

**REPORT OF THE WORKING GROUP
ON THE MODALITIES FOR THE SALE
AND AUCTIONING OF CO₂
ALLOWANCES**

ELEMENTS RELATING TO PHASE III

Chairman: Jean-Michel CHARPIN
Inspecteur général des Finances

Rapporteurs :

Jean-Jacques BARBÉRIS, Directorate General for the Treasury and Economic Policy

Joffrey CÉLESTIN-URBAIN, Directorate General for Energy and Climate

July 2009

OUTLINE OF THE REPORT

INTRODUCTION	1
1 IN SPITE OF RECURRENT CRITICISMS ON THE PRICE OF ALLOWANCES, THE EUROPEAN MARKET HAS CONTINUED TO GAIN MATURITY AND PROVE ITS CAPACITY TO REFLECT THE EVOLUTION OF FUNDAMENTALS IN CO₂ PRICES	5
1.1 The European emissions trading scheme created by directive 2003/87 of October 13 th 2003 resulted in 2005 in the creation of the world's first large scale carbon market.....	5
1.2 The recent price trend on the market is globally consistent with that of the major supply and demand drivers for allowances at European level	7
1.3 From 2013, auctions will become the dominant form of “creation” and allocation of CO ₂ allowances in Europe, without in principle affecting the overall balance between supply and demand	8
2 RECENT FOREIGN EXPERIMENTS OF CO₂ ALLOWANCE AUCTIONS POINT TO CONVERGENCE AS TO THE AUCTION DESIGN	10
2.1 Experiences from outside Europe show increasing interest in the issuance of allowances through auctions and can serve as examples without being directly transposable to the European Union	10
2.2 Several allowance auction experiments have been led within the European market over the period 2008-2012: France could use these experiments to promote greater homogeneity within the European market	14
3 SINCE THE MAIN OBJECTIVE OF THE AUCTIONS IS THE EFFICIENCY OF THE ALLOCATION PROCESS, ECONOMIC THEORY AND THE RESULTS OF EMPIRICAL EXPERIMENTS WOULD PROVIDE A CASE FOR SINGLE ROUND SEALED-BID UNIFORM PRICE AUCTIONS WITH A RESERVE PRICE.....	19
3.1 The main objectives of auctions are the efficiency of allocation and the minimisation of financial risks for public authorities and for those participating in the auctions and, in particular, compliance buyers.....	19
3.2 Several criteria must preside over the choice of the auction format: in particular, the auction must avoid creating disruptions on the secondary market	20
3.3 With respect to these objectives, economic theory does not provide sufficient guidance as regards the most suitable auction procedure for CO ₂ allowances.....	20

3.4 The appropriate format with respect to the abovementioned criteria is the single round sealed bid auction 23

3.5 The closing price of the auction should be uniform 27

3.6 So as to address the risk of primary market dysfunction, a reserve price could be introduced which would be calculated on the basis of price evolution on the secondary market 29

4 THE FREQUENCY OF AUCTIONS DURING THE YEAR SHOULD BE HIGH IN PHASE III: SCHEDULE AND VOLUMES SHOULD BE SUBJECT TO PRIOR COMMUNICATION AND SHOULD ONLY BE MODIFIABLE UNDER EXCEPTIONAL CIRCUMSTANCES 35

4.1 For phase III (2013-2020), the frequency of auctions should be high..... 35

4.2 Auctions should be organised shortly before the surrendering date and in accordance with settlement-delivery dates for futures..... 38

4.3 The minimum volume of allowances to be offered in one auction should be five million for France during phase III..... 38

4.4 The proportion of spot and futures allowances should evolve progressively..... 40

4.5 Auction schedule and lot size should be established and made public a long time ahead of auctions..... 43

4.6 Changes to the auctioning schedule and associated volumes should be allowed only under exceptional circumstances and according to pre-established rules..... 44

5 IN PRINCIPLE, ACCESS TO AUCTIONS SHOULD BE OPEN TO ALL, BOTH FINANCIAL AND INDUSTRIAL PLAYERS, ON CONDITION THAT THE INTEGRITY OF THE AUCTION PROCESS AND THE ALLOWANCE MARKET IS GUARANTEED 46

5.1 In order to ensure continuity in the market, access to auctions should be allowed without discrimination to both “compliance” and “non-compliance” participants..... 46

5.2 In order to open auctions to all types of players without harming companies covered by the ETS, auctions should be set up in a strictly regulated and harmonised market..... 48

5.3 The integrity of auctions must be ensured via a robust mechanism to control the qualification of participants 51

5.4 Access of small and medium sized enterprises could be guaranteed through non-competitive bids, but recent experiments do not really show the benefits of this mechanism. 55

6 THE MODALITIES OF MONITORING AND REGULATION OF THE CARBON MARKET ARE KEY TO THE SUCCESS OF THE AUCTION MECHANISM..... 56

6.1 Direct public regulation of market prices should be prohibited, provided that the organisation of the auctions is satisfactory 56

6.2 As the law stands, the priority should be to identify general objectives of carbon market monitoring and control of auctions implementation 60

6.2.1 *The application of legal protection instruments against market abuse at Community level is not harmonised for CO₂ allowances 62*

6.2.2 *Amended directive 2003/8/EC does not identify any regulator for monitoring the carbon market, nor does it specify the modalities for the monitoring of auctions 63*

6.2.3 *As French law stands, no national body can ensure monitoring of auctions without modifying its frame of competence..... 63*

6.2.4 *At this stage, before all else, it would be appropriate to formulate recommendations on the general objectives of regulation 65*

6.3 Auction results must be communicated as soon as possible: regular reporting on the organisation of auctions should in addition be carried out at Community level..... 66

7 FRANCE HAS A LEADING ROLE TO PLAY IN THE ESTABLISHMENT OF AN EU-WIDE PLATFORM AND IN THE PROMOTION OF STRICTLY HARMONISED RULES IF SEVERAL NATIONAL OR REGIONAL AUCTION SYSTEMS WERE TO COEXIST WITHIN THE EUROPEAN UNION..... 68

7.1 The implementation of a single system for the primary issuance of allowances at European level is an optimal solution from the point of view of companies..... 68

7.2 Directive 2003/87/EC does not rule formally on the issue of single or multiple platforms but orients more towards a decentralised configuration at State level..... 71

7.3 The setting up of a single European platform, as a unique central issuer of allowances in Europe, could be delayed by the individual strategies of Member States..... 73

7.4 Without a single European platform, forms of organisation without a central issuer, which could result in equivalent economic benefits for companies with requirements under the ETS, should be examined..... 73

7.5 France should opt for a robust platform in terms of auction efficiency and security..... 75

SUMMARY 79

APPENDICES 82

COMMISSION MEMBERS 83

BIBLIOGRAPHY 85

INTRODUCTION

From 2013 onwards, the auctioning of CO₂ allowances within the European Union will be a major economic and financial challenge. Indeed, in 2005 the European Union initiated the creation of the first CO₂ emissions trading scheme designed as a central instrument to enable Member States to comply with their objectives under the Kyoto Protocol, whose first commitment period comes to an end in 2012, in a cost-effective manner

The European Union Emissions Trading Scheme (EU ETS) is based on the cap and trade principle. A cap, corresponding to an overall emission reduction objective, is set on the emissions of a number of industrial and energy sectors. Installations covered by the scheme must, indeed, surrender a number of allowances each year to the national authorities (on April 30th), each of which represents a metric tonne of CO₂, corresponding to their emissions. The CO₂ allowances can be freely traded on the market between the companies covered and other economic actors. Thus, an installation may choose either to reduce its emissions or buy allowances on the market from other installations and financial operators. The trading scheme thereby allows the cost of achieving emission reduction objectives to be minimised, by exploiting the lowest abatement costs within the European Union.

CO₂ allowances are currently distributed free-of-charge by each Member State on a yearly basis to the installations included in the National Allocation Plan (NAP), which defines quantities issued to installations for the period 2008-2012. During this second phase of the ETS, Member States also had the possibility of selling a small number of allowances, up to 10% of the national budget defined within the framework of the National Allocation Plan. Allowances are electronically logged in a national register, which tracks allowance movements on the accounts of operators involved in the market. In France, this national register is kept by the Caisse des Dépôts et Consignations on behalf of the State. For 2008-2012, nearly 2.2 billion CO₂ allowances have been allocated each year by the public authorities to installations within the ETS. As a result, a secondary carbon market has developed within the European Union.

The adoption of amended directive 2003/87/EC as part of the “energy and climate package” under the French presidency of the European Union opened the way to a third European ETS phase (2013-2020). The adoption of this directive has in-depth implications for the ETS. First of all, the level of constraint has been tightened: from 2013, the overall ETS emissions cap will indeed decrease linearly by -1.74% per year, to reach an overall objective of a 21% reduction in emissions by 2020 compared to 2005. Thus, 1.72 billion allowances will be issued annually in 2020. Secondly, the free allocation of allowances will become an exception: indeed, the issuance of allowances to companies through auctions will become the rule as from 2013. From 2013 onwards, companies from the electricity generation sector will have to acquire all their allowances either on the market or via auctions. Other industrial sectors will progressively see their share of free allowances diminish from 80% in 2013 to 30% in 2020. Only industrial sectors identified as being subject to a high risk of carbon leakage (relocation of production to countries which are not subject to CO₂ constraints) will continue to benefit from free distribution of allowances during the third phase of the ETS on the basis of specific benchmarks. As things stand, the list of these sectors is not yet known, but is to be published by the European Commission before December 31st 2009.

The auctioning of CO₂ allowances will represent a critical economic and financial challenge for Member States during the third phase of the EU ETS. First of all, the introduction of efficient auctioning procedures will be a necessary condition for the proper operation of the ETS and, eventually, of Member States reaching their mitigation targets. Secondly, the auctioning of CO₂ allowances will involve significant revenues. Amended directive 2003/87/EC identifies drawing rights for each Member State from the overall volume of CO₂ allowances put up for auction¹. Thus, France received 5.35%, compared to 19.57% for Germany, the biggest allowance “issuer” amongst Member States. Expected revenues for public authorities from the auctioning of CO₂ allowances will, therefore, amount to several billion euros per year for the largest Member States.

In order to face up to the challenge, the Government has asked a working group to consider the modalities for the sale and auctioning of CO₂ allowances and to formulate recommendations for organising auctions in France. Under the presidency of Jean-Michel Charpin, Inspecteur général des Finances, the group was set up in April 2009, bringing together representatives from companies subject to the EU ETS, representatives from the financial sector, members of administrations, and university professors. The workgroup was also assisted in its work by presentations from qualified personalities and, in particular, representatives from other Member States’ administrations who had put in place CO₂ sale or auction operations in the most recent period. The group held eight meetings.

Given the challenge that the public authorities face, the idea was to flesh out a number of general principles presiding over the auctioning of CO₂ allowances, which have already been defined by Community legislation. As part of the energy and climate package, the Member States reached an agreement on four fundamental principles. The first is that of non-discrimination between market players in terms of access to auctions. This reflects a concern to ensure that all companies subject to the EU ETS can participate in the auctions including, in particular, small and medium sized enterprises (SMEs). The second principle is transparency and equality in terms of access to information. Putting this principle into practice, for example via suitable reporting processes for auction results, is a fundamental part of the robustness of an auctioning system so as to avoid any destabilisation of the secondary market. The third principle is the requirement to plan suitable monitoring and oversight procedures in place for the auctions and, at a later date, to consider a general carbon market regulation framework for Europe. Indeed, the market today is somewhere on the border between a commodities market and a financial instruments market. It now seems that an in-depth reflection on the means of ensuring proper functioning of this market is required so as, in particular, to prevent any anti-competitive or fraudulent activity. The very integrity of the European carbon market, and the trust of economic players in this crucial instrument for reaching the greenhouse gas emission reduction targets in France and Europe, is at stake. Fourthly, it also seems crucial that the modalities for auctioning allowances should respect two principles mentioned in article 10 of the revised directive 2003/87/EC: the predictability of applicable rules and the minimisation of participation costs for auctions participants.

The work of the workgroup anticipated the consultation of the European Commission on organising CO₂ allowance auctions within the European Union from 2013 onwards. It sought, in particular, to shed light on the decision of the French public authorities as to the position

¹ The total amount of CO₂ allowances was distributed between Member States on the basis of a complex distribution ratio, 88% based on historic emissions of each Member State, and 12% on a redistributive basis, depending in particular on relative levels of Gross Domestic Product (GDP) and early emission reduction efforts.

that they will adopt as part of the Community negotiations on the regulations for organising auctions in end-2009 and early 2010. However, since the work of the group preceded those of the European Commission, the recommendations of the group do not cover wholly the questions listed by the European Commission in its June 3rd 2009 consultation paper.

The recommendations formulated by the workgroup do, however, answer most of the operational and theoretical issues raised by setting up CO₂ allowance auctions in France and within the European Union. In this respect, the report first provides a feedback on foreign experiences of CO₂ allowance auctions as well as a brief update on the way the EU ETS operated in the recent period. The workgroup then formulates recommendations on the format of auctions, the operational modalities of their implementation and access to the auction process. The specific question of regulation and monitoring of auctions is also addressed in the report. Finally, the group formulates recommendations regarding France's position regarding the creation of a Europe-wide auctioning platform.

1 In spite of recurrent criticisms on the price of allowances, the European market has continued to gain maturity and prove its capacity to reflect the evolution of fundamentals in CO₂ prices

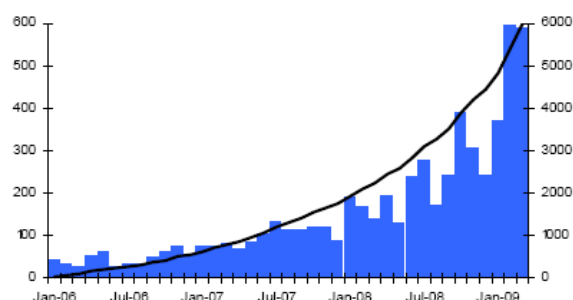
A look at recent developments in the EU ETS helps provide a useful background when envisaging the auctioning of allowances in phase III.

1.1 The European emissions trading scheme created by directive 2003/87 of October 13th 2003 resulted in 2005 in the creation of the world's first large scale carbon market

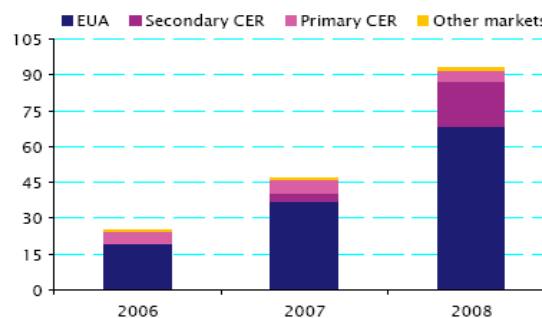
The liquidity and depth of the European carbon market have improved continuously, with a tenfold increase in volumes traded since 2005, from 260 million tonnes (Mt) during the first year (12% of the total allocation of allowances) to 2.75 billion tonnes in 2008 (130% of allowances allocated). Thus, over 2.1 billion tonnes were traded on the market during the first half of 2009, or an increase of +250% compared to the same period in 2008. The European carbon market, worth €70 billion, accounts for over 80% of global carbon markets transactions (€90 billion in 2008). There is, however, still room for growth, as shown by the comparison between the carbon market and other, more mature, commodities markets, such as oil, where the turnover rate is of the order of ten, compared to only two for allowances.

Graph No. 1 – Trading on the European CO₂ market

Volumes of EU allowances traded (in Mt billions)



Trading in value (€ billions)



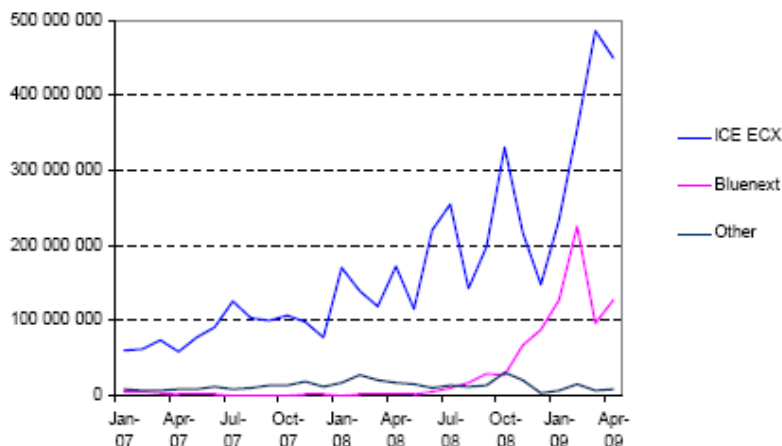
Source: Orbeo

The European market is structured around standardised trading platforms, whose market share has continually grown from 31% on average of volumes traded in the first quarter of 2007 to 64% in the first quarter of 2009. The proportion of “pure”, non-cleared over-the-counter transactions is now only 10% on average.

Two marketplaces account for most trading, with each specialising in one segment of the market: on the one hand Bluenext, which deals with almost all spot trading in Europe (immediate payment-delivery), for an average daily volume of almost 11 MtCO₂ (350 Mt for the first quarter of 2009) and, on the other hand, ICE-ECX, the main exchange for derivatives (futures and options), where future contracts for delivery in mid-December of each year up to 2012 are traded. Trading there was of the order of 520 Mt for the first quarter of 2009. The landscape of marketplaces is expected to stabilise, even with the geographical expansion of

the market and the interconnection with future emissions trading schemes (United States, Australia, Japan, Canada, New Zealand), given the risk of a fragmentation of the carbon market, cost inflation and potentially damaging competition between exchanges.

Graph No. 2 – Distribution of trading volumes on the different market places (in tCO₂)



Source: Orbeo

The EU ETS is a composite landscape bringing together a variety of players with very diverse market strategies. Electricity and heat producers hold the majority of allocated allowances (59%), and stand out from other covered sectors through their structurally short positions, their activity on the markets which is concentrated on a limited number of operators (a handful of net allowance purchasers) and through their specific economic model (possibility of operational arbitrage over the very short term depending on fossil fuel prices, forward sale of electricity on the wholesale market, pricing at marginal cost). Industrial installations have so far globally been net sellers of allowances (of the order of 50 Mt/year).

