230,879,991 emissions allowances for the five-year period (January 2008-December 2012), approximately 1.67 times larger emissions trading capacity than the preceding phase. The Phase II NER increased as well, to 81,601,251, an increase of 1.74 times. This per annum Phase II cap most closely resembles option 3 from the RIA report—245 MtCO2 per annum—therefore signifying a stasis in terms of emissions activity between Phase I and Phase II. Even more questionable is the fact that any reductions in the total Phase II cap will transpire vis-à-vis a new 'de minimis' rule that sets a minimum threshold level (3 MW combustion sector participants) below which emitters are not required to participate in the ETS. These participants can voluntary exclude themselves from the scheme, deducing their allocations from the overall cap.<sup>60</sup>

A parallel RIA was conducted to evaluate the best options for continuing the NER into Phase II. Six key decisions were evaluated in the report, influencing the procedural characteristics of Phase II. The report's recommendations are italicized below each decision:<sup>61</sup>

<sup>&</sup>lt;sup>58</sup> DEFRA (2007). "EU Emissions Trading Scheme Phase II (2008-2012) Overarching Full Regulatory Impact Assessment." www.defra.gov.uk

<sup>&</sup>lt;sup>59</sup> ibid.

<sup>&</sup>lt;sup>60</sup> DEFRA (2007). "EU Emissions Trading Scheme: Approved Phase II National Allocation Plan 2008-2012" www.defra.gov.uk

<sup>&</sup>lt;sup>61</sup> DEFRA (2007). "EU Emissions Trading Scheme (EU ETS) – Phase II (2008-2012) New Entrant Reserve and Closure Full Regulatory Impact Assessment. www.defra.gov.uk

Decision 1: Whether to have a new entrant reserve
RIA Recommendation: Have an NER for Phase II
Decision 2: Rate of allocation to new entrants
RIA Recommendation: 95% allocation to non-LEP/CHP new entrants; 90% to boilers
Decision 3: Subtracting the new entrant reserve
RIA Recommendation: Flat rate contribution for some sectors; sector specific contribution for
other sectors
Decision 4: Eligibility for the new entrant reserve
RIA Recommendation: Reduce Phase I criteria to cover extensions with direct emissions only
Decision 5: Treatment of closure and rationalization
RIA Recommendation: Maintain Phase I closure and rationalization regime
Decision 6: Treatment of surplus allowances
RIA Recommendation: Auction or sell surplus NER allowances

The UK NAP did reflect each of the six recommendations proffered in this RIA report, albeit with slight modifications.

#### 3.6 Phase II: Rules of Entrenchment

At the start of Phase II, the UK had taken greater ownership of the necessity for a well-defined and enforced rules-based system. Keeping simplicity as the top priority, it was evident that the main drain on the NER system of distribution was the need to review each new entrant application for carbon credits. In order to create a uniform system that allowed for some form of economies of scale to handle the abundance of individual requests, the UK chose not to use a 'panel' system which reviews NER requests on a case-by-case basis, as had been adopted in other EU MS. Instead, the UK made two significant changes: first, it chose to utilize external consultants to review NER applicants. Allocating more discretionary authority to a system of independent auditors, Phase II was run by more of an accountancy-style management. Technically evaluating NER business plans, the auditors removed the evaluative burden that was previously under the purview of the UK government. Secondly, the UK removed the discretionary aspect of individual methodology and opted to utilize a more stringent and narrow definition of the NER rules. This meant that an NER applicant can only acquire EUAs if there is an observable individual increase in direct emissions, via a completely new directly-emitting capacity, or the expansion of an existing directly-emitting facility.<sup>62</sup>

This specific targeting was a direct response to the resource drain that had emerged during Phase I; many NER applicants were actually incumbents who improved production efficiency and/or removed production 'bottlenecks' and were therefore considered under greater capacity (e.g., new conveyor belt, faster computer monitoring system). The higher capacity was the incumbents' entry point for claiming unwarranted additional allocations from the NER. Despite strong argumentation from business lobbyists in favor of commensurate NER allowances for this measurable yet false increased capacity, the UK has attempted to distribute the NER to genuinely new expansion of emitting industries. The UK government attempted to achieve feasibility and transparency vis-à-vis the defined distinction between actual new carbon-emitting generation and increased efficiency leading to greater production capacity.<sup>63</sup>

# 3.7 Sector Focus: LNG and Power Stations—Investment Delays Bring NER Sways

One of the key challenges for the independent auditors during the Phase II NER applicant pool has been discerning legitimate recipients of LNG terminals (liquefied natural gas). By identifying best practice factors in the industry (e.g., using sea water for heating purposes, versus using conventional fossil fuels). And, where natural gas is used as the heating fuel, efficiency of the overall LNG system is measured, in addition to length of time per day that the LNG terminal is in operation). To set a standardized best practice level for LNG terminals, the UK utilized benchmarks based on efficiency, and an average of various experiences across Europe.<sup>64</sup>

<sup>&</sup>lt;sup>62</sup> Personal interview with Peter Roscoe. Senior Economist, Energy Efficiency, Teak and Metering. UK Department for Energy and Climate Change (DECC). June 2009. London, England.

<sup>&</sup>lt;sup>63</sup> *ibid*.

<sup>&</sup>lt;sup>64</sup> *ibid*.

Regarding the overall functioning of the NER, the treatment of the UK power sector was a primary concern; for example, however many new power sectors they predict for a given time period will have a large influence on the size of the NER. For Phase I and Phase II, power stations occupied approximately 8-9 million tones in NER allocations. The problem that such a significant draw from the NER brings is that if investment delays occur, which was the case in Phase I, the NER starts with more of a "bullish message than reality" actually shows. In other words, up-front investments on new power stations trigger a large NER. When those projects get delayed, the NER can often be over-budgeted and underused. In Phase II, the opposite has happened, with more power sector projects requesting NER allocations earlier than expected. However, due to the experience of Phase I and the actual lack of power sector's plans coming to fruition before the allocations were actually distributed, the NER regulators are more wary of the current perceived shortage. The large projects that are currently "locking up the queue" in Phase II could potentially fall out of development, thus leaving allowances for the rest of the (smaller) projects waiting for NER allocation.<sup>65</sup>

## 3.8 NER's True Intent: Economics, Investment, and Incentives

With the potential to make real mid-term progress along a tripartite path towards achieving ambitious CC targets—something the UK publicly prides itself on—the result is a Phase II cap that is not as constraining as it could be, serving the interests of emitters' resistance to change ahead of environmental welfare. A static cap level with evasive loopholes—specifically the 'de minimus' rule—has allowed the UK to enter the start Phase II already behind its stated targets. This could have been avoided by adhering to the RIA recommendation for option 4 and bringing a lower cap towards real progress.

<sup>&</sup>lt;sup>65</sup> Personal interview with Peter Roscoe. Senior Economist, Energy Efficiency, Teak and Metering. UK Department for Energy and Climate Change (DECC). June 2009. London, England.

The experience of the UK RIA report and its Phase II NAP is an empirical example of the conundrum pointed at this research discussion's key question. Bringing in new 'rules of the game' through its Phase I regulations and Phase II modifications mentioned in this chapter, the motivations and incentives of actors involved—legislative crafters, operational regulators, and participants—have created a watered-down version of what could have been a powerful force. In the struggle between environmental constraint and business development potential, the UK has shown efforts towards both parties, but evidence is pointing toward one winner: Industry.

#### 3.8.1 UK Phase I & II Reflections: An Anecdotal Perspective

Mr. Roscoe believes that the main criteria for having an NER are to encourage and maintain incentives to invest, and avoid barriers to entry. From the experience of the UK thus far during the first two ETS phases, industries under the Directive's jurisdiction for participating in the ETS have fallen in line with its regulations and operational guidelines. Incumbents within the ETS have a "clearly defined right" to receive free allowances, considering that there are other international destinations for investment that are not under the constraints of the ETS (e.g., India). However, there is no evidence that the ETS and the NER in the UK is encouraging capital flight, and the EU is maintaining its overall attractiveness for investment opportunities (although Mr. Roscoe does recognize the increased desirability for investment in developing nations). Free allowances will likely continue through 2020, recognizing that this core Directive principle has been successful in maintaining strong investment in clean technology. The integrity of the ETS allowance market has been preserved; by treating free allowances as an upfront lump sum, this minimizes the negative externalities that marginal costs and the associated upfront

costs. Inefficiencies can be minimized with free allowances, as well as inefficient behavior due to start-up costs and the associated obstacles that have since been eliminated.<sup>66</sup>