All players (electricity and heat producers, cement and steel manufacturers, refiners, etc.) do not constitute a homogenous category but a collection of installations that are equipped to participate in the market in very different ways. For 60% of volumes, but only 5% of European sites, major operators have factored the carbon issue into their industrial strategies, their institutional organisation (project origination, internal trading desks) and sometimes also in the products they sell (CO₂ asset portfolio management services). At the other end of the spectrum, for 80% of installations representing only 5% of volumes (i.e. allowances of less than 100,000 tonnes per year), there are a number of small companies, not very active on the exchanges, which outsource management of their net position to financial intermediaries and mostly for the purpose of ensuring compliance. For 15% of installations and 25% of volumes, medium-sized industrial companies operate directly on the market or through over-the-counter transactions in order to smooth out their position and are only now starting to develop financial strategies to optimise their costs (e.g. via allowance-credit swaps).

In parallel to operators of installations within the scope of the EU ETS, i.e. who have an obligation to surrender allowances corresponding to their emissions, twenty or so banks contribute to improve the liquidity of the market without, at aggregate level, taking any structurally well-defined position. Fewer than ten investment funds are also involved in the market through relatively modest net positions (generally under 5 Mt) and on an intermittent

basis, i.e. high level activity during the first phase of the market between 2005 and 2007 in its ascending part, until April 2006, then coming out of the market further to the price fall, and a 'wait and see' attitude today until the European regulatory framework and the international post-Kyoto situation have stabilised somewhat.

In all, in order to quantify the issue of access to auctions in Europe, there are about fifty daily operators on average and around 300 regular active participants on the European carbon market. This means that, in auctions as well as on the current market, only a minority of all operators who are potentially concerned (and, in particular, 12,000 installations included in the EU ETS) are, and will be, really active. This fact corresponds to a form of market equilibrium whereby each of the major participant categories plays a well-defined role: the smallest emitters obviously do not participate directly in trading because it is not advantageous for them, particularly because of their limited capacity (financially and administratively speaking), but will turn to specialised financial players by using the services of their usual credit institution, in order to purchase the allowances they need to abide by the regulations. In this case, the transaction fee paid to the intermediary, which more often than not is absorbed in an overall service package, is much more advantageous than the development of internal monitoring and control systems which are too distant from the company's day-to-day activities.

As a result, the fact that the market is open to all, but enlivened by a limited number of operators, cannot be considered as any form of regression or a sign of a lack of maturity, but as a *modus vivendi* based on an implicit sharing of roles between the different players. This invariable characteristic will be reflected in CO₂ allowance auctioning: small and medium sized companies (whose emissions nevertheless exceed the inclusion threshold of 25 kt per year) should not be expected to take a more active role in auctions than they do today on the market. It is even probable that a majority of operators subject to allowances will entrust management of their bid submissions to a financial intermediary who will participate directly in the auctions on behalf of its client. However, it is important to ensure that the circle of recurrent operators and participants is sufficiently broad and diversified so that the market and the auctions are not controlled by a small number of big players.

1.2 The recent price trend on the market is globally consistent with that of the major supply and demand drivers for allowances at European level

The drop in allowance prices since September 2008, from €25/t to €13/t by mid-June 2009 (before bouncing back to 15 €/t in August) reflects the fall in net demand for allowances which has been caused by the economic crisis through two channels: the decline in industrial activity and the moderation of energy consumption which has resulted in a direct reduction in emissions, and the consequent reduction in allowance demand ; and the sharp decline in the oil price and consequently that of gas, has contributed to reducing the threshold for coal-to-gas switch for power production in Europe (from €59/t in October 2008 to €17/t in March 2009). In all, forecasts concerning the overall balance of the market for 2008-2012 have tended towards an increase in the surplus of supply forecast in 2009 (63 Mt instead of 24 Mt²) and a slight fall in the deficit forecast for 2010-2012 (from 227 Mt to 207 Mt over the period).

² Source: Orbeo.

The decline in the price of allowances has been accentuated by the liquidity crisis that all industrial companies have had to face, and which has encouraged them to cash in their allowances to improve their cash flow. In one sense, the allowance market in its current form, plays *de facto* a contra-cyclical role by temporarily easing the financing constraints of those companies. Witness to this is the particular configuration of the spot price / future price curve: the positive gap between the latter and the spot price including cost of carry (Libor) started to widen from November 2008 to total 300 base points. This (super) contango situation reveals the existence of a priority for liquidity that requires spot sale strategies which are compensated for by futures purchases.

The depressive impact of the economic situation on the price of CO₂ should progressively wear off under the combined effect of recovery and internalisation in allowance prices of the emission rationing constraint associated with phase III of the market (2013-2020): the fungibility of allowances between periods ('banking'), which is now a feature of EU ETS, whereas it was not between phases I (2005-2007) and II (2008-2012), should indeed limit sudden variations and anchor the price-signal on a longer term horizon. However, regulatory uncertainty as to the rules which will apply in phase III (auction rates, level of benchmarks for the distribution of free allowances, which impact the number of allowances auctioned, conditions of the use of credits from flexibility mechanisms) is, for the time being, reducing the benefits of banking and slowing the dissemination of medium term anticipations on the current allowance price. However, the latter has already begun its recovery under the effect of rising oil prices since the middle of May 2009, and has now reached a level in excess of €15/t.

The proper functioning of the market can be measured against the implicit volatility of the allowance price. This increased substantially during the second half of 2008 (from 45% in August 2008 to nearly 65% in February 2009), but not more than other markets (stocks, commodities), in spite of the newness of the CO₂ market.

1.3 From 2013, auctions will become the dominant form of "creation" and allocation of CO₂ allowances in Europe, without in principle affecting the overall balance between supply and demand

Adoption of the climate and energy package in December 2008 caused a shift in paradigm concerning allowance allocation methods. An understanding of the distortions caused by the free allocation of allowances according to historic emissions gave way to a desire to rationalise the system through two major improvements: on the one hand, a reinforcement of Community common rules (European-wide emissions cap, unique benchmarks per product defined at European level, unified registry system, across-the-board rules for the use of Kyoto credits) and, on the other hand, a reduction in the portion of free allowances using the 'grandfathering' rule, replaced by benchmarking, and the concomitant growing importance of auctions.

The objective of auctioning is to contribute to increasing the efficiency of the allowance system by limiting distortions linked to free allowances, and maximising the incentive to reduce emissions, which does not only play a role at the margin (as in the case of free allowance proportionate to needs), but on the whole of production and emissions.

Electricity producers will, therefore, be required to purchase all the allowances they need at auctions in order to cover their CO₂ emissions as of 2013, which is economically

equivalent to a tax payable as of the first tonne emitted, but with possibilities of refinancing this cost on the marketplace. Other sectors in the scope of the EU ETS will benefit from a lower auction rate (20% in 2013, increasing to 70% by 2020), or even a zero rate if they are considered to be particularly exposed to risks of carbon leakage. In all, it is estimated that between 55 and 60% of allowances in the system for the year 2013 will be put up for auction (approximately 1.2 billion tonnes).

The introduction of a new source of allowance issuance in the market is in theory neutral from a point of view of the overall balance between supply and demand on the market and the allowance price. Indeed, auctions only alters the way in which allowances are initially distributed to the different players: the overall supply of allowances remains unchanged (only the way in which allowances are introduced into the market has been modified), as does demand, which is always related to the underlying CO₂ emissions.

2 Recent foreign experiments of CO₂ allowance auctions point to convergence as to the auction design

Several experiences of CO₂ allowances auctions have recently been carried out outside Europe and by certain Member States during phase II. These experiences offer insight for the organisation of auctions in France.

2.1 Experiences from outside Europe show increasing interest in the issuance of allowances through auctions and can serve as examples without being directly transposable to the European Union

The issuance of allowances against payment through auctions is progressively being put in place in the different carbon markets throughout the world. At the current time, few countries have decided on the issuance of allowances through auctions in their national market (European Union from 2013, Norway since 2008, the North American Regional Greenhouse Gas Initiative – RGGI – since 2008). However, the issuance of allowances through auctions is the medium or long term approach for certain existing systems or those currently being set up, in particular in Canada, New Zealand and the US, as part of the Waxman Bill on an American federal ETS, adopted by the Chamber of Representatives on June 26th 2009.

The States of the northeast of the US offer the most complete recent experience of the setting up of a CO₂ allowance auction system through the RGGI. The RGGI was the first American CO₂ ETS experiment, covering 10 Northern US States (Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island and Vermont). Determining the modalities of auctioning within the framework of the RGGI was the subject of an in-depth analysis and experimentation exercise. From March 2007, the New York Energy Research and Development Authority (NYSERDA) asked a research team from the University of Virginia to propose recommendations for the organisation of auctions. The report, resulting from their economic analyses and experimentation works under the supervision of Charles Holt, is the best review available to date on the processes for CO₂ allowance auctions. The report drew up a list of 16 recommendations, all of which have been applied. Box No. 1 details the main elements of this ETS, and the auctioning procedures adopted.

Box No. 1 – The organisation of RGGI auctions

The RGGI is a “cap and trade” system set up by 10 States in the northeast of the US. The agreement signed on December 20th 2005 covers electrical power generators with installed power in excess of 25 MW, according to an objective negotiated between the participating States of an annual emissions cap of 188 Mt CO₂ metric for the period 2009-2014. From that date, the constraint will evolve in linear fashion by -2.5% per year, with allowances disclosed in advance of the three periods which run through to 2018.

The operating rules for the market authorise maximum flexibility for companies until 2018, with unrestricted banking of allowances from one period to another. Allowances allocated

against payment account for 25% of the total issued (average percentage, the share of allowances issued against payment can be bigger in certain States, for example 96% for the State of New York, which represents 40% of the total volume of RGGI allowances). Offsetting (the possibility for an installation to use credits from projects reducing emissions in the country or acquired on the international market in place of RGGI allowances) is authorised, but governed by strict rules. The percentage of credits authorised increases according to the market price of allowances on the North American market, which means that these credits will play the role of a safety valve in case of an excessive increase in allowance prices, according to a system of thresholds: the limit on credit use is 3.3% if the allowance price remains under \$7, 5% if the price is between \$7 and \$10 for at least 12 months, and 10% above that.

Within the RGGI system, the main purpose of auctions is to ensure good liquidity on the primary market and access for installations covered by the system. The schedule for auctions and quantities put up for sale are decided and negotiated by all the States who, therefore, have no autonomous power in determining dates and volumes. These elements are disclosed in advance to market players (at least 45 days before the auction itself, in the form of a memo specifying the date, location, volume and conditions to be met in order to participate and, in particular, in terms of financial guarantees required). Auctions are held on a quarterly basis. Access to auctions is entirely free for any holder of an account on the registry, on condition that an application is made one month before the auction and after approval of all participating States. The format adopted is a single round sealed bid auction with allowances for sale corresponding, on the one hand, to the allowances of the year in progress, year n (from the 1st commitment period, i.e. 2009-2011) and, on the other, those of the year $n+3$ ("equivalent" year but in the 2nd commitment period - 2012-2014). The minimum size of lots is 1000 tCO₂.

Bids are ranked by decreasing order of price and uniform price rule applies. A reserve price (\$1.86 for the first auction) is calculated and announced publicly before the auction itself, without the price calculation rules being known – the price is probably fixed according to observation of prices on the secondary market and is then the result of a negotiation between the States participating in the system. The maximum percentage of allowances that a single bidder can obtain through the auction is also capped (25%), which therefore limits the market power of a single agent on the primary market. If the reserve price is not reached, unsold allowances are carried forward to the following auction.

The operations are carried out via a single electronic platform which is common to all States (World Energy Solutions, Inc.). Payment and delivery is made in the days following the auction. A bid on the platform is considered to be a contractual commitment. If a bidder refuses or is incapable of honouring a bid, the memorandum provides for a system of financial penalties levied by the States.

The monitoring of the auction process is the responsibility of an independent institution which is also responsible for the publication of the results of the auctions, which takes place immediately after the auction (within 24 hours), and specifies the volumes allocated, the final price and the distribution between spot and future allowances.

Three allowance auctions have now taken place within the RGGI (September 25th 2008, December 17th 2008 and March 3rd 2009), in a uniform price, single round sealed bid format. Analysis of the three auctions carried out by Paris-Dauphine University allows us to

draw a number of conclusions as to the efficiency of the RGGI auction procedure. Firstly, the selling objective was achieved, since all the lots were sold to bidders over the three auctions. In practice, demand was much higher than supply, with a demand/supply ratio of 2.5³.

Secondly, demand increased strongly from one auction to the next, indicating the system's capacity to attract participants to the primary market. In spite of the almost totally unhampered access to the primary market, bidders were primarily companies included in the system (78%), financial intermediaries representing 21% of purchases (the proportion is higher for futures), private individuals and non-governmental organisations representing the minority share (less than 1%).

Thirdly, price discovery was performed under proper conditions. The closing price was on average twice the reserve price. A progressive convergence of prices on the primary and secondary market over the first commitment period was observed. The observation is different, however, for the second commitment period because of the very low level of liquidity of the secondary market⁴. In the absence of a secondary market, it is indeed not surprising that the price discoverer should be the primary market. However, it should be noted that the market price of futures for vintage years at the end of the period (2012) showed a substantial discrepancy with prices observed on the secondary market on the Chicago exchange, in particular because of the uncertainty regarding the survival of the RGGI in case of coexistence with a federal market. These different empirical observations are shown in graphs 3 and 4 below.

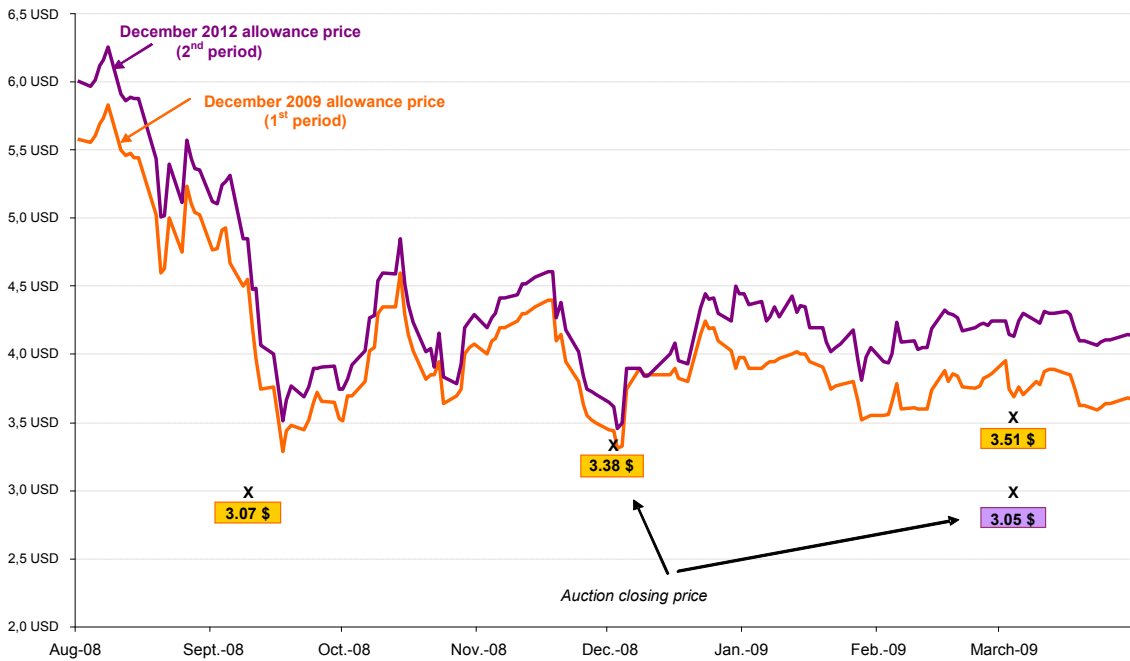
³ Average figure calculated by Paris-Dauphine University on the basis of the three first auctions. For instance, the first auction held on September 25th 2008 brought together 59 bidders whose bids totalled four times the quantity of allowances on offer. 44 of those bidders were successful.

⁴ The 31 Mt put up for auction represent 1.4 times the volume of the secondary market in 2009.

Graphs Nos. 3 and 4 – Results of the first auctions as part of the RGGI



Source: Université Paris-Dauphine



Source: University Paris-Dauphine

Interpretation of the graphs: the first graph shows auction closing price in respect of spot price trends on the secondary market and volumes of transactions on the secondary market on the same dates. There is great similarity between the closing price and the market price. The second graph shows the same information in respect of price information on the secondary market for futures (December 2012). There is a bigger discrepancy between the closing price of futures sold through auction and the price observed on the secondary market, for example \$3.05 in March 2009, compared to \$4.2 on the secondary market.

The North American experience of the RGGI is exemplary in terms of companies' access to the system and in terms of price discovery. Following observations of the first

three auctions, the RGGI experiment enables us to formulate a number of conclusions, which can feed into our reflection on the implementation of CO₂ allowance auctions in France and within the European Union.

First of all, the RGGI has the characteristic of a multi-State auction system which effectively combines a unique and centralised sale procedure and electronic platform, and the sovereignty of each State, in particular in terms of the use of the revenues from the auctions. The American RGGI indeed demonstrates the possibility of setting up an auction system which is common to several federated States, thus facilitating access to participants in the system and offering guarantees in terms of monitoring procedures. **The American authorities, therefore, considered that respecting the budgetary sovereignty of the different participating States was compatible with a single platform.**

Secondly, the RGGI shows the efficiency of an open auction system, without restriction other than certain trustee guarantees, to all market players. It also shows the efficiency of a monitoring procedure implemented by a single operator. Even if the system is open to all potential buyers, it has been empirically demonstrated that most allowances sold ended up in the hands of companies from the electricity generation sector with compliance obligations.

Thirdly, it appears that the auction format used, the setting up of a reserve price and the choice of quarterly auctions with large lots, led to price discovery on the primary market under proper conditions without any particular disruption of the secondary market – with the exception of the discrepancies observed on the futures market. The main parameters used also ensured the success of auctions for issuing States, since all allowances issued were sold during those auctions.

Therefore, it seems appropriate to take inspiration from the American experience, whilst emphasising that it could not be exactly transposed to the European Union within which a liquid secondary market is already well developed. There are limits to how much the RGGI experience can feed into our reflection on the setting up of auctions of European allowances because of the quasi-inexistence of a deep, liquid secondary market in the US. In this respect, the RGGI is more similar to the first phase of the EU ETS (2005-2007). In fact, compared to the EU ETS, the RGGI operates the other way around: auctions fulfil a proper price discovery function and create a reference with which the secondary market ends up aligning. **However, this fact does not invalidate most of the conclusions of the assessment of the auction procedure adopted by the RGGI, and, in particular, the possibility of setting up a centralised multi-State system on a single platform.**

2.2 Several allowance auction experiments have been led within the European market over the period 2008-2012: France could use these experiments to promote greater homogeneity within the European market

The European market has seen the implementation of several auction procedures by Member States through phase II. Article 10 of directive 2003/87/EC governing phase II of the ETS specified that Member States could decide on the sale of up to 5% of their national allowances under their national allocation plan in phase I (2005-2007) and 10% in phase II (2008-2012). Even though, in order to do so, certain Member States such as Germany decided to adopt direct selling procedures on the regulated market, several States chose to use an allowance auction system. Part of the reason for doing so may be to gain experience before the generalisation of auctioning as the main allowance issuance method in phase III.

Certain States also used early auction procedures. Lithuania, Hungary, Ireland, Austria and the UK have been running auctions since 2008. Denmark and Holland have announced their intention to set up auction systems, although they have not begun them to date.

As the Community legislation stands for phases I and II, Member States were entirely free to determine the way the auctions should be organised, the Commission having formulated only general recommendations⁵. Table No. 1 details the choices made by the Member States as to the main design elements of auctions.

Table No. 1 – Main characteristics of auction procedures adopted by the Member States in phases I and II

States	<i>Format</i>	<i>Price system</i>	<i>Access</i>	<i>Frequency</i>	<i>Lot size</i>	<i>Futures</i>	<i>Reserve price/ public</i>	<i>Limit on purchase</i>	<i>Non-competitive window</i>
Ireland	<i>Sealed bid single round</i>	<i>Uniform</i>	<i>Open</i>	-	<i>500/1000t</i>	<i>no</i>	<i>yes/no</i>	<i>no</i>	<i>no</i>
Hungary	<i>Sealed bid single round</i>	<i>Uniform</i>	<i>Open</i>	-	<i>1000t</i>	<i>no</i>	<i>yes/yes</i>	<i>no</i>	<i>no</i>
Lithuania	<i>Sealed bid single round</i>	<i>Uniform</i>	<i>Open</i>	-	<i>1000t</i>	<i>no</i>	<i>yes/yes</i>	<i>no</i>	<i>no</i>
Austria	<i>Sealed bid single round</i>	<i>Uniform</i>	<i>Open</i>	-	<i>4000t</i>	<i>no</i>	<i>yes/yes</i>	<i>no</i>	<i>yes</i>
UK	<i>Sealed bid single round</i>	<i>Uniform</i>	<i>Through intermediaries</i>	<i>Monthly</i>	<i>1000t</i>	<i>no</i>	<i>yes/no</i>	<i>no</i>	<i>yes</i>

Interpretation of table: the table presents a summary of the main characteristics of auction systems in Europe, without going into any technical detail. In column 3, open access indicates access to the primary market to all market players with the sole condition of having an account in the national registry and/or access to the technical auctioning platform (therefore meeting membership conditions). Column 7 indicates whether a State has decided to use a reserve price and whether it was decided to make this price public before the auction. Column 8 indicates whether a State has chosen to put a maximum limit on allowance quantities that a single bidder can acquire during an auction. Column 9 provides information on the State's decision whether or not to have a non-competitive "window", i.e. an ad hoc system reserved for small market players in parallel to the competitive auction system.

⁵ COM (2003) 830 final and COM (2006)725 final.

Comparing the choices of Member States reveals a number of common characteristics as to the organisation of these auctions. All Member States who organised auctions ruled in favour of a uniform price, single round, sealed bid format. In the same way, with the exception of the UK, all Member States authorised broad and direct access to the primary market with the only condition being holding an account in the national registry.

All these Member States also opted for a reserve price, public disclosure of the price being adopted by Hungary, Lithuania and Austria. For the time being, no Member State has decided to auction allowances of several vintage years (spot and futures), with Germany nevertheless considering doing so. Contrary to the RGGI system, no State decided to set up an acquisition limit by a single bidder within a single auction procedure. On the contrary, the decisions of the different Member States diverge on the subject of lot size and the frequency of auctions. The main reason for this lies in the very different volumes available to Member States, with some small States, therefore, choosing to auction all allowances available to them in a single operation without risking disruption of the secondary market. Similarly, two Member States (Austria and UK) decided to set up a non-competitive window reserved for players wishing to acquire small quantities without participating in the common law auction process.

The recent British experiment is the first example of auctions carried out by a Member State of a comparable size to France and differing from the choices made by the other Member States in terms of access to the primary market. The UK decided to auction 7% of all allowances issued in phase II, i.e. 86 MtCO₂. The strategic steering of the project was entrusted to the Department of Energy and Climate Change (DECC), with the Debt Management Office⁶ (DMO) being in charge of the operational implementation of auctions on account of its experience in bond auctions. The DMO in this respect is the agent of the DECC, a sharing of responsibilities which has allowed a balance between environmental policy objectives and the financial implications of the operation for the State.

The role of the British Treasury primarily involved *ex ante* preparation of the necessary legislative acts. *Ex post*, the Treasury primarily took responsibility for decisions in terms of the use of revenues from the auctions. The decision on the design of auctions and practical operational procedures was the result of a formal consultation process carried out by the Treasury in January 2008. In June 2008, the British Treasury made public the government's decision at the end of the public consultation process. Box No. 2 shows the main characteristics of the auction system used by the UK as presented to the Commission by representatives of the DECC and of the DMO.

Box No. 2: Organisation of auctions in the UK

The British auction system consists of two parts:

- a “competitive” part which uses intermediation, the strategic objectives of which are simplicity, allocative efficiency and minimisation of administrative cost. Within this framework the format used is a uniform price single round sealed auction.

The auction was only open to a limited number of “primary participants” who are the exclusive counterparties of the DMO and which act on behalf of third parties, but who can also act on their own behalf, with these two activities having to be clearly separated under

⁶ British Debt Management Office which has equivalent functions to those of the Agence France Trésor in France.

threat of criminal proceedings. Intermediation allows the DMO to externalise the verification and control of counterparties, according to standard risk analysis procedures.

Primary participants are subject to a strict selection procedure, the criteria of which are defined in a specific regulatory document. Primary participants must, therefore, pass on any bid from an ETS market player which fulfils a certain number of minimal conditions (in particular in terms of financial guarantees). The responsibility for this verification is, therefore, transferred to primary participants. The DMO is qualified to process complaints from market players who have been rejected by a primary participant. For the first two auctions, primary participants were not authorised to charge other bidders for their intermediation function. So as to minimise the 'no show' risk, primary participants may, however, require financial guarantees or a deposit in advance (which can be as much as 100%) from market players who ask them to bid on their behalf. In the end, the British Government decided to pay the intermediaries €5c per tonne of CO₂ for each bid on behalf of third parties whose bids were successful during the auction. The objective is to promote the attractiveness of the intermediate function and to stimulate competition (the DMO was targeting ten or so primary participants). After the second auction, six primary participants were chosen, primarily financial institutions, as well as companies from the energy sector (Barclays Capital; BNP Paribas; JP Morgan Securities Limited; Merrill Lynch Commodities (Europe) Limited; Morgan Stanley & Co. International PLC; RBS Sempra Commodities).

The format chosen is a uniform price, single round, sealed bid auction. The objective is to hold auctions monthly, with a schedule of auctions and volumes up for sale announced by the DMO one year in advance from 2009. The lot size is 1000 tCO₂ and a reserve price, which is kept secret, is established by the DMO before each auction (rules governing the use of non-sold allowances where the reserve price is used are not known).

The platform used for auctioning is the Bloomberg Auction System which is already used by the DMO as part of the auction framework for State issues (in this respect, participants need a licence to access the platform, which most primary participants, being banking institutions, already hold). The reason for choosing this system was, on the one hand, the DMO's experience with the tool and, on the other, the simplicity with which a secure CO₂ allowance module could be developed within a short timeframe. At the end of the auction, allocation is done via the internal DMO system – the Tender and Auction System.

Only spot allowances are auctioned. The British Government recognises that this will no doubt need to change, in particular to allow electricity suppliers to implement their hedging strategies.

The auction is open between 8am and 10am, and bidders can modify their bid throughout this period (this system was chosen to encourage bidders to bid from the beginning of the day so as to avoid the first bids being submitted at the end of the process according to the way prices evolve on the secondary market – the process tends to simplify the administration of the auction by the DMO). Bids are only submitted in electronic format so as to minimise the risk of errors occurring on account of telephone bids.

A reporting process ten minutes after closing provides the following information: closing price; demand/supply ratio; "scaling ratio" (of quantities allocated to bidders who submitted at the clearing price). This information is published on the BAS and on Reuters. A more

detailed report analysing the conditions of the auction is published one month later on the DMO's website by a private independent observer who is commissioned by the DMO. This independent observer is responsible for two main missions: verifying that the auction procedure complies with prevailing regulations and analysing its results.

The payment and delivery of allowances occurs 48 hours after the auction.

- a “non-competitive” part managed by an ad hoc institution which has no financial interest in the carbon market: in order to ensure access to the system for smaller players who have difficulties or little advantage in bidding on the primary market due to the small quantities they need, the British government has decided to set up a specific system (which has not yet been implemented and for which the rules have not yet been finalised). 30% maximum of the 87 million allowances has been set aside for this specific section.

This system is reserved for bids under 10,000 CO₂ allowances. The bidder simply specifies the quantity that s/he wishes to bid for. The price is the same as the clearing price of the previous competitive auction.

The system is to be put in place by an “administrator”, chosen after a selection procedure and whose missions are similar to those fulfilled by the primary participants (administrative and financial controls, managing deposits).

The empirical observation of results of the three British auctions (November 19th 2008, March 24th 2009 and June 4th 2009) has demonstrated the efficiency of this system. Firstly, it has allowed the issuing State to place all the CO₂ allowances issued, i.e. 4 Mt of allowances for each one. Participation in the process has also increased between the three events: the demand/supply *ratio* has notably increased between the first two auctions from 4.15 to 5.76. This intermediated auction system has resulted in a high and increasing level of participation in the auctions, in spite of the existence of a liquid secondary market in Europe which is easy to access for those involved in the carbon market. Secondly, the British auctions only led to slight disruptions on the secondary market: the closing price was slightly below the price observed on the secondary market the same day, but this gap reduced from one auction to the other, from €0.40c per tonne to €0.35c per tonne before falling to €0.16c per tonne at the third auction.

The main particularity of the British auction system lies, however, in the choice of an intermediation system for access to the primary market. Indeed, the British government preferred a system of primary participants similar to that of the French *Spécialistes en Valeur du Trésor* (treasuries bonds specialists) used for the sale of government bonds to finance public debt. The main objective of implementing this intermediation system was to allow the issuing State to limit the number of counterparties participating in the auction on the one hand, and to make primary participants responsible for the verification of the reputation and solvency of bidders on the other.

Britain's choice of using intermediation was met with reticence by some market players and, in particular, companies subject to the ETS. The British system raises the question of a risk of potential conflict of interest by giving an intermediation function to market players who also have the possibility of acting on their own account: the selection process for primary participants by the British authorities in this respect includes an in-depth examination of the separation between activities linked to auctions on their own behalf and on behalf of third

parties (in terms of human resources, geographical location and separation of information systems)⁷. Secondly, there is the practical question of the exact methodology according to which primary participants play their intermediation role (aggregation of bids, settlement-delivery contracts for a given quantity on a contractual basis between the primary participant and another market player, or others). In the British system, this choice is left to the discretion of primary participants on the basis that it does not compromise the separation of operations on their own behalf and for third parties. Finally, the British primary participant system requires incentives to be offered to ensure that these intermediaries play their role of getting the largest number of economic actors involved in the primary market.

So as to guarantee relative homogeneity within the EU ETS, it seems appropriate that the format used in France and in the European Union should be inspired by choices made by other Member States. To this end, several empirical convergence elements between Member States seem to be fully justified in respect of economic analysis.

3 Since the main objective of the auctions is the efficiency of the allocation process, economic theory and the results of empirical experiments would provide a case for single round sealed-bid uniform price auctions with a reserve price

3.1 The main objectives of auctions are the efficiency of allocation and the minimisation of financial risks for public authorities and for those participating in the auctions and, in particular, compliance buyers

The European Commission mentioned efficiency as the main objective of the auctioning of allowances. However, at this stage they do not specify the criteria for assessing the notion of efficiency, which can only, therefore, be assessed in respect of the different principles stated in the directive amending directive 2003/87/EC.

From an economic point of view, the auctions must, in the first instance, enable the allocation of allowances to those who are prepared to pay the highest price for them during the auction. Because of the existence of a liquid secondary European market, price discovery does not seem to be a priority within the European market: the secondary European market plays a price discovery role. In this respect, in fact, the European Union is in a very different position from the American RGGI where auctions play a price discovery role. For the Member States of the European Union, allowance auctioning must, therefore, seek before all else to allocate allowances to actors who attach the greatest value to them, in accordance with the principles included in the directive. From a theoretical point of view, this highest value will normally be as close as possible to the secondary market price, potentially with a slight price gap depending on the secondary market's capacity to absorb allowances. Since the

⁷ The breach of this obligation for separation between activities is subject to specific criminal measures. In practice, the need for primary participants to distinguish between operations on their own behalf and for third parties can also have the disadvantage of requiring modifications to the auction procedure: in the British system, constraints are imposed on indirect bidders in terms of the timelines allowed for the submission of a purchase bid. Indeed, they are penalised compared to intermediaries (primary participants), to the extent that the latter can issue their bids on their own behalf until the closing time of the auction, whilst the window open to indirect bidders to enter their bids stops earlier. There are, however, practical reasons for this asymmetric approach, linked to the function of aggregator of multiple offers that primary participants fulfil.

main objective of the auction is allocative efficiency, one of the major criteria for the success of these auctions will be the ratio between the volume of bids and the volume sold (cover ratio), which is particularly dependent on the level of participation in the auction. Therefore, the auction procedure must be attractive for potential participants to prevent them from choosing to purchase allowances on the secondary market.

The auction process must also minimise financial risks for the issuing public authorities. The form of auction chosen must, therefore, limit risks of non-placement of all volumes put up for sale, or failure to reach the highest value during the auction. In this respect, it is crucial to ensure that the closing price is at the same level as the market price at the time of the auction. Indeed, this is a key element for assessing the success of an auction for public authorities.

RECOMMENDATION No. 1: The guiding principles of any auction procedure should be to ensure an efficient allocation of allowances and to minimise financial losses for the auctioneer and for participants, especially those with compliance requirements under the ETS.

3.2 Several criteria must preside over the choice of the auction format: in particular, the auction must avoid creating disruptions on the secondary market

The type of auction chosen must prevent disruption on the secondary market, for example by increasing price volatility. Convergence with secondary market prices is, therefore, one of the criteria by which the success of the auction will be judged. However, in the European context it is important to remember that it is the secondary market which must guide the primary market and not the reverse. Indeed, auctioning is a mechanism for the distribution of allowances which are then redistributed to the different players through the market.

In parallel, other criteria must be taken into consideration. Firstly, it seems crucial that the choice of auction procedure leads to minimising costs for all actors involved in the auction, i.e. issuing public authorities and bidders. In this respect it is important to ensure that the mechanism is simple, which is also a guarantee of broad participation, which in turn is a condition of the success of the operation for public authorities. The system used must also be implemented under fair and transparent conditions with equal access for all potential participants, guaranteeing in particular access to small companies. Secondly, the efficiency of the auctioning system must also be judged on the basis of its robustness and its ability to restrict collusive behaviour and potential market manipulation.

RECOMMENDATION No. 2: The auctioning procedure should be designed according to two main criteria in accordance with the abovementioned goals: keep the impact of auctions on the secondary market as low as possible; prevent against market manipulations, while minimising operational costs for all participants to the auction.

3.3 With respect to these objectives, economic theory does not provide sufficient guidance as regards the most suitable auction procedure for CO₂ allowances

From a theoretical point of view, under certain restrictive conditions, all auction procedures are equivalent. Thus, they all allow an efficient allowance procedure and mathematically come down to the same revenue expectation. This theoretical observation can only be verified under three restrictive theoretical hypotheses: the uniqueness of the object being auctioned; bidders being risk neutral; perfect symmetry and independence of valuations of auction participants.

Outside these theoretical conditions, the different auction formats produce very different results in respect of the principles identified, in particular, on account of the strategies adopted by the different players. They result, in fact, in agents formulating strategic bids during the auction, which do not strictly correspond to the value that they attach to the object.

Risks as to the selection of auction procedure should not be underestimated, both in terms of allocation and revenue expectation for public authorities. Several examples of auctions show that the choice of procedure is crucial. Box No. 3 presents a detailed example of the auctioning of UMTS (Universal Mobile Telecommunications System) licences within the European Union.

Box No. 3 - An example of auctions with ambiguous results: the auctioning of UMTS licences within the European Union

The organisation of UMTS licences auctions in Europe is a topical case of non-coordination which promoted non-cooperative behaviour between players and the adoption of strategic behaviour by bidders. It should be noted that auctioning was not chosen as the only form of allocation within the European Union; certain Member States, including France, preferred to adopt comparative tender systems. Table no. 2 outlines the results of the main countries which used auctioning.

Table No. 2 – Results of UMTS licences auctions in the European Union

Country	Date	Mechanism used	Number of licences	Overall amount (€ billion)
United Kingdom	April 2000	Auction	5 (4)	38
Holland	July 2000	Auction	5 (5)	2.7
Germany	July 2000	Auction	6 (4)	50
Italy	August 2000	Mixed	5 (4)	12.2
Belgium	March 2001	Auction	4 (3), but 3 allocated	0.45 for the 3 licences

Source: DGTPE

From the isolated example of the British auction, the operation was undoubtedly a success in terms of financial gain for the State compared to the relative incomes that the other States were subsequently able to make. However, it is possible that the counterpart of this success was a substantial decrease in income for the bidders who may have had to pay a higher price

than the intrinsic value of the licences. The format used for the British auction in March 2000 also explains the high level of income for the State, i.e. a simultaneous multiple-round ascending open auction. In all, five licences were being auctioned, one of which, however, was reserved for a new entrant. The British auction attracted 13 participants who were only allowed to bid for one licence at a time, and were forbidden from modifying a bid if another bidder had not placed a higher bid. The German auction also maximised profits for the State, but more because of the aggressive behaviour of one operator, in this case the historical operator, during the bid than as a result of the type of auction used. The type used was relatively complex because the participants could make up their licences by choosing the number of MHz that they wanted, either 2 blocks of frequencies, i.e. 20 MHz, or 3 blocks of frequencies, i.e. 30 MHz. Under this scheme, the historical operator made prices go up in order to force the small operators out of the market.