Looking ahead to Phase III, Mr. Roscoe envisions an NER with enhanced centralization, standardization, and simplicity. However, due to the realities and complexities of the EU ETS, he believes that there is a real danger that it will forge in the opposite direction, towards an unwieldy system that is full of too many different national structures and too many compromises to establish an efficient NER.<sup>67</sup>

#### 3.9 Comparison: How Unique Is the UK ETS Experience?

Since the analysis in this research discussion has been focused on the United Kingdom, it will be worth justifying this singular examination by briefly juxtaposing the UK alongside her ETS neighbors. Because each MS is responsible for the creation of its NAP, there may have been variations in procedural evolution. This section will lay out these differences in Phase I NER characteristics regulations between the UK and three of its MS counterparts, the Netherlands and Germany, and Latvia.<sup>68</sup> These three countries have been selected for their variety in terms of investment level, size, and stature within the EU

The Netherlands' Phase I NAP defined 'new entrants' as "companies extending production capacity or starting up in 2003-2008," distributed via free allocation with a maximum limit in place on the reserve. The NER dedicated 4.1 percent of the overall allowance cap to unknown new installations, and planned to resort to a 'first come, first served' system in case the NER was

 <sup>&</sup>lt;sup>66</sup> Personal interview with Peter Roscoe. Senior Economist, Energy Efficiency, Teak and Metering. UK Department for Energy and Climate Change (DECC). June 2009. London, England.
<sup>67</sup> *ihid.*

<sup>&</sup>lt;sup>68</sup> Betz, R. et. al. "Designing National Allocation Plans for EU Emissions Trading—A First Analysis of the Outcome." *Energy and Environment*. 15(3). 375-425..

too small. The NER was designed for "new' newcomer installations based on 'realistically planned annual  $CO_2$  emissions."<sup>69</sup> In Phase II, the NER distribution increased to 6 percent with free allocation based on BAT benchmarks and forecasted projections for future output.<sup>70</sup>

Germany's Phase I NAP defined 'new entrants' as "new installations and capacity extensions which commence operation after 1 January 2005." With an initial NER of 0.06 percent of its total budget, a free allocation system based on 'first come, first served' was established for 14 years which based its distribution on forecasted projected output on BAT standards in addition to average emissions statistics for "sufficiently 'homogenous' products.' Ex-post adjustments are allowable prior to allocation for the following year. Regarding closures, Germany permitted allowance transfers to a "new replacement installation" of the same operator for four subsequent years.<sup>71</sup> In Phase II, the NER increased to 2.4 percent of the total budget, with free allocation based on fuel-specific BAT benchmarks for the energy sector, and standardized load factors for the non-energy sector.<sup>72</sup>

Latvia also utilized free allocation for its Phase I NER, at a total size of 0.74 Mt CO<sub>2</sub>, focusing mostly on 16 new heat-power co-generation plants. Once depleted, new entrants would be mandated to purchase allowances from the market.<sup>73</sup> In Phase II, Latvia's NER increased to 3.5

<sup>&</sup>lt;sup>69</sup> Betz, R. et. al. "Designing National Allocation Plans for EU Emissions Trading—A First Analysis of the Outcome." *Energy and Environment.* 15(3). 375-425.

<sup>&</sup>lt;sup>70</sup> Betz, R. et. al. "EU Emissions Trading: An Early Analysis of National Allocation Plans for 2008-2012." *Climate Policy*. 6 (2006). 361-394.

<sup>&</sup>lt;sup>71</sup> Betz, R. et. al. "Designing National Allocation Plans for EU Emissions Trading—A First Analysis of the Outcome." *Energy and Environment*. 15(3). 375-425.

<sup>&</sup>lt;sup>72</sup> Betz, R. et. al. "EU Emissions Trading: An Early Analysis of National Allocation Plans for 2008-2012." *Climate Policy*. 6 (2006). 361-394.

<sup>&</sup>lt;sup>73</sup> Betz, R. et. al. "Designing National Allocation Plans for EU Emissions Trading—A First Analysis of the Outcome." *Energy and Environment*. 15(3). 375-425.