At European level, the conclusion is that a sequential organisation of auctions over time promoted predation and collusion, resulting in a maximisation of revenues for Member States who were able to organise an auction before the others, particularly in the absence of a reserve price. In fact, this method resulted in maximising revenues for the first State that organised an auction, i.e. the UK, raising €38 billion for five licences (i.e. €630 per head). Conversely, in the Member States that organised the last auctions, the revenue per head from auctions was very much lower, i.e. €43 per head in Belgium.

However, these very different results between Member States are also due to the characteristic of the item being put up for sale, since the licences are not strictly fungible and substitutable from one Member State to another.

On the two principles of allocative efficiency and minimisation of financial risks, economic theory can only provide partial solutions as to the format of allowances auctions to be chosen, on account of the complexity of strategies and the existence of multiple equilibriums. In respect of economic theory on auctions, emission permits auctions do, indeed, show several specific characteristics.

Firstly, they are multi-unitary auctions in which purchasers announce price/quantity demand curves. Whilst economic theory can clearly rank procedures in the case of the sale of a single object or several objects when demand is unitary, there is no complete theoretical analysis allowing a non-ambiguous ranking of procedures when purchasers may acquire different quantities depending on price. In this respect then, there is no explicit theoretical expression of strategies and revenue expectations for multi-unitary auctions as is the case with CO₂ allowances.

Secondly, the value of allowances is a composite value which includes purely private elements (abatement costs of each operator) and elements which are common to all players (such as the resale price of the “primary” allowance on the secondary market). The auctioning of allowances must, therefore, be designed in such a way as to take the general characteristics of allowances into account.

Thirdly, for each auction, supply is fixed and demand is a decreasing function of price. Therefore, the context is close to that of the sale of public debt bonds. However, these are typically common value assets, whereas the marginal cost of reducing pollution may vary from one company to another.

3.4 The appropriate format with respect to the abovementioned criteria is the single round sealed bid auction

An auction can take three main forms, irrespective of the final price paid by the bidders:

- Single round, sealed bid auction: participants submit their bids in a sealed envelope once and for all. The bids, which are submitted confidentially, are aggregated to form a demand curve. The intersection of the aggregated demand curve with the “vertical” supply curve determines the clearing price. Bids at a lower price are not served and bids at the clearing price level will be scaled, up to the limit of the overall supply.
- Multiple-round ascending auction: contrary to the previous procedure, this is an iterative process of equilibrium price discovery and acquisition of information on competitors’ valuations. The organising authority displays a sequence of rising prices at regular intervals: bidders adjust the quantities desired according to these prices, with the option of capping the quantity demanded during each round at the volume demanded in the previous round (in order to “activate” demand). At each stage, each purchaser submits a demand curve and the organising authority calculates a temporary clearing price. The procedure stops when no purchaser wishes to modify their position, thus producing the final clearing price. A rule prevents buyers from submitting proposals after the others have disclosed their information. There are three elements: firstly, all bids must be submitted at the initial stage (the total quantity bid for can only decline subsequently). Secondly, any losing bid which is not improved in the following round is definitively rejected. Thirdly, the improved bid must exceed the clearing price at least by the minimum gap.
- Electronic ascending auction: in this procedure, a “clock” indicates the current price and, at each stage, purchasers announce the quantities desired. If demand exceeds supply, the announced price increases. The procedure stops when the demand is lower than or equal to supply. The main difference compared to the previous procedure is the ease of organisation: in fact, bidders only propose a quantity and not a demand curve, which limits the capacity of players to adopt a signaling strategy.

The main advantage of the single round sealed bid format is that it minimises the risk of collusion, since participants cannot engage in collusive strategies according to prices revealed by other bidders, nor can they use their bids as signals to other purchasers. Being easier for the public authorities to set up, the single round sealed bidding system is also a means of maximising participation in the auction, since the result is less uncertain⁸.

It should also be noted that single round sealed bid auctions are easier to access for bidders who are not specialists in the market and in auction operations, which is the case of a large

⁸ Uncertainty on bids made by other bidders, combined with the desire to arrive at a moderate price, can lead to a major participant not making a bid as high as s/he might have done in the case of an ascending auction, which leaves the opportunity for smaller participants to win who, in other circumstances, would never have been able to win an ascending auction.

number of compliance participants. **The single round sealed bid format does, however, limit the capacity of the auction to effectively reveal prices.**

Conversely, the main advantage of dynamic auction formats in which information on the value of allowances is communicated at each stage, is that it allows better price discovery. The dynamic bidding system informs bidders as to the demand from others at each round and, therefore, allows them to determine their bids according to this information. The usefulness of the information transmitted will depend on the existence of a liquid secondary market. The importance of information acquisition is linked to the dispersion of anticipation as to the future value of assets on the secondary market.

Against this, a dynamic bidding system offers fewer guarantees in terms of collusion, and brings with it a more expensive and more complex management cost for the issuing public authorities. Arbitration between the capacity to promote price discovery and sensitivity to collusion is very closely linked to the nature of the information transmitted in the ascending auction. It may concern price only, but it can also concern the excess demand, the number of competitors remaining in the race and even the bids transmitted. The more detailed information is announced, the greater the possibility of stable coalitions emerging.

The choice between the two procedures is, therefore, the result of arbitration between the format which minimises the risk of collusion (single round sealed auction) and the format which maximises results in terms of price discovery (multiple round ascending auction).

Experiments carried out before the decision to opt for one or the other solution in existing systems are, however, not convergent, and do not allow the identified objectives to be met with any degree of certainty. In this respect, whilst experiments have shown that the written auction results in greater revenues and efficiency than the oral auction due to tacit or explicit collusion that appears in the latter case, other results obtained in recent studies suggest different results.

Box No. 4 – Results of auction experiments from around the world

Auctions for the allocation of allowances are multi-unitary auctions in which bidders seek to obtain a certain number of allowances. Current procedures are subject to the phenomenon of reduction in demand demonstrated by Ausubel and Cramton (1998) and in general there are many points of equilibrium which make theoretical forecasting of the results of an auction in terms of distribution of allowances or in terms of price impossible. Given this impossibility of ranking procedures on the basis of theoretical analysis, American institutions that have set up their own auctions have based their choice on prior experimentation.

Concerning NO_x (nitrogen oxide), Virginia asked D. Porter, S. Rassenti, W. Strobe, V. Smith and A. Winn (2009) to test the different allowance attribution procedures for different vintage years. Laboratory experiments carried out showed the superiority in terms of revenues of electronic clock uniform auction over discriminatory written auction, with the two types of mechanism, however, allowing the same degree of allocation efficiency (95%). However, the authors did not test the uniform written auction in comparison with the electronic format.

As part of the setting up of the RGGI, Ch. Holt, W. Shobe, D. Burtraw, K. Palmer and J. Goere (2007) carried out a large number of laboratory experiments targeting all possible

mechanisms whereby they compared their results with a Walrasian equilibrium. The allocation efficiency of a procedure is assessed in relation to the ratio between the value of allowances allocated by the auction and the maximum value of allowances which would have been allocated in the case of a competitive equilibrium with complete information. These experiments were carried out with undergraduate students at Virginia University. Five types of auctions were the subject of simple experiments in the first stage, without a spot market or structural conditions designed to facilitate collusion or prevent price discovery:

- *uniform discriminatory sealed bid auctions in which buyers can submit several bids at different prices. When Q permits are to be allocated, the Q highest proposals are used. In a discriminatory auction, the prices paid are equal to the bids. In the uniform auction, the price paid is the same for all allowances and equal to the first rejected bid.*
- *the ascending English auction (clock auction), in which a rising sequence of prices is announced. At each price level, bidders announce the quantity that they desire and the price increases as long as Q^* demand is higher than Q supply. The bid stops when demand falls below or is equal to Q and the price paid is the same for all allowances. If $Q^* < Q$, either the price is reduced by one increment and Q units are allocated on a rationing basis, or the higher price is chosen if it increases income, but on the understanding that there will be allowances which are not sold.*
- *the English clock auction combined with a final bidding stage under discriminatory sealed bids (Anglo-Dutch auction). The clock auction stops when demand reaches a fraction $(1+x)$ of the quantities to be allocated and bidders can submit final quantity-price bids through a discriminatory procedure, with the final stage being designed to reduce collusion and strategic manipulation.*
- *the discriminatory descending “Dutch auction”, in which the price starts at a high level and is sequentially reduced. At each price level, a bidder can block a certain number of allowances. The decreasing sequence stops when the number of allowances blocked is higher than or equal to Q , with ties in the final round being resolved by a specific rationing rule (in this case, the moment when the quantities have been transmitted).*

The first three types of auctions were then the subject of experiments with a richer informational and strategic environment, reproducing the characteristics of the emission allowance market: regular repetition of auctions, stable production conditions which may promote collusion, the existence of a spot market, the possibility of banking allowances and periodical compliance, and authorising prior communication between the bidders.

The results of this second series of experiments were that uniform price and discriminatory auctions result in higher revenues than the English clock auction, with or without communication. The last procedure also seems more subject to collusion due to its sequential structure and the fact that bidders only have to collude on a single variable, which is quantity, and not on a pair of variables (price and quantity).⁹

The authors’ recommendation is, therefore, to opt for a uniform price auction because of its simplicity, transparency and low loss of efficiency in relation to the Walrasian equilibrium. The single round written form, which is less susceptible to collusion, is recommended, with

⁹ Cf. Burtraw, Goere, Holt, Myers, Palmer and Shobe (2009), “Collusion in Auctions for Emission Permits: An Experimental Analysis, working paper”.

experiments having shown that the clock auction does not give the best results in terms of price discovery and was more susceptible to collusion because of the possibility of signalling in the first stages. They also propose choosing separate auctions for permits from different vintage years. Similar results were obtained by Porter and Vragov (2006) which showed a greater reduction in demand in oral auctions because bidders rapidly understood that it was in their interest to adopt this strategy in an ascending auction procedure whilst, in a written auction, greater uncertainty leads to a smaller reduction.

This proposal by Holt et al. (2007) was criticised by P. Cramton (2007) who recommends the use of simultaneous uniform ascending auctions for different vintage years so as to allow bidders to adjust their different bids at each stage according to demand excesses observed (whilst in the written auction, buyers who have to submit their curve once and for all have to guess what competitors' demands will be). Furthermore, he proposes introducing intra-stage bids for intermediary prices between the starting bid and the end bid of each stage so as to improve the expression of bidders' preferences without requiring too many stages. P. Cramton's position is, however, based on an a priori rejection of the existence of collusion in the ascending auction; whereas, in fact, the experimental works of Burtraw et al. (2009) seem to show a high sensitivity to collusion for electronic clock ascending auctions. These authors conclude that, in the absence of communication between buyers, the only significant result of their experiment is the superiority of the uniform written auction over the electronic clock ascending auction.

In France, a series of experiments has been led by A. Delbosq (CDC), M. Mougeot (CRESE), F. Naegelen (CRESE) and J.L. Rulliere (GATE) as part of a programme financed by Caisse des Dépôts's Mission Climat. The protocol used establishes three significant differences from the work of Burtraw et al. (2009)

- comparison between contextualised subjects and students (the most widely used case being to use just the students);
- introduction, by instant messaging which supports collusion in the auction, of information on the type of participant ("Coalsupplier", "Gas supplier" or "Banker") to reinforce the credibility of the messages exchanged;
- presence in one instance of "Bankers" who may only make profits by buying permits (either at the auctions or on the spot market) to sell them at a higher price on the spot market. This mechanism was set up to determine the extent to which the speculative behaviour of "bankers" breaks the collusion observed in trading without bankers (only between big or small emitting industrials). Furthermore, there is a real question regarding the advisability of authorising agents without compliance obligations to participate in allowance auctions.

The first results obtained do not contradict those of Burtraw et al. (2009), but supplement them. They have led the authors to draw the following conclusions¹⁰ on the robustness of collusion in auctions:

- collusion is greater in oral (simultaneous) auctions, given the temporal information exchange process which, by nature, is more substantial than in sealed bid auctions;
- in the system **without** bankers, the spot market seems to play more a role of coordination between the two types of industrials than a means of speculation open to industrials. Competition between the two types of industrials is not sufficiently strong to break collusion between them if there are no bankers;

¹⁰ The conclusions which follow are the responsibility of the authors of the experiments, and are, therefore, not the responsibility of the whole of our workgroup.

- in the system **with** bankers, the speculative behaviour of bankers is obvious. In auctions, the interest of bankers is normally close to that of the industrials, since low auction prices subsequently mean better speculation opportunities on the spot market on the one hand, and ensures lower operating costs for industrial units on the other. However, auction prices are significantly higher in the system **with** bankers than **without** bankers, which tends to show that the presence of bankers breaks this collusion.

Table No. 3 presents a summary of the contributions of economic theory on the comparative benefits of the different formats of CO₂ allowance auctions according to three main criteria.

Table No. 3 – Comparative advantages of bidding formats in respect of the defined objectives

Auction format	Maximisation of allocative efficiency	Minimisation of financial risks for the issuer	Minimises risks of collusion	Allows better price discovery
<i>Single round sealed</i>	++	++	++	-
<i>Ascending</i>	+	-	-	+
<i>Electronic clock ascending</i>	-	+	+	++

Interpretation of the table: the sign ++ designates the format which maximises the result identified in the first line of the table in relation to the other formats. The sign - designates the format which minimises the same result. The + sign designates the format which presents an intermediary situation in relation to the previous two.

The contributions of economic theory and the differentiated results of these experiments must be put into the context of the European market. Indeed, when there is a liquid secondary market which can effectively reveal prices, an ascending auction loses some of its attractiveness. In this context, using a single round sealed auction would limit risks of collusion, thereby guaranteeing better allocative efficiency; and maximise revenues from auctions for the public authorities. The simplicity of the mechanism would also tend to encourage market players to participate more in the primary market.

RECOMMENDATION No. 3: Opt for a single round sealed auction format.

3.5 The closing price of the auction should be uniform

The final price of an auction can take three forms, in spite of the choice made as to format:

- Discriminatory price: each actor pays the price s/he has bid for each allowance obtained.
- Uniform price: each actor obtaining allowances pays the equilibrium price corresponding to the intersection of aggregate demand submitted and fixed supply or a price equal to the highest offer rejected.

- The Vickrey price: each purchaser obtaining allowances pays a price determined according to the Vickrey-Clarke-Groves mechanism, i.e. a price which is equal to the opportunity cost of its bid (the value of assets that others do not obtain on account of its presence).

The price system chosen will strongly guide the strategic behaviour of players and has consequences in terms of allocative efficiency. The choice of using one or other of the price systems must, therefore, be made in respect of the objective of allocating allowances to actors who attribute the greatest value to them, i.e. the price system which allows real demand curves to be announced by bidders, irrespective of strategic behaviour.

In a uniform system, since the buyer pays the equilibrium price for the allowance, the bidder will under-evaluate the lowest prices bid in order to influence this equilibrium price. Buyers, therefore, have an optimal strategy which involves announcing their real reservation price for the first unit, but reducing their price for the following ones. The logic of reduced demand corresponds to that of an optimal strategy for a monopsony for which the quantity sold is determined by the intersection of the marginal expenditure function with supply: buying greater quantities will not only involve paying more for the marginal quantities, but also for all infra-marginal units as well.

A uniform price system is, therefore, subject to a risk of declining demand, which will harm the allocative efficiency of the auction. The risk of reducing demand is, however, greatly reduced if there is low market power in the hands of a limited number of auction participants.

A discriminatory pricing system results in bidders underestimating supply at every price level, since in the end the buyer will pay the price s/he announced. If a price is paid for each unit obtained, revealing the reservation price cannot be a dominant strategy. Indeed, at the end of the auction, the winners will observe that they could have obtained allowances at a lower price. In order to avoid paying the higher price for quantities corresponding to the higher part of their demand curve, buyers will seek to guess the equilibrium price between supply and demand in order to bid at a slightly higher level.

Discriminatory price auction, therefore, seems incompatible with the objective of allocative efficiency, since it exposes bidders to a strategic risk, in particular those actors who are not able to anticipate the closing price. Reduction in demand will, therefore, concern all units requested, hence inefficient allocation once again. In parallel, the discriminatory pricing system raises another problem which is the emergence of a multitude of prices, which does not allow a unique price discovery for CO₂ allowances on the primary market.

In the Vickrey auction, because each actor has to transmit a demand curve which is equivalent to his/her real demand, the dominant strategy of each is to reveal that demand, with any deviation reducing the probability of obtaining allowances without modifying the price paid. In the end, only the Vickrey auction results in the announcement of the real demand curve being the dominant strategy adopted by actors: in this auction format, allowances are, therefore, allocated to those who attribute the highest price to them.

However, it would seem that the Vickrey price, although the most pertinent from an economic point of view, will not be chosen as it has a characteristic which is incompatible with the need to have a clear price signal on the market reflecting the cost of carbon. Indeed, like the

discriminatory pricing system, the Vickrey mechanism implies that there could be different prices paid for allowances.

In terms of minimising financial risk for the issuing public authorities, the price format chosen is indifferent. On the face of it, a uniform price auction could result in lower revenues for the seller. This first approach, however, does not take the different strategies adopted by participants in the auction into account. Thus, in the case of a discriminatory price auction, the bidders have a strong incentive to reduce their offer. In a uniform price system, bidders will only reduce their supply if they feel that this would influence the equilibrium price on the market. In this case, differences in revenues between the two systems depend on the distribution of value attributed by buyers to the goods sold, their auctioning experience and information available to them.

In respect of the contributions of economic theory, the uniform price system would, therefore, be the better choice. The inefficiency associated with it is, in fact, less in the case of weaker market power. The uniform price system also has the advantage of producing a single price for carbon, providing an indirect signal of the cost of abatement, so as to better guide the technological decisions of companies subject to compliance obligation.. The uniform price system will also promote the participation of small companies due to its simplicity and because the strategic risk associated with it is less for minor market players than the discriminatory price system. However, this argument loses some value in the case of a liquid secondary market which in all cases will lead to small market players purchasing the allowances they need. Finally, in the absence of strong market power, the risk of inefficiency in terms of maximisation of income seems weak, since a small number of actors will not be able to influence the reduction in the equilibrium price.

RECOMMENDATION No. 4: Opt for the uniform closing price rule.

3.6 So as to address the risk of primary market dysfunction, a reserve price could be introduced which would be calculated on the basis of price evolution on the secondary market

A reserve price policy could improve the functioning of the market and minimise the financial risk of the auction for the public authorities. The reserve price is a price established by the seller below which the sale cannot take place. A reserve price can, therefore, be a means of ensuring a permanent price signal so as to promote low carbon investments for companies subject to the ETS. The reserve price can also have an advantage in terms of limiting the inefficiency of auctions. Firstly, it will limit the risks on the revenue for public authorities in the case where the auction results in a price which is too low compared to the reference value provided by the secondary market (especially in the case where the number of bidders is limited, when asymmetry is too great between purchasers preventing the emergence of an equilibrium price, or in cases of unexpected dip in a context of high price volatility). In this case the reserve price is a guarantee in terms of minimising financial risks for public authorities.