Mt  $CO_2$  at 45 percent of its total ET budget. It continued the process of free allocation based on projected output fuel- and product-specific benchmarks for the energy sector.<sup>74</sup>

With a brief glance at the key NER procedures in these three countries, it is more evident that there exists a broad uniformity with slight differences across the MS. Bringing our hypothesis into this conclusion, this research discussion proposes that there are similar dilemmas to the one discussed in this thesis occurring across the EU MS. The NER procedures are becoming institutionalized and formalized 'rules of the game,' allowing an '*environmental marketization*' to exist, serving the business interests vis-à-vis an allocation system that benefits expansionary growth combined with lax cap levels. In March 2009, the EC released an amendment to the 2003/87/EC Directive calling for increased stringency of NER operations, attempting to swing the ideological pendulum from favoring business interests back to economically incentivized emissions reductions. Calls for harmonization across the MS, a greater reliance on auctioning rather than free allocation, and maximum NER level specifications were included. It is yet to be seen whether the authority of this Directive amendment will translate into direct compliance by MS governments and industries, or indirect disobedience via Phase III NAP loopholes. A future research discussion is warranted to uncover the extent of this reality.<sup>75</sup>

<sup>&</sup>lt;sup>74</sup> Betz, R. et. al. "EU Emissions Trading: An Early Analysis of National Allocation Plans for 2008-2012." *Climate Policy*. 6 (2006). 361-394.

<sup>&</sup>lt;sup>75</sup> Official Journal of the European Union. "Directive 2009/0013/EC of the European Parliament and of the Council of Amending Directive 2003/87/EC So As To Improve and Extend the Greenhouse Gas Emission Allowance Trading Scheme of the Community." 26 March 2009 http://register.consilium.europa.eu/pdf/en/08/st03/st03737.en08.pdf

## **CHAPTER 4: CONCLUSION**

#### 4.1 Concluding Arguments

This research discussion has embarked on a detailed understanding of an apparent conundrum that exists within the EU ETS. The micro-level system of focus heretofore examined has been the New Entrant Reserve, which is a designated cache of emissions credits specifically for ETS participants that form-either as a new entity or a modified existing entity-after a specified start date. In Chapter one, the research discussion began by presenting the original research question as a dilemma in the ETS cap-and-trade system between climate change abatement and accommodation for new industry entrants. The policy relevance was elucidated, as well as the analytical tool to delve into the argumentation: 'incentivising new actor participation of environmental marketization'. Chapter two attempted to dissect the procedural aspects of the ETS and the NER via a cross-cutting literature review, starting with the legislative origins in the 2003 EC Directive, and moving to the implementation phases of the NER. The main challenges for an NER were presented, highlighting major obstacles in design: e.g., free allocation versus auctioning, and determining the size and distribution methodologies of NER allowances. Chapter three then took these issues from the literature review and brought it to the case study of the United Kingdom. Through both research and personal interviews, I attempted to juxtapose the literary critiques of NER at the MS level. Overall, the findings show that the UK does exhibit some level of parallels to the dilemma presented in this research discussion hypothesis.

One key lesson from this research discussion can be summarized as follows: even though a policy may have one clear-cut objective—emissions reduction via cap and trade—there is a significant amount of smoke and mirrors masking the true incentives of all actors involved, and this underlying potentially false modus operandi warrants significant explication through

research. Understanding the procedures and operational systems within the NER, and illustrating it in practice via the case of the United Kingdom has opened the door to this thesis' original conundrum and dilemma: when faced with the simultaneous yet opposing goals of conventional industrial activity and carbon emissions abatement, there may be a policy loophole that concedes greatly to the demands of the former while outwardly appeasing the objectives of the latter. True climate change abatement cannot be achieved with the NER and the ETS unless significant changes are made to the policy so that the priorities are reversed, and economic growth occurs in tandem with a new industrial mindset for energy efficiency, clean technology, and a reduced carbon emissions environment.

#### 4.2 Policy recommendation and Further Exploration

This thesis makes the policy recommendation to abolish free allocation of EUA and switch to 100 percent auctioning. This will deliver the most immediate impact to the NER and constrict the outright domination of industry-minded actors' incentives against environmental stringency. The arguments in favor of auctioning (and opposing free allocation) mentioned in Chapter 2 will support this recommendation.

Bringing this discussion into a greater context, a continuation of this thesis would lend well to the case of the United States, as the current Waxman-Markey bill is currently sitting in the United States Senate, awaiting the debates, hearings, and modifications that await its legislative fate. Further research is warranted.

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