Secondly, a reserve price policy can also reduce the risk of tacit or explicit collusion by reducing the profitability of collusive behaviour: indeed, it would limit the benefits for players adopting collusive strategies so as to play “against” the issuing State during the auction.

The setting up of a reserve price may, however, constitute a form of public intervention which would have consequences on the operation of the market. Indeed, fixing a reserve price basically comes down to public authorities providing an estimate of the value of the allowance which it deems pertinent. Since the market for CO₂ allowances is fundamentally governed by free price fluctuations, a reserve price policy may seem inconsistent with the choice of the market as an economic instrument. Thus, it seems important to use a reserve price should the primary market prove to be obviously dysfunctional, for example to limit the effects of collusive behaviour or to react in the case of an exceptional event which impacts the functioning of the market. The decision to use a reserve price should, therefore, be fundamentally dependent upon the state of the market. As things stand, it is, therefore, not recommended to exclude the use of this instrument, but to reserve the possibility of its use for the public authorities. Furthermore, using this instrument should in any event be the subject of a coordinated decision at Community level for phase III, and harmonised reserve price fixing procedures to avoid any destabilisation of the auction system by giving out inconsistent price signals.

If, however, such a decision were to be made, setting up a reserve price would entail several risks. First of all, the reserve price system can stand in the way of achieving the objective of auctioning all the allowances up for sale. Then, the reserve price may guide bidder behaviour downwards, minimising the final revenue for the public authorities. Finally, the reserve price may lead to greater volatility on the secondary market.

The risks associated with the reserve price do, however, fundamentally depend upon how it is calculated and how it is used by the public authorities. In this respect, the essential criterion for an efficient reserve price policy is its credibility: participants in the auction must not anticipate that the public authorities are about to modify the reserve price during the auction. If the opposite is true, this situation would have a profound impact on the strategic behaviour adopted during the auction.

- **The setting up of a reserve price raises the question of its level**

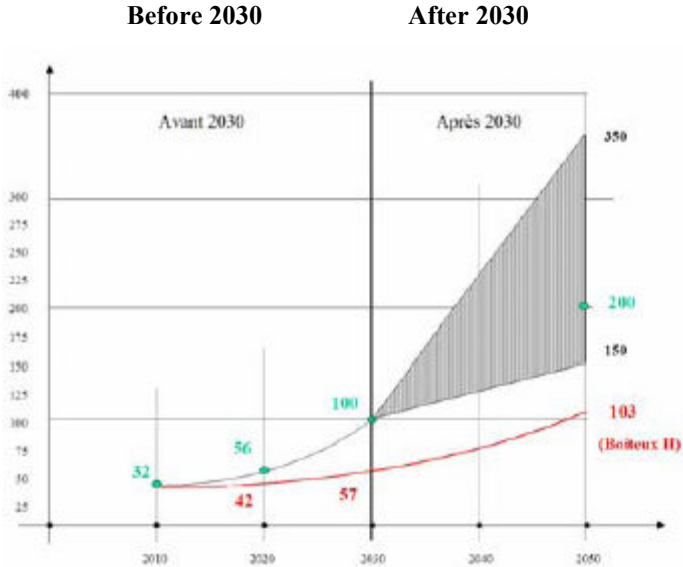
Several methods for calculating a reserve price can be envisaged.

The first would consist in establishing a reserve price so as to maintain a minimum rate of reduction of emissions and thus preserve the incentive to invest in new technologies. In this case, the reserve price would not be directly linked to the secondary market price, but would rise at a constant rate. The reserve price would, therefore, be directly determined according to the value attributed to carbon by the public authorities. In the case of France, this question hails directly to the works of the Quinet Commission on the tutelary value of carbon in France, the so called “tutelary approach”, since the monetary value recommended is not a direct result of observing market prices but the result of a decision by the State on the basis of a concerted assessment of the commitment of France and Europe to the fight climate change.

The tutelary value of carbon was defined by using a cost-efficiency approach, i.e. determining a price for carbon which allows political emission reduction objectives to be met in France and Europe. The method is different from the cost/advantage approach, i.e. equalisation of marginal abatement of one tonne of CO₂, and the discounted sum of marginal future damages caused by one tonne of CO₂ emitted today. From 2030, the tutelary value of a tonne of CO₂ has been set at €100 as a result of the commission’s works. After 2030, this value of €100 will increase at the public discount rate. This evolution rule, which is similar to the Hotelling rule for the optimal use of exhaustible resources, is a rule designed to preserve the future. It

guarantees that the discounted price of a limited resource remains constant over time and is not “squashed” as a result of discounting. An annual growth rate for the value of carbon of 4% has been adopted. With these hypotheses, the value of carbon increases from €100 per tonne of CO₂ in 2030 to €200 per tonne in 2050. The evolution of the tutelary value in France between 2010 and 2050 is shown in graph No. 5.

Graph No. 5 – The statutory value of carbon in France



Source: Centre d’analyse stratégique (CAS), rapport 2008 “La valeur tutelary du carbone”

Interpretation of the graph: the tutelary value is fixed at €100 per tonne in 2030. Between 2010 and 2030, we use the value defined in the BOITEUX report, i.e. €32 to reach the pivot value of €100 in 2030. This scenario is different from the Hotelling rule at the beginning of the period, so as to promote a progressive catch up towards the €100 value mark in 2030. It is based on the idea that the transition towards a high carbon price must be progressive, so as to promote the use of low cost abatement options available today and not affect economic growth. After 2030, the tutelary value will increase at the public discount rate to reach a value of €200 by 2050. The area of values shown in grey between 2030 and 2050 corresponds to uncertainty, which will depend, for instance, on the development of technologies or the implementation of ambitious international agreements to reduce emissions.

Basing the reserve price on the tutelary value of carbon defined in France does, however, raise a number of issues. The tutelary value of carbon may be used through economic instruments. However, determining the reserve price and its evolution in phase III strictly according to the tutelary value of carbon would present the risk of disconnecting it from market realities, which vary according to the trends in economic fundamentals and, in particular, economic activity and the relative prices of fossil fuels. Furthermore, it would seem risky to adopt this principle when the total volume of allowances put up for auction within the European Union in phase III is not yet known, since it depends on the rules for the distribution of free allowances, which are currently being negotiated in the comitology procedure. Finally, proposing the use of such an instrument developed only in France and in certain Scandinavian countries (Sweden and Denmark) within the European Union, also risks raising problems in the perspective of building a European consensus.

The second consists in determining the reserve price according to the prices observed on the secondary market. In this configuration, the reserve price would be fixed at a level which is close to but slightly lower than the expected equilibrium price, which itself would likely have to be close to the allowance price on the secondary market. The method used to calculate the reserve price would, therefore, consist in defining a procedure for selecting the reference market price and to apply a discount (retaining the objective of an equilibrium price on the primary market which is exactly the same as the market price observed on the secondary market would seem illusory and would run the risk of causing the auction to fail). The reference market price can be defined based on the closing price on a reference exchange at a given date, or in reference to an average of prices observed over a period of time. In the RGGI, the Holt report advised, for example, taking the average price on the spot market for the month preceding the sale as the basis for calculation. Within the European Union, in phase I, Hungary established a reserve price at 85% of the closing price of the over-the-counter contract announced by *Point Carbon* the day before the auction when it held its first auction, used the same procedure for the second but referred to the closing price on a future contract (85% of the closing price of the previous day for contracts with deadlines in December 2007). Lithuania adopted the same calculation procedure. More recently, in phase II, Austria defined the reserve price as 90% of the lowest closing price recorded on BlueNext from January to February 2009.

Fixing the reserve price according to the market price observed on the secondary market with a discount is not completely without disadvantages but could, however, be recommended. Indeed, the benefits of a reserve price based on the market price can appear limited because of the nearness of the two prices: one of the weaknesses of this calculation method is that the reserve price loses its usefulness if the allowance price on the secondary market becomes very low. In this respect, one solution would be also to fix an absolute reference price (the reserve price is a function of a percentage of the market price and cannot fall below a reference expressed in euros).

However, calculating the reserve price in relation to the market price does have a number of important advantages. It minimises the financial risk for the public authorities by making direct reference to a known value on the market. It also constitutes a guarantee to limit volatility on the secondary market. Whilst this method would allow using a price which is very close to the secondary market, it is, however, subject to price manipulation on the secondary market on the day of the auction. **The reserve price could, therefore, be established on the basis of a percentage of the average price for a previous period and adjusted with a variable chosen at the public authorities' discretion.**

- **The reserve price could be made public by the authorities or kept secret.**

This is a strategically important question as to the issuing public authorities' use of the reserve price. Three formats are indeed possible: keeping the price secret throughout the procedure; making the reserve price public prior to the auction; revealing the reserve price after the auction.

Keeping the reserve price secret has advantages in terms of limiting collusive behaviour, and would be a guarantee for minor market players faced with the risk of collusion strategies.

Numerous arguments, however, would support the announcement of a reserve price before the auction. In particular, making the reserve price public is a better guarantee in

terms of limiting price volatility on the secondary market, allowing market players to fix their bids. More importantly, keeping the reserve price secret seems somewhat naïve. Indeed, if the seller determines the price on the basis of a predetermined rule (like the secondary market price for a given period plus a discount), primary market participants would probably soon guess the basis of this rule after several auction operations. The same applies to the hypothesis where the public authorities would use a random method for fixing the reserve price (random selection within a given target price range): the auction participants could deduct the probability distribution used for fixing the price. In terms of maximising revenue from auctions, a public reserve price may also seem preferable: keeping the price secret indeed presents a risk of market players anticipating reserve price modifications during the auction. If this is the case, bidders would take this element into account by proposing bids which are lower than the value that they actually attribute to CO₂ allowances. Finally, a secret reserve price could be a barrier to participation on the primary market, resulting in a reduction in demand for allowances during auctions.

In conclusion, given the form of auction chosen and the broad participation of market actors being certain, revealing the reserve price prior to the auction would seem to be the best solution.

- **Setting up a reserve price finally implies determining a rule as to the use of unsold allowances.**

Using a reserve price implies forecasting ways of managing unsold lots, i.e. lots that have not found a purchaser because of bids being lower than the reserve price. Several possibilities emerge. The first would be a straightforward withdrawal of allowances from the market. This option would necessarily result in a hardening of the carbon constraint for all companies subject to it and, therefore, would appear neither justified from an economic point of view nor legally compatible with current Community provisions.

Another option would be to use an automatic rule for carrying forward onto the primary market those allowances which are not sold to the next auction. In terms of maximising incomes for the public authorities, the risk of this option would be to artificially increase supply for the next auction, which would result in a reduction in price on the primary market and could disrupt the secondary market because of greater quantities of supply. A third option would be to carry forward unsold lots from the auction to a subsequent auction operation and make it an element of price regulation. In the RGGI, the Holt report thus proposed that unsold allowances could be placed in a reserve fund and only offered up for sale if subsequent auctions closed above a predetermined level. This fund would limit excessive upward fluctuations of prices. This possibility falls within the American logic of limiting the cost of carbon for companies: it attenuates the cost of anticipative errors for companies which have underestimated their needs at a given time by re-injecting allowances when demand rises. In the same perspective, **the transfer of allowances to a subsequent auction operation could also be decided according to price trends observed on the secondary market so as to make it an instrument to limit volatility.** This solution has obvious advantages, but would, however, require to determine clearly how it is applied so as to make it known to market players in a transparent manner.

RECOMMENDATION No. 5: Keep the door open for a reserve price, depending on the state of the market with regard to potential disruptions. Should a reserve price be retained,

its level should be linked to the secondary market prices. The reserve price should be publicised ahead of the auctions. Unsold allowances should be rolled into the “pot” of a next auction, depending on price developments on the primary and secondary markets.

4 The frequency of auctions during the year should be high in phase III: schedule and volumes should be subject to prior communication and should only be modifiable under exceptional circumstances

The frequency of auctions and volumes sold have important implications for the results of the auctions. The two issues are linked: a balance must be found between the number of auctions and the number of allowances offered for sale at each auction to limit administrative costs for the public authorities and transaction costs for participants. Choices in terms of volumes and the frequency of auctions are also strongly dependent on the liquidity of the secondary market.

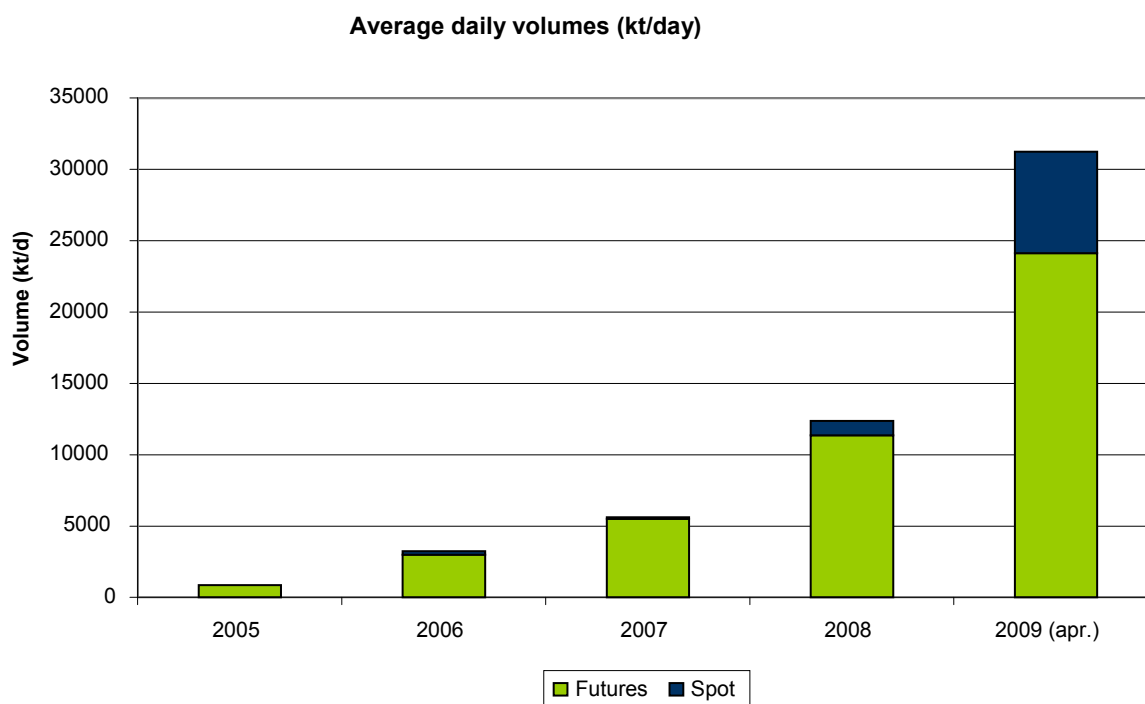
4.1 For phase III (2013-2020), the frequency of auctions should be high

The frequency of auctions is a key element to the formation of prices and is of particular importance for the issuing States. Indeed, the auction schedule is one way of controlling the supply of allowances within a period and within any given reference year. It is also a key factor in terms of the success of the auction, the risk of seeing an auction fail being higher in the case of very infrequent auctions. Regular frequency in this respect is a way of limiting budgetary risks for the issuing State by guaranteeing greater stability on anticipated revenues. The organisation of an auction should be presented as an event, with the public authorities seeking to mobilise the maximum number of participants, which could *a contrario* imply limiting the frequency of auctions.

This latter point is also a fundamental element for the industrial sectors covered by the EU ETS. Indeed, it is a major element for companies in order to anticipate as best they can future annual compliance needs. The frequency chosen must also allow compliance participants to cover their short-term needs.

The frequency of auctions has major implications for the functioning of the secondary market. Indeed, an auction corresponds more or less to a burst of supply, which has consequences in terms of volatility on the secondary market. The question of frequency must, therefore, be linked to total volumes put up for sale during a given period and during the year. In fact, it is important to limit the impact on the secondary market of auctioning too many allowances through a limited number of operations. In this respect, the greater the number of allowances put up for sale, the greater the number of auctions that need to be held so as to spread the impact on the secondary market. Therefore, for each of the lots, the frequency of auctions also depends on volumes on offer. The impact of the frequency of auctions on the secondary market is, therefore, a function of its capacity to absorb them. The analyses carried out by BlueNext show that trading has continued to grow since 2005, increasing from 5 Mt per day to more than 30 Mt per day in 2009, as the following graph shows.

Graph No. 6: Average daily volumes traded on the secondary market since 2005



Source: Bluenext

Interpreting the graph: the graph shows a substantial increase in daily volumes traded on the market since 2005. In 2009, trading of futures represented over 75% of trading. Overall trading of allowances increased threefold in terms of volumes traded between 2008 and 2009. The increase is particularly significant for trading on the spot market.

Holding frequent auctions would limit price volatility: it allows price discovery at regular intervals during the year, allowing price anticipation on the part of secondary market players. Taking account of infra-annual volumes put up for sale and the market's capacity to absorb them, a high frequency of auctions should both limit volatility and guarantee good liquidity. It would also enable issuing public authorities to reduce exposure of their revenue to price fluctuations.

The frequency of auctions must take into account induced costs for primary market players. These consist of costs incurred by the auctioning public authorities (organisation costs) and by market players (transaction costs). High auction frequency would result in increased costs for all actors involved in the auction.

In terms of organisation costs, foreign examples show that the costs covered by the public authorities are primarily set-up costs (regulatory framework, participant verification and qualification processes, operational costs for setting up of the auctioning platform). The marginal cost of auctions is relatively low and primarily made up of administrative costs for preparation, advertising and actually running the auction. These are the costs which increase in the case of a higher auction frequency. Therefore, the frequency of auctions has a relatively low impact in terms of costs for the auction organiser.

Concerning auction participants, several types of costs need to be taken into account: direct costs (participation in the negotiation system and transactional costs – in particular, associated

with the legal securitisation of transactions); indirect costs (integration of the auction process in companies' back offices, the cost of which is particularly high for large entities whose IT systems are completely automated); potential fees associated with participating in the auctions¹¹, which can nevertheless be minimised, for example via competitive tendering for any market intermediary.

The frequency of auctions also has an impact on the management of participating companies' cash flows: a settlement-delivery system means having all the funds necessary to pay for the allowances available at the time of the auction. Thus, frequent auctions would allow participants to spread their cash flow profile over time. As a result, whilst low auction frequency would reduce certain costs for participants and, in particular, those linked to qualification operations, it would increase the cash flow costs associated with the need to acquire larger quantities of allowances on an occasional basis.

The risk of collusion must also be taken into account. *A priori*, from an economic point of view, the frequency of auctions has no impact in terms of collusion but only if two conditions are met: perfect liquidity of the secondary market (adjustment of auction price according to the secondary market); completely free access to auction for market players (increasing the number of participants limits the risk of collusion, particularly if market power is not concentrated in the hands of too few actors). However, high auction frequency is a guarantee against any predation behaviour from the major players, which could destabilise the market in the case of auctions being very spread out over time and concerning large lots (making it less likely for a player to acquire a high proportion of the overall supply of allowances for one year through one single auction).

In respect of these considerations, the frequency of auctions should be *at least monthly in phase III*. This choice would offer guarantees as to covering the short-term needs of companies subject to the system whilst guaranteeing minor interference in respect of the secondary market. During phase III, a weekly rate could be envisaged. In this respect it would be an optimum for market players but could be more constraining for issuing States. *At a minimum*, given the amounts involved, the auctions should be organised monthly during phase III.

Furthermore, it is important to coordinate between Member States at Community level in the hypothesis of multiple auctioning platforms. Coordination of auctioning frequency would avoid competition between auction operators (for example, to avoid concomitance of auctions). Several coordination systems are possible in this respect. With a single platform Community auction system, the system could use an apportionment basis calculated using the number of allowances attributed to each Member State in the energy and climate package.. In the hypothesis of a limited number of auctioning platforms (less than five or six), the most operational solution would seem to be a rotation scheme: in this configuration, the different platforms would organise auctions one after the other throughout the year. This system would result in a balanced distribution each week at European level of volumes put up for sale by the Member States. This system would also have the advantage of limiting the number of auctions issuing public authorities need to organise (one or two per quarter for minor issuers, once per month for the major ones, whilst assuring a monthly injection of allowances on the primary market). In this configuration, between 2012 and 2020, auctions could, therefore,

¹¹ Potential costs, since in the British system for instance, these are directly covered by the State at a single tariff of €5c/t CO₂ actually acquired. *A contrario* in the Austrian system or the German system, these costs are entirely covered by the bidders.

take place on a weekly basis at Community level with French allowances being put up for auction once a month¹².

RECOMMENDATION No. 6: In phase III, propose the organisation of CO₂ allowance auctions preferably on a weekly basis at European level.

4.2 Auctions should be organised shortly before the surrendering date and in accordance with settlement-delivery dates for futures

The schedule for auctions should indeed take into account regulatory deadlines for the restitution of allowances. The ETS is indeed based on strict regulatory deadlines for companies subject to it: in particular, the annual surrendering of allowances corresponding to annual emissions must take place by April 30th before integration of these operations into the national register and repercussion on the European ITL register. The schedule for auctions should, therefore, be determined so as offer a guarantee to compliance buyers that a sufficient quantity of allowances will be issued via the primary market before the surrendering period. Demand for allowances will indeed be greater during the first quarter of each year: this is when installations covered by the scheme know precisely how much they emitted during the previous year, and therefore how many allowances they are required to surrender

The auction schedule should take into account contractual deadlines for settlement-delivery of futures. The supply of allowances to compliance operators will also depend on the maturity dates of futures contracts for which settlement-delivery occurs on the first working day of December and the first working day of March. In this respect, an auction should be held in December and on the second working day of March, after the settlement-delivery of futures contracts. After the settlement-delivery at these two dates, the companies are indeed in a position to know their allowance requirements in respect of their emissions levels.

Furthermore, for practical reasons, no auction operation should take place in August because of the summer holidays.

RECOMMENDATION No. 7: Facilitate regulatory compliance by having auctions taking place shortly before yearly deadlines for surrendering of allowances. Take account of settlement and delivery specifications in futures and forward contracts (on the 2nd workday of December and on the 2nd workday of March). Rule out auctions in August.

4.3 The minimum volume of allowances to be offered in one auction should be five million for France during phase III

The volume of allowances put up for each auction will depend on the volume of allowances to be auctioned over the year and, of course, the frequency of auctions. Auctioning large annual volumes of allowances make it necessary to properly calibrate volumes allocated during each auction so as to ensure that all the allowances can be sold. Low frequency of auctions would result in large volumes being offered at each action. The size of the auction is also a participation factor for all actors involved: minor players may be

¹² Thus, if we take as a starting point that in 2014, 78 million allowances should be put up for auction by France, this would correspond to a monthly sale of 6.5 million French allowances.

discouraged from participating in the case of too few allowances going up for sale, fearing that they would not be able to obtain allowances when bidding against the big players.

This theoretical statement is verified by the empirical observation of past auctions held abroad. The demand/supply *ratio* has, on average, always been above five for auctions within the European Union and under the American RGGI mechanism. The calibrating of volumes put up for auction has fewer consequences than does the frequency in terms of costs: indeed, as participation costs are globally proportional to the number of auctions, large or small auctions would have no financial consequences for market players.

Finally, a cash flow issue is at stake for auction participants: it is a fact that large volumes make the day-to-day management of cash flow more complex by limiting the capacity to buy small quantities of allowances in order to cover short-term needs.

In phase III, the exact volume of allowances put up for auction is not known since it will depend on the rules finally adopted for the distribution of free allowances. In this context, the following table presents the estimates of the Directorate General for the Treasury and Economic Policy and of the Directorate General for Energy and Climate.

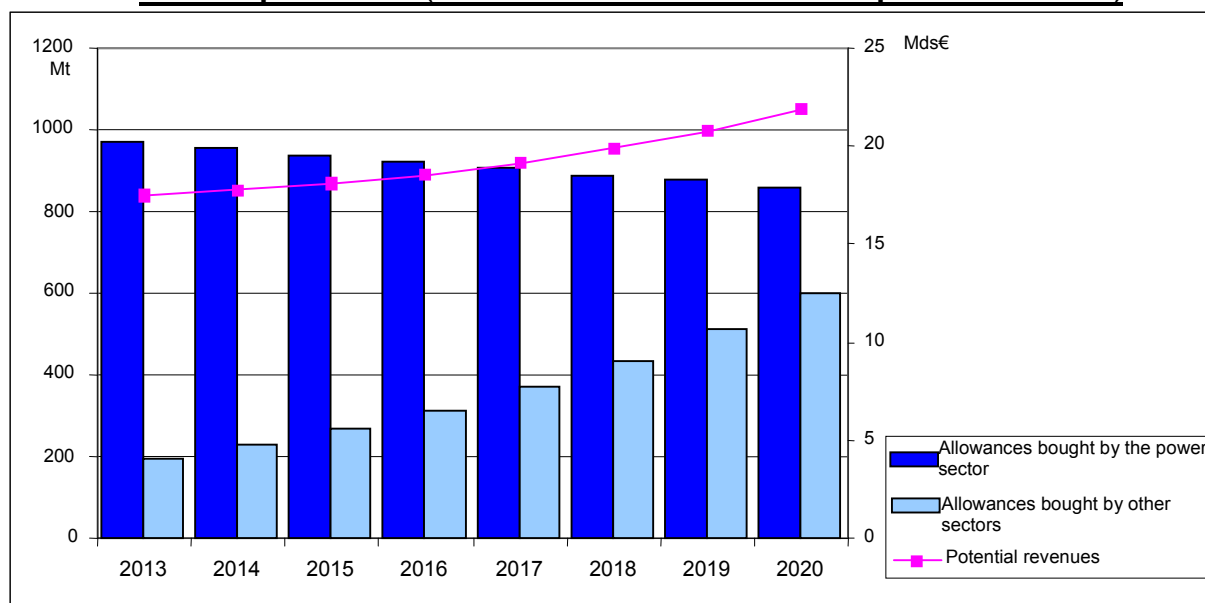
Table No. 4: Volumes of allowances which could be auctioned during phase III in the European Union and in France (in millions of allowances for 2013-2020)

	European Union	(of which) FRANCE
High estimate	12,980	720
Low estimate	10,530	570

Source: DGTPE/DGEC

Interpretation of table: the high estimate corresponds to the initial proposal of the Commission (no specific treatment for sectors subject to risks of carbon leakage); the low estimate corresponds to the provisions of the final compromise, and the assumption that 60% of allowances for industrials are distributed free-of-charge. In that second column, we assume that the risk of exposure to carbon leakage leads to maximise the proportion of free allowances: 95% of industrial emissions would be covered by this scheme. These results are based on total actual EU emissions in 2005, to which the reduction rate required by the directive, i.e. -21%, is applied. We then apply an auction rate of 100% for the electricity sector as of 2013 for all Member States, with the exception of the new Member States whose rate will rise gradually from 30% to 100% between 2013 and 2020. We then apply an auction rate which increases progressively for the other industrial sectors from 20% to 70% between 2013 to 2020. We consider that free allowances are distributed based on best available technologies and we presume that, as a result, when maximum emissions (linear reduction to -21% by 2020) are at 100, the calculation is made on 80. We then distribute this amount between the different Member States on the basis of the triple apportionment instituted by the directive: 88%, based on the portion of each Member State in ETS emissions in 2005, 10% redistributed in favour of certain Member States according to GDP (primarily new Member States), and 2% in favour of Member States who had reached at least 20% reduction in greenhouse gas emissions by 2005 compared to the reference year established under the Kyoto Protocol (i.e. Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Rumania and Slovakia). The numbers for the European Union appearing in the table above are shown in the following graph.

Graph No. 7: Volume of allowances which could be auctioned during phase III within the European Union (in millions of allowances for the period 2013-2020)



Source: DGTPE/DGEC

These estimates show that over 1Gt of allowances should be auctioned each year between 2013 and 2020. For France, the annual volume of allowances auctioned should be between 70 and 90 Mt per year, which corresponds to monthly volumes of between 5 and 8 Mt. **During phase III, the volumes at stake will make it necessary to put up at least 5 million allowances for each auction in France.** Keeping to this minimum objective would appear credible, whilst at the same time avoiding disruption to the secondary market in respect of its absorption capacities.

The size of lots should be the same as that on the secondary market, for reasons of simplicity and coherence for the different players and auction participants. In this respect, the lots should be a minimum of 1000t, and the quotations used should be at two decimal places.

RECOMMENDATION No. 8: The minimum amount of allowances auctioned should be 5 million tonnes in phase III for France. Lot specifications should be aligned with those on the secondary market (1000t).

4.4 The proportion of spot and futures allowances should evolve progressively

Both spot and futures allowances can be auctioned so as to meet the specific demand of certain economic sectors. Some existing auction systems abroad allow for both spot and futures allowances to be auctioned.

In the RGGI, allowances of several vintage years are on offer for each auction, i.e. spot allowances (with settlement-delivery within 48 hours, and collateral deposit) having different maturities are sold at the same time. In practical terms, allowances for year n and year n + 2, for example, are sold at the auction, and are subject to the same settlement-delivery procedure. However, year n + 2 allowances cannot be surrendered for compliance until two

years later. This system, therefore, allows companies to hedge future allowance needs; at the expense of a greater short-term pressure on their cash flow.

The decision to auction futures or spot allowances for future vintage years corresponds to an economic reality. Certain market players and, in particular, those from the electricity sector, are faced with a need to hedge certain input purchases two or three years in advance. This is particularly the case for fossil fuels needed for production blocs, for which sales are completed two or three years in advance. In this context it is also necessary for them to hedge their CO₂ allowance positions by the same time horizon. If they cannot hedge properly, electrical suppliers will have no other choice than to factor the allowance price uncertainty in their prices, which *in fine* would result in an increase of the price of electricity for consumers. An increase in price would thereby mechanically reflect the fact that the social value of continuity of supply of electricity is not properly reflected in the pricing. The economic implications of this issue are important, particularly with regard to investment forecasts in the electricity production sector within the European Union by 2030¹³. Electricity producers, therefore, want to be able to buy futures with maturity dates one to four years down the line.

To meet this demand from certain economic actors, a solution could be to establish a schedule of auctions for phase III which includes both spot and futures. One possible schedule, as presented by the European association of electricity suppliers, EURELECTRIC, is shown in table No. 5 below.

Table No. 5: EURELECTRIC proposal for a schedule of spot and futures allowances for phase III (2013-2020)

Year	Quarter	Spot Auction		Forward Auction	
		Vintage Sold	% of Vintage Sold	Vintage Sold	% of Vintage Sold
2011	1			2013	25.0
	2			2014	18.7
	3			2015	12.5
	4			2016	12.5
2012	1			2013	25.0
	2			2014	18.7
	3			2015	12.5
	4			2016	12.5
2013	1	2013	12.5	2014	12.5
	2			2015	12.5
	3			2016	12.5
	4			2017	12.5
2014	1	2014	12.5	2015	12.5
	2			2016	12.5
	3			2017	12.5
	4			2018	12.5
2015 (to 2020)	1	2015 (to 2020)	12.5	2016	12.5
	2			2017	12.5
	3			2018	12.5
	4			2019	12.5

Source: EURELECTRIC

Interpretation of the table: in EURELECTRIC's proposal, the auctions will be carried out quarterly in 2011 and 2012, and then eight times a year from 2013 onwards. The configuration is based on the early auction as of 2011 of phase III allowances. From 2011, allowances with maturity dates in 2013, 2014, 2015 and 2016 will be put up for sale. In this configuration, half of 2013 allowances will, for

¹³ EURELECTRIC estimates the investments necessary at €1,740 billion by that deadline.

example, allocated in 2011 and 2012 and the rest in 2013. This pattern will be repeated each year: 50% of year n allowances will be allocated in the form of futures in year n -2 and n-1.

The inclusion of futures in lots does, however, require some experience of auction operations and requires the existence of a mature secondary market. Firstly, it presents risks because of the absorption capacity of the secondary market. The integration of a large volume of futures in the initial auction operations would result in a supply shock, with a risk of inundating the market right at the start of the period. For example, in the configuration presented in table No. 5, two years' worth of allowances would have been sold as of 2013, which could have consequences on the clearing price at auctions and on secondary market prices. This disruptive impact on the market could, however, be easily compensated for if the schedule is made public a long time beforehand: the market could then integrate this effect into the prices even before the auction operations are launched for phase III.

The inclusion of futures in auctions could also pose structural problems. Auctioning futures would have a number of consequences. It would initially require States to have the capacity to set up a schedule of auction operations according to the different maturity dates attractive enough for different players in the market, in particular, in respect of the size of the lot put up for sale for a given maturity date at a given auction. In this respect, the above schedule may not meet the demands of all potential participants in the auction.

Secondly, auctioning futures could also pose problems in terms of securing transactions, if payment is to take place at the time of delivery – this point could, nevertheless, be rectified by specific stipulations in the sales contract, in order to bring forward the settlement date to the time of purchase (as would be the case for the spot sale of allowance with future vintage years, which only have a legal value in their vintage year). Moreover, in forward transactions, credit risks on counterparties must be managed and remunerated. Thus, putting futures up for auction would involve defining special conditions of access on account of the associated credit risks. For example, auction of futures could be done via a clearing house for primary market players, but this mechanism would seem rather inaccessible to small players and could in reality create entry barriers. Finally, auctioning public authorities would incur counterparty risk and would need to put in place suitable monitoring measures.

Thirdly, auctioning futures raises the question of accounting for these operations as part of the State's general bookkeeping and, in particular, how revenues should be treated. In the same way, integrating these operations into the annual budget framework of the Finance act could prove to be complex. Operations on futures would finally require justification of their suitability for the State with the different public control bodies. In this respect, a more detailed analysis of the consequences for the State budget and the audit of financial statements should be carried out before any decision to auction futures is made for France.

As a result, the learning curve argues in favour of auctioning exclusively spot allowances initially, similar to what is happening in the existing auction systems abroad. However, it does seem necessary to respond to the demand of certain economic players and, in particular, those from the electricity sector.

One of the solutions, therefore, could be to auction only spot allowances for phase III, but begin auctioning as early as 2011 with important volumes (frontloading), so as to ensure sufficient supply at the beginning of the period. Electricity producers would carry out

their hedging operations on the secondary market, which would have sufficient depth thanks to the spot allowances put on the market by primary issuers at the beginning of the period.

Under these conditions, one solution could be to issue in 2011 and 2012 the equivalent in spot allowances of the volume of futures defined in table 5. On the face of it, frontloading could involve a risk of inundation of the primary market at the very beginning of the period, but the incompressible need of electricity producers to hedge their block sales two or three years down the line would compensate for this risk, on condition that the schedule is made public very early on and that volumes of spot allowances are progressively delivered to the market through periodical auctions, as recommended above.

Thus, this solution would avoid the complexities and risks described in respect of futures auctions. In order to be implemented it will, nevertheless, have to be expressly provided for in the regulation for implementing auctions proposed by the European Commission, which must be adopted by Member States before June 2010.

The possibility of holding futures auctions should nonetheless not be disregarded. Indeed, a frontloading system represents a major cash flow constraint for companies from the electricity sector: this solution is, therefore, not fully satisfactory for electricity producers to hedge their future needs in terms of allowances. This situation explains why the European Commission is clearly looking at the option of auctioning futures as part of its public consultation of June 3rd 2009. However, in respect of the associated difficulties and risks for the issuing public authorities, it would be appropriate to recommend considering a progressive mix of spot and futures from 2011 onwards, on condition that a more in-depth expert analysis is carried out.

RECOMMENDATION No. 9: Depending on upcoming community-wide rules, start early auctions for phase III from 2011 onwards, on the basis of a non-linear distribution of allowances (frontloading). Selling spot allowances would be immediately operational. Subject to thorough investigation of financial and accounting consequences for the State, move towards “blending” spot and futures as soon as 2011.

4.5 Auction schedule and lot size should be established and made public a long time ahead of auctions

The predictability of the auctioning process is important to allow market players to be ready for them and, *in fine*, will ensure their success. A precise schedule, made public well ahead of time, would allow actors to anticipate their cash flow needs, on the one hand, and ensure effective management of their carbon assets during the year on the other. The stability of the schedule would also limit volatility by guaranteeing the injection of additional allowances onto the market at a given time.

The schedule for auctions and volumes sold at each one should, therefore, be established a long time in advance and made public. The public authorities should make the allowance auction schedule public to market players for the entire phase. Similar to what is proposed in the Waxman bill in the United States, Member States should let market players know the total volume of CO₂ allowances to be put up for auction each year between 2013 and 2020. In particular, if necessary, they should specify the quantity of spot and futures to be sold each year. This element should be the subject of a specific communication before the beginning of phase III, for example in 2011, and should not be modified subsequently.

The infra-annual auctioning schedule should also be made public. The announcement of an auction two months before the event would seem to be a minimum. It would be preferable to set up a yearly schedule similar to what is done in Great Britain, which would be sent out to market players before the beginning of the year, for example two months before (i.e. the first working day of November in year n-1 for year n).

RECOMMENDATION No. 10: Disclose overall volumes to be auctioned each year during phase III as soon as 2011. The auction calendar and volumes to be supplied within a given year should be made public two months before the beginning of this year (1st workday of November).

For example, the proposed schedule could be as follows (these elements are purely illustrative).

Table No. 6 – Volumes put up for auction by France for phase III

Year	Quantities auctioned (in millions of allowances)
2013	144
2014	108
2015	78
2016	78
2017	78
2018	78
2019	78
2020	78

Interpretation of table: the figures in this table are based on the high estimates shown in table No. 4.

4.6 Changes to the auctioning schedule and associated volumes should be allowed only under exceptional circumstances and according to pre-established rules

So as to give maximum visibility to market players, the auction schedule and associated volumes should not be modified after it has been publicly announced. Clearly establishing this rule will be a guarantee to ensure confidence amongst market players and avoid anticipation of strategic behaviour on the part of the issuing public authorities. However, a total ban on modifying the schedule and/or the size of lots does present risks, particularly in the case of market accidents requiring the States to intervene via control of supply (this case is explicitly provided for in phase III in the directive modifying amended directive 2003/87/EC).

As a result, flexibility should be built into the pre-established regulations. Concerning volumes, one solution could be to determine a fixed percentage of the annual volume of allowances defining the limit below which the State would be free to modify the size of lots according to the pre-defined annual schedule. Concerning frequency, the rule applying in phase III should be that appearing in article 29bis of the directive, i.e. a ban on modifying the schedule without the express authorisation of the Commission.

RECOMMENDATION No. 11: Any changes to the amount of allowances to be auctioned or to the auction schedule should be made public in accordance with specific rules established ex ante at Community-level (for instance, a maximum annual percentage of allowances may be subject to modifications). Any other changes that do not comply with those requirements should be banned.

5 In principle, access to auctions should be open to all, both financial and industrial players, on condition that the integrity of the auction process and the allowance market is guaranteed

5.1 In order to ensure continuity in the market, access to auctions should be allowed without discrimination to both “compliance” and “non-compliance” participants

The directive of April 23rd 2009 amending directive 2003/87/EC sheds light on how the European legislator generally understands the issue of access to auctions. Article 10 paragraph 4 of the directive stipulates that the auction must be “*carried out in an open, transparent, harmonised and non-discriminatory manner*” and it must be organised in such a way as to ensure that “*operators, and in particular any SMEs covered by the Community scheme, have full, fair and equitable access*”. Access is therefore a central theme in the implementation of auctions, articulated around two key concerns: on the one hand, the absence of restriction (in principle) concerning the participation of ETS operators in auctions; on the other hand, the concern not to exclude the smallest actors covered by the Community trading scheme. The directive refers to the future regulation of June 2010 to specify the operational implications of these principles. At this stage it allows a certain number of uncertainties to prevail concerning the scope of actors who are supposed to benefit from the open regime as required by the directive (it only mentions “*operators*”) and the very definition of the concept of access and its characteristics (full, fair and equitable).

We propose to consider that access designates the right to participate in a given auction and to bid on one’s own account, so as to benefit directly or indirectly from allowances acquired by this means and the economic benefits associated with it. This generic definition introduces two major possible but opposing approaches to govern access to auctions, beyond the practical modalities chosen for auctions.

The first approach aims to restrict the scope of authorised submissions to industrials and energy producers covered by the ETS, on the basis that allowances must be reserved to those actors who legally need them in order to comply with the regulations. The underlying fear is that the allowances may be derailed from their initial purpose (surrendering) by massive purchasing strategies and drying up of auctions led by actors with no regulatory obligations under the scheme, solely for speculation purposes.

A priori, the legal interpretation of article 10 of the directive does not oppose reserving access to a given category of actors on condition that it can be demonstrated that this difference of treatment is the result of an objective difference of circumstances, that it allows treating in a fair and proportionate manner. Limiting auctions only to compliance operators would not be contrary to the Community principle of equality, to the extent that these installations which emit greenhouse gases are not in the same situation as other entities such as banks which are carrying out an economic activity that is not subject to greenhouse gas emission regulations. One literal interpretation of the directive could also justify limiting access to “*operators*”¹⁴

¹⁴ According to the terms of article 3 of directive 2003/87/EC of October 13th 2003, the term ‘operator’ refers to “any individual who exploits or controls an installation or, when national legislation provides for it, any

alone, explicitly and exclusively designated by the text as benefiting from “*full, free and fair access*”. In the same way, an extensive economic interpretation of directive 2003-87 could lead to the introduction of restrictions in terms of access to ensure that auctions do not complicate the compliance with regulatory obligations of those covered by the ETS, which could be the case if the intervention of outsiders were, through price and/or volume, to force out emitters and, in particular, the smaller ones.

The second approach, on the contrary, is based on the total openness of the auctioning process to all current participants on the secondary market, including industrials and energy producers covered by the scheme, banks and investment funds. This option seeks to protect the homogeneity of the conditions of access to the two “market compartments” (“primary” issuance and “secondary” market) so as not to create discontinuity. This approach considers that there is no primary market *per se*, but one and only market fuelled by supply (net private sellers, but also States through auctions) and “drawn” by demand (net purchasers who cover their needs by approaching one or another of the two categories of sellers).

Taking into account the comparative economic effects of each of these two approaches would suggest that the second is preferable. If the objective assigned to auctions is to articulate with the secondary market as well as possible, without major disruptions, access to auctions should be carried out under similar conditions to those under which market players operate today, i.e. without discrimination between the “compliance” operators and the “non-compliance” operators. Transactions on allowances indeed are not reserved for one particular category of actors. The choice of setting up a proper structured carbon market in Europe had the natural consequence of allowing financial actors to become “market makers”, i.e. to provide liquidity. Certain critics are currently speaking up to stigmatise the increase in annual volumes of transactions on the carbon market, which have become a multiple of the annual allocation of allowances (1.3 in 2008, and 2 based on 2009 trends), and which would supposedly reflect an intensification of speculative activity on the market. It is important to emphasise that this trend is first and foremost welcome because it reveals an increasing liquidity of the market which guarantees a certain form of price stability and brings certainty to compliance operators as to their capacity to find a counterparty for a purchase or a sale of allowances in all circumstances.

This achievement, which remains to be consolidated, could be damaged by a break-off between primary emissions and the secondary market. Closing the auctions to financial actors would bring asymmetry into the system: given the importance of volumes sold through auctions, the impact would be to reduce the market to a simple corrective role on the margins and to tie up “short” positions of certain compliance players at the end of the auctions. Faced with the impossibility of accessing the primary source of allowance issuance (auctions), it is probable that financial intermediaries would withdraw or reduce their participation in the secondary market. **Eventually, this scenario would penalise the industrial players themselves through a reduction in hedging options and an increase in the cost of compliance.**

Furthermore, it would not be in keeping with the objective of minimising the risk of loss of revenue for the issuing public authorities, with the limits to participation possibility

individual to whom a determining economic power over the technical functioning of the installation has been delegated”.

resulting in the emergence of dominant positions through a reduction in volumes subscribed to and, therefore, a lesser price pressure on bidders.

The majority of companies represented in the workgroup agreed with this economic reasoning, but wished to condition freedom of access for financial actors to the introduction of a number of protective measures concerning the regulation of auctions and the allowance market and the existence of a single European platform.

5.2 In order to open auctions to all types of players without harming companies covered by the ETS, auctions should be set up in a strictly regulated and harmonised market

The link between free access to auctions and market regulation would guarantee that, in an open and competitive environment, the auctions would not be distracted from their initial objective by actors who care little about the proper functioning of the allowances market. This risk is not theoretically completely absent from the market today, but it is reinforced by the appetite that could be sharpened by the very large volume of allowances sold from 2013.

The dual simultaneous regulation of the auction process and emissions trading on the market must, first and foremost, avoid a major pitfall: that of a majority of allowances being put up for auction being hoarded by a single (or a limited number of) participant(s) whose sole objective would be to take a massively long position on the market and who could distance other participants who are unable to align with the prices and quantities bid by that or those dominant participant(s). The result of the auction would be a concentration of allowances in the same hands and the obligation for other actors, in particular those covered by the scheme, to turn to the secondary market for compliance, under potentially unfavourable price conditions. Unlimited and non-regulated access to auctions for all potential actors could, therefore, result in the restriction of access to the auctions, i.e. a limiting of the benefit of allowances in favour of one or more operators from outside the ETS and motivated by other objectives than reducing greenhouse gas emissions.

The reality of the risk of squeeze is difficult to assess *a priori*. Judging by the relative fragmentation of the current European emissions market – the biggest beneficiary of allowances at European level only represents 5% of the overall number available¹⁵ – and by the absence of particularly marked positions of the banks and investment funds, the risk of predation is undoubtedly limited. On the other hand, the continuation and broadening of the ETS after 2013 and up to 2020, as well as the possibility of arbitrage opened up by the progressive generalisation of auctions, could increase non compliance investors' appetite and attract a number of actors who are currently not very present on the market (sovereign funds, pension funds, etc.).

The risk is all the more difficult to assess as it depends on the parameters of the auction itself. The fragmentation of volumes and a high rhythm of auction operations are likely to limit the potential gain of an unscrupulous actor adopting a squeeze strategy: in order to be truly able to establish a significantly long position in the event of frequent auctions and for

¹⁵ In 2009, the highest number of allowances surrendered for 2008 by an industrial site in Europe was 5 Mt. The site is the Thyssenkrupp installation in Duisburg, Germany.

low volumes, the investor would indeed have to enter into a cycle of repeated attempts and, therefore, potentially costly operations on many different fronts (to the extreme, over twenty-seven national auction procedures).

If a proven risk of misuse of the auction were to remain, the integrity of the mechanism could be protected at the end of the day by setting limits, i.e. protection against a concentration of allowances in “one basket”. This would generally take the form of a maximum percentage of the overall quantity of allowances auctioned that any participant acting on his/her own behalf or as part of a cartel would be authorised to exceed.

Such a mechanism raises a number of issues. The first concerns the determination of the optimal ceiling level. The objective pursued would be to protect the system without excessively restricting actors’ strategies and, therefore, the fluidity of auction operations. The maximum percentage, therefore, should be fixed at a level which is sufficiently low to guarantee a competitive auction and prevent massive buying without, however, limiting the free interplay of bidding in any disproportionate manner, because that would have a cost for participants and, therefore, *in fine* for the issuer (reduced attractiveness of auctions, lowering of clearing prices). As the variety of bidding limits used to date as part of CO₂ trading shows (25% in the RGGI, no ceiling in the UK, 5% in the Waxman bill reviewed below), there is no obvious and unequivocal solution to this dilemma, especially as the European market itself operates in a free manner and without restrictions whilst the Waxman project regulates the holding of allowance derivatives¹⁶. The proportion held by the biggest holder of allowances in Europe could be taken as a reference, and that is 5%, or indeed the current share of the biggest trader in the quantity of allowances exchanged on the European market over one year, but this information is for the moment confidential¹⁷.

The second uncertainty concerns the way the numerator and denominator would be calculated. The quantitative constraint could have a bearing either upstream, on the total volume of bids (number of allowances requested by each participant), or downstream, by affecting the volume of allowances which are actually obtained by each operator through the auction. The first option, as used in the Waxman project, is *a priori* the most practical in the sense that it concerns parameters which are under the participants’ control (level of individual bids). The second clearly has the benefit of giving a more realistic idea of the actual concentration of allowances within the scope of the auction (the “economic exposure”), but on the other hand it also has the downside of being based on the result of the auctions, which in several ways is beyond the reach of the individual behaviour of participants. For example, in the case of single round sealed bid auction, the number of allowances received by a given actor depends not only the price and volume of his/her own bid but also, and more importantly, globally on the aggregated demand curve of all participants, which establishes the clearing price and the final distribution of allowances. In the same way, for the denominator, the percentage can apply either to the volume of allowances put up for sale for a given auction, or to allowances actually allocated by the issuer at the end of the auction (if this aggregated figure is different from the previous one, i.e. if only part of the issuance is covered), or in a more complex manner, to the total outstanding volume of allowances that are still available for allocation after the auction. Here again, for reasons of simplicity, the approach using the initial bid during each issue would be the way to go.

¹⁶ Each participant (or coalition of participants) can only hold 10% of the total number of derivatives available on the market.

¹⁷ The company GDF Suez provides some idea of scale however: the group is said to be one of the ten most active traders with 230 Mt traded per year (allowances and CER credits), i.e. 5% of total volumes.

Finally, the third issue concerns the capacity of the regulator to guarantee the respect of these limits. Any constraint generates avoidance strategies which, in this case, can involve bidding under several different identities or registration numbers in order to avoid the cut. Good tracking of allowance flows would *a priori* solve this problem, but it would probably stop at the intersection between auctions and the secondary market: any actor who wished thereby to procure allowances in excess of the limit set could respect the discipline of the auction and then acquire the remaining quantities directly on the market with the same economic affect of allowance concentration that there would have been if there had been no limit for the auction. The auction authority should also be in a position to make a distinction between voluntary and deliberate bending of the rules as against accidental transgression (and, where applicable, apply dissuasive penalties on top of non-issuance of allowances¹⁸). Furthermore, the definition of the entity participating in the auctions (to which the limitation would *in fine* apply) must not stand in the way of bundling, which is common amongst major industrial groups, the needs of allowances for their subsidiaries via a single internal platform (for example, Gaselys for GDF Suez, Vetra for Veolia).

The complexity of such a limit on the maximum bid-size from a single entity, both in terms of definition and implementation, would suggest that it should be avoided, at least in the start-up phase for auction operations. This principle would not prevent actors on the market being informed, as part of the reporting on auctions, on the size of the biggest allocations. In parallel, it would be possible for the auctioning authority to alert the entity which supervises the auctions so that it could investigate any squeeze activities when certain actors have received large allocations following an auction. Finally, it would always be possible to set up a limit on the maximum bid size from a single entity subsequently if it appeared that squeeze activities were recurrent and risked destabilising the market.

In general terms, beyond the sole risk of massive buying, the auction system must be robust against any attempt at collusion and upward or downward price manipulation which could damage not only the competitive nature of the auction but also the predictability of the price signal for industrial players. It is not sure whether these risks would be made worse in a context where access to auctions is broadly open, since the large number of participants would in certain respects act as a protection against these attempts at undue influence. But this essential requirement should be borne in mind as the market is extended (through auctions) and the extension of the circle of operators and interests represented within it will increase decisively in 2013. Furthermore, it is consistent with one of the objectives established by article 10 of the directive in terms of “full, fair and equitable” access for operators to the auctions. It would require the setting up of a real institutional governance of auctions and more broadly of the European carbon market, with monitoring and policing regulations and procedures which should as far as possible be harmonised at Community level (cf. chapter 6).

The question of interface between access to auctions and the auctioning platform could be set up in several ways. Open, unrestricted access in terms of geographical origin or quality of operators could be imagined on condition that rules of eligibility and participation in the auction are applied in the same way for the whole of a given platform. The idea of a single European platform is the safest for companies, because it would guarantee in essence the homogeneity of the treatment of operators. But it is not *per se* a condition of the

¹⁸ For example, preventing people acting on the market for a period of twelve months, a fine and/or ‘name and shame’, which nearly put an end to Salomon Brothers in 1990 on the US Treasury Bonds market).

effectiveness or integrity of a totally free system of access. The major consequence of a situation where access would be liberalized over twenty-seven coexisting national platforms would be to allow actors who are able to do so to arbitrate between the different auction systems according to their characteristics and their respective constraints, with *in fine* a risk of divergence of prices in Europe. In addition to the fact that such a configuration would result in the least attractive platforms shrinking and would tend to converge towards a dominant model, an effective solution to protect the benefits of free access and simultaneously a structured interplay between platforms would be to harmonise national auction procedures as far as possible. Conversely, juxtaposing closed national or semi-closed national systems according to criteria of nationality or corporate entity would lead to fragmentation of the European space and fragmentation of the price reference set and would appear to be incompatible with the principles of the directive.

RECOMMENDATION No. 12: Any nationality-based or activity-related restriction in terms of participation to the auctions should be avoided as it would undermine the effectiveness, not to say the very existence of the emissions trading scheme in its current fashion. In order to prevent unintended consequences or disguised barriers to entry for operators with compliance requirements, the auctioning procedure and more generally the secondary market should be subject to community-wide regulation and oversight with a view to ensuring their resilience to market abuse and anticompetitive behaviors.

RECOMMENDATION No. 13: Squeeze risk should preferably be addressed through the customisation of auction features (sustained frequency, small amounts) and possibly through an early warning system. Purchase limits should be envisaged as a last resort instrument.

5.3 The integrity of auctions must be ensured via a robust mechanism to control the qualification of participants

The proper execution of auction operations and their protection against interference by opportunistic or suspicious actors would require that only bidders which can provide solid guarantees in terms of financial probity and integrity may participate in the auctions. The objective for the State would be to establish a certain number of common rules to be respected by all actors participating in an auction (prequalification standards), so as not only to ensure that participants respect the purpose of the auction but also, and most importantly, to financially secure those operations. This requirement would involve the introduction of guarantee mechanisms in the form of prepayment or collateral or even, in the case of futures, a centralised compensation mechanism for the management of individual margin calls. These guarantees need to be obtained by the auctioning authority and controlled within the framework of a continuous monitoring of customer relations.

Under these conditions, access to auctions could be organised in practical terms according to two main types of operation, as shown in table 7: direct access to the bidding platform for participants (in the case of the RGGI); filtered access by one or more intermediaries which may be compulsory (UK) or non-compulsory (hybrid system).

Table No. 7 – Access to auctions: possible options

General approach	Practical organisation of access	Experimentation
<i>Allowances reserved to players with compliance obligations under the ETS</i>	Direct access to the platform	
	Intermediated access to the platform through primary dealers who are prohibited from bidding on their own behalf	-
<i>Open to financial actors</i>	Direct access for all actors to the platform	RGGI
	Access filtered by intermediaries who are authorised to submit on their own behalf	UK
	Mixed: direct access possible for industrials (only on their own behalf) coexisting with financial intermediaries (with an obligation to pass-through their clients' bids)	-

If the establishment of a precise specification for the participation in auctions is clearly part of the normative power of the auctioning authority, day-to-day control of the respect of participants' commitments and counterparty risk requires a dedicated, long-term infrastructure, whose direct responsibility would be difficult to imagine in the hands of Member States: in auctions which are open to all participants in the European market, this control could in effect involve several hundred "recurrent" counterparties at least; whereas, currently, in fact no State (or group of States) nor any public actor at European level (the Commission for example) has the material capacity to assess and manage the financial risk directly on such a broad scale and within reasonable financial constraints. The choice of a direct access to the auctioning platform under the RGGI system can be explained by the limited number of participants (59 at the first auction, 69 at the second, and 50 at the third).

The auctioning authority is, therefore, faced with the need to use an intermediation solution to guarantee access under secure conditions, either through a series of accredited actors whose job it is, on the basis of a very precise specification, or through a carbon exchange which is used to implementing the required controls over its own members.

The first approach (financial intermediaries) is currently being implemented within the framework of sovereign debt issues: the function of the collection of bids and quality control of bidders is outsourced by the Agence France Trésor to 17 banking establishments which are referred to as treasury bonds specialists ("*Spécialistes en valeurs du Trésor*"). The bidding system put in place in the UK in 2008 also uses this "filtering" mechanism, which allows the State to use the same type of intermediaries and network of professionals who are familiar with KYC (Know Your Customer) practices.

Even if the nature of missions to be accomplished is fundamentally the same, the second form of intermediation is different from the previous one in the sense that the controls are no longer carried out by a panel of intermediaries but by an exchange, and within a scope

which, *a priori*, is more restricted (the marketplace's accredited members). In practice, the scope of control carried out the exchange is broader: indeed, it is based on the fact that members of the exchange have a contractual obligation to carry out due diligence to verify the reliability of their clients.

Intermediation has several implications for the auctioning authority. It is comparable to a service rendered to the State, and in this respect could require compensation. The intermediary will benefit through its status from enhanced corporate image and reputation on the market and will be able to take advantage of its positioning within the market in order to extend its network of customers and develop bundled commercial offerings. These two types of benefits (in particular the second) contribute to amortising some of the cost incurred by the intermediary within the framework of auctions. Some of the primary dealers who have participated in the British auction do, however, emphasise the benefit of having an additional compensation mechanism for the intermediary in exchange for the service provided for the State. The introduction of a special fee paid by the State to the financial intermediaries (like in the British example : €5c/tonne “delivered”) would have two benefits: on the one hand it would act as a bonus which would incite primary dealers to actively look for new bidders with *in fine* a stimulating impact on potential demand in the auction; on the other hand it would avoid the cost of control paid by the intermediary being invoiced on to the final bidders, which would result in a drop of demand and, therefore, potentially a fall in the auction's equilibrium price. The system currently in force in the UK is based indeed on a ban on intermediaries (who the bidders have to go through to submit a bid) passing on KYC costs to indirect bidders, since this opportunity cost is now covered by the State in such a way that the intermediation operation is globally neutral for the primary dealer (notwithstanding other effects – cf. below).

The cost of intermediation is always *in fine* financed by the taxpayer, either transparently and “immediately palpable”, through the payment of a fixed fee which maximises auction participation, or in a more discrete manner, through a lower auction revenue, if participation in the bidding process is too costly.

On the other hand, the two cases above are not neutral in terms of conditions of access to the auction: the State's direct covering of the cost of the intermediation mechanism (*via* this fee) considerably limits the access costs for participants, contrary to the second solution. This criterion is important for demonstrating the compatibility of an indirect access mechanism (through an intermediaries) with the principle of openness required by the directive: the introduction of a “filter” clearly, in principle, seeks to facilitate access to “smaller” emitters covered by the scheme by offering them a single and identifiable interface to participate in auctions, but this should not result *in fine* in limiting access because of prohibitive cost or other “hidden” barriers (restrictions on bids).

The other facet of the directive is the principle of equality and non-discrimination, which requires the access to auctions to be homogenous for all operators. *A priori*, this requirement is not incompatible with there being, on the one hand, primary dealers who can bid directly on their own behalf and, on the other, a majority of participants obliged to bid through intermediaries. Indeed, this intermediation function could be considered as the expression of a “public service mission” set in place by the public authorities. But it is important to guarantee that the controls applied by the primary participants to final bidders are not disproportionate to the obligations imposed upon them by the auctioning authority as accredited intermediaries. Furthermore, it is important to ensure that the latter do not derive

any undue benefit in terms of access to information from their hybrid position within the auction system: perfect separation (“Chinese wall”) between activities carried out on their own behalf and activities carried out on behalf of third parties must be strictly controlled through regular internal audits. The possibility of creating a *sui generis* status of first line participants who are not subject to the same requirements as the other accredited intermediaries, i.e. who would be authorised to directly access the auction without having to take on the obligations and charges of the real primary dealers would, on the other hand, present the risk of introducing a two-tier system which will be a source of complexity and distortion within the “community” of ETS operators itself.

The question of intermediation and its financing takes on a different angle if the auctioning authority uses a marketplace. Indeed, intermediation mechanisms are already operational on the secondary market, with a dual system of control (of members by the exchange, of their clients by the members of the exchange) and financing (membership fees paid by members, service fees charged by members to their clients). Assuming that membership remains constant, and that all operators with obligations under the ETS can theoretically already use the services of intermediaries qualified to operate on the exchange, the addition of an auction procedure only impacts intermediation costs marginally, compared to ‘business as usual’ market operations.

This analysis raises the question of how to fix the level of remuneration of the intermediary chosen by the issuing authority. As the British experiment shows, the solutions found seem to result primarily from a direct negotiation where the State could be in a situation of asymmetric experience compared to the primary dealers who are the only ones to truly comprehend the economic parameters of the intermediation activity. Neither does the public authority have points of comparison: the development of a KYC function to control a large number of counterparties would indeed cost much more than those incurred by primary dealers.

The question of controlling access to auctions also has institutional implications in terms of positioning of the auctioning platform. In the hypothesis of a multi-platform configuration in which all States choose to open up their auctions to all financial and industrial European actors, there would be economic benefit in pooling the control procedure at European level, because otherwise corresponding fixed costs would be unnecessarily duplicated. The creation of a single platform, or at least a centralised procedure to check that the prequalification and solvency criteria are being respected, is well justified through the economies of scale that they could generate. This consideration is consistent with the request of companies to make a single European platform the corollary of free and open access to auctions.

RECOMMENDATION No. 14: Participation to auctions and to the secondary market should be subject to community-wide standards, with regard to reputation and solvency, in order to avoid dumping that would harm the proper operation of the EU ETS.

RECOMMENDATION No. 15: The magnitude of the costs incurred by checking bidders’ qualification implies that governments outsource the management of participation to auctions.

5.4 Access of small and medium sized enterprises could be guaranteed through non-competitive bids, but recent experiments do not really show the benefits of this mechanism.

High frequency of auctions and large lots would, on the face of it, be a guarantee of broad access to small companies. However, they could be discouraged from participating in primary issues because of the costs of participating in the auction – and in particular for access to the auctioning platform – or for fear of not winning any bids, faced with bidding strategies from bigger players on the market.

One solution envisaged in certain foreign auction systems is to organise a parallel system of access to the auctions. This specific window is endowed *ex ante* with a certain volume of allowances, and access is reserved for small companies which can only acquire a small pre-determined number of allowances (for example 10,000 tonnes per installation as in the UK, or 2,500 tonnes in Austria), for small lot size (for example 1 tonne). The price paid by these small emitters corresponds to the equilibrium price observed during the most recent competitive auction.

The setting up of a “non-competitive” window is first and foremost a political guarantee given to small companies. This type of system, in fact, guarantees small companies are granted a reserved and specific access to auctions. However, the introduction of this parallel system involves major administrative costs for issuing public authorities. For example, as envisaged in Great Britain, this would require a specific entity to be mandated to pass on the requests of small companies, which must also be able to carry out the necessary verifications in terms of solvency or reputation, before handing over allowances to bidders. Existing examples suggest that this system is not particularly attractive for small companies which prefer to cover their needs on the secondary market via financial intermediaries in particular. For instance, in Austria, where this type of system was set up as of 2009, in March only 5,050 tonnes were allocated via this system whilst 100,000 tonnes had been set aside for the non-competitive bidding by the public authorities. The introduction of a non-competitive system should only be considered with caution.

RECOMMENDATION No. 16: Ensure open access to small and medium companies. Non-competitive bidding facilities have so far not proven being effective and should therefore be avoided.

6 The modalities of monitoring and regulation of the carbon market are key to the success of the auction mechanism

The regulation of auctions and of the secondary market will be fundamental elements of the organisation of the European carbon market in phase III. Under the general term “regulation”, two separate issues need to be addressed.

The first is the possibility for public authorities to intervene directly in the market so as to regulate price evolutions. This issue reflects the general concern of ensuring stability for the market from a macroeconomic and financial point of view, by adjusting the quantity of allowances put on the market to control prices.

The second concerns market monitoring measures aimed at preventing and sanctioning behaviours that could compromise the functioning of the carbon market, or who fail to respect its regulations, in particular those governing the organisation of auctions. This issue addresses the concern of the public authorities to develop a legal and regulatory toolkit enabling them to ensure the proper functioning of the market at microeconomic level. This chapter addresses these two issues, which relate directly to the organisation of auctions.

6.1 Direct public regulation of market prices should be prohibited, provided that the organisation of the auctions is satisfactory

In Europe, the choice of a cap-and-trade scheme, rather than a direct taxation on emissions, in principle forbids any value judgement as to the price of allowances or on what it should be. Indeed, the proper functioning of the market supposes that prices adjust to quantitative constraints imposed by the public authorities and macroeconomic parameters (relative price of fuels, industrial production growth, meteorological conditions) and microeconomic parameters (marginal abatement costs of the different players). The sharp drop in the price of allowances during 2008, after the collapse in phase I, nevertheless reopened the debate on what is an “acceptable” price level in respect of the associated objectives of fighting climate change.

Indeed, a price that is too low could compromise efforts to reduce emissions in the medium term by “destroying” some of the investment potential, whose profitability, which depends on the valuation of CO₂ gains, would then become insufficient. Thus, the crisis could have a hysteresis effect, with a short term drop in the price of CO₂ delaying technological adjustments in the medium term. Today, the issue at hand is the need to support the carbon price (floor price), later, it could become the need to impose a ceiling price, in the case of a sudden and unexpected increase in prices, as was discussed when the uninterrupted increase in the price of allowances in 2005-2006 (up to €31/t in April 2006) caused fears.

During the debate on the energy and climate package in the second half of 2008, Member States rejected the idea of a regulatory framework for prices on the secondary market¹⁹. Indeed, as part of the amended ETS directive negotiations, setting up a floor and

¹⁹ By primary market here we mean the market where an issuer, in this case one or more Member States, delivers allowances to other entities that do not have the capacity to issue. The secondary market designates here trading

ceiling price system on the secondary market had been proposed – in practical terms it would have consisted in organising price fluctuations within a band made up of a lower bound, which would have increased from €5 to €40 between 2013 and 2020, and a higher bound which would have increased from €65 to €100 over the same period. Respecting the band would have been ensured via market interventions of an *ad hoc* institution using capital raised by collecting of a fraction of the revenues of Member States’ auctions. Justification of the floor price was to be found in the desire to guarantee the price signal over the long term and limit the impact of a price dip on the incentive to invest in low carbon technologies. The justification of the floor ceiling was less obvious: it would have enabled to cap the cost of emission reduction objectives for businesses, but in fact would have resulted in creating uncertainty as to the end level of the environmental constraint, which is adjustable, *a posteriori*. Furthermore, this system would have led to problems in defining a common (and arbitrary) price corridor by the States, which is fairly analogous to fixing a price for a harmonised tax or determining a tutelary value (or a zone of tutelary values).

This system was almost unanimously rejected by Member States, because the choice of market instrument corresponds to an objective of regulation by quantities. The creation of a corridor to frame price fluctuation on the market did not seem desirable because it was not well suited to the choice of market as an instrument to reduce emissions. Allowing public authorities to directly control prices by fixing volumes traded on the market did not appear consistent with the inherent logic of the ‘cap and trade’ system.

This context leads to wonder whether it is appropriate for public authorities to interfere directly with the European carbon market, so as to ensure its stability, and whether they have the capacities to do so. In practical terms, this would involve intervening for the purpose of regulating price levels, similar to how a stabilisation fund would work²⁰. In this configuration, the public authority can, in particular, seek to intervene to limit price volatility and ensure stability of the long-term price signal. It may also choose to intervene with the objective of ensuring liquidity on the market, or in the case of market accidents, so as to improve the visibility and stability of the price signal for actors, in particular industrial actors. On that basis, the public authority could avail itself of specific financial resources in order to be able to intervene on the market. The question is the same regardless of which auction system is chosen, whether it be centralised, decentralised or hybrid (cf. chapter 5).

The directive amending directive 2003/87/EC did not rule on the question of authorising or not direct intervention by public authorities on the secondary market. Indeed, as part of the adoption of the energy and climate package, the directive adopted neither allows nor prohibits direct intervention by the public authorities on the secondary market. Regulation of price volatility (upward volatility) on the secondary market would have to be done exclusively through authorised adjustments in the auction process²¹. Box No. 5 overviews the mechanism planned.

of allowances initially issued on the primary market, primarily between entities that do not have the capacity to issue allowances, but with possible occasional interventions of the States, in the absence of rules forbidding it.

²⁰ Another objective could be to ensure the finalisation of a issuance programme, in the case where not all allowances have been sold on the primary market during the auction. In this framework, the intervention of public authorities on the secondary market would be limited to sales operations, which would come on top of issuance on the primary market.

²¹ This situation, therefore, implies explicit involvement of public interventions on the second market according to predetermined regulations which would require an amendment to the directive.

Box No. 5 – The mechanism provided for under article 29b of the directive amending directive 2003/87/EC

Article 29b of the directive amending directive 2003/87/EC only includes exceptional intervention modalities for States in the event of abnormal increases in secondary market prices. If the price observed for more than 6 consecutive months were to be twice as high as the average price on the secondary market over the previous two years, the Commission must immediately bring together a comitology body, whose operating modalities are described in article 9 of decision No. 280/2004/EC. If the committee states that prices are disconnected from market fundamentals, Member States then have a possibility of deciding one of the following measures on a qualified majority voting basis: the early auction of allowances for the current year or the sale of up to 25% of allowances remaining in the New Entrants Reserve of phase III.

Interventions of States in the secondary financial markets exist, for example, buying-back bonds for debt management. In this case the State is authorised to trade or buy back bonds, in the framework of the order creating a Treasury bond (“Obligation Assimilable du Trésor”) in application of decree No. 2007-1189 on the issuance of Treasury bills. Buy-back operations aim, in particular, at smoothing funding needs from one year to the next and are carried out over-the-counter on the secondary market. The parallel between these operations and possible operations on the carbon market do not, however, appear entirely justified, in particular because of the very specific nature of debt management operations: in application of article 1300 of the Civil Code, the buy-back of bonds must give rise to a cancellation of those same bonds. On the contrary, under the hypothesis of buy-back operations on the part of the public authorities on the secondary European carbon market, the purchase would, in fact, result in an immediate reduction in supply on the market. The allowances thus acquired and put into the reserve would subsequently offer the possibility of increasing demand through sale on the secondary market at a later date.

There are three organisational schemes for the involvement of public authorities. The first consists in a simple ban: the issuing public authorities on the primary market do not have the possibility of intervening on the secondary market, whatever the circumstances may be. This is, in a way, the scheme allowed by the directive, of “indirect regulation” of secondary market prices through the sole modification of supply during auctions. The advantage of this solution is simplicity: it leaves the secondary market to function freely and clearly, since the market players cannot second guess the strategic behaviour of the States. However, an absolute ban may seem naïve in the case of disruptions to the market which are substantial enough that they require public reaction, particularly if the secondary market price were to increase at a rate which could not be sustained by the European economy. Furthermore, such a ban would make it necessary to rule on the selling off of any surpluses on the European market linked to the reserve price mechanism if it were to be put in place.

The second scheme would consist in a discretionary authorisation: the issuing public authorities would be authorised in principle to intervene on the secondary market, in respect of generic objectives defined *ex ante*, without any precisions as to the forms of intervention possible. This option is highly flexible for the public authority, since it leaves the door open for targeted actions when faced with a specific market situation. However, it may create fundamental uncertainty for market players and could result in the instigation of behaviour guided by the anticipation of State intervention. Market players would indeed be encouraged to try to second guess market conditions leading to public intervention, which presents a very

high risk of interaction with the organisation of auctions. For the public policy maker, this solution also presents the difficulty of having to be justified on a case by case basis, for example to the public control organisations, without reference to previously defined rules.

The third and final intervention scheme possible would consist in an authorisation to intervene according to pre-defined public rules: the issuing public authorities would have authorisation to intervene on the secondary market within the framework of pre-defined rules at European level and made public to the market players. This option lends market actors real transparency to public action on the secondary market and allows public authorities to intervene according to methodologies that are clear and known to all actors. However, the conditions attached to public intervention have to be calibrated very precisely *ex ante* and, more importantly, it allows market players to “play” against public authorities by anticipating its interventions. To ensure its implementation, this option would also require raising substantial financial resources to allow public authorities to support prices and, conversely, to specify under what conditions, compatible with maintaining the cap on the total quantity of allowances issued, the States could control an unreasonable price rise.

If public authorities wished to leave room for manoeuvre on the secondary market, only authorisation as part of pre-defined public and harmonised rules between Member States at Community level could be envisaged. Discretionary authorisation would indeed involve too large a risk of destabilisation of the market.

However, given the risks induced by the participation of public authorities on the secondary market, a ban on any public intervention should be favoured. The experience of public interventions for the purpose of price management (stabilisation funds for the price of raw materials) has, in fact, proved rather ineffectual, historically costly for public finances and difficult to justify to the taxpayer.

Other channels of indirect stabilisation of the secondary market by public authorities could be envisaged. In fact, there are a number of indirect ways of ensuring secondary market stability from a macroeconomic point of view. The very design of the ETS market in its amended version in phase III should promote price stability on the secondary market, in particular because of the extended visibility on the emissions cap (12 years) and the possibility of banking between periods. The most obvious regulation measure is the encouragement of financial engineering, via the heightened development of the derivatives market. The diffusion of derivatives (futures and options) will contribute to the market’s maturation process and offers operators the possibility of developing hedging strategies against price fluctuations.

Other more specific options could also be envisaged, but would require modification to certain elements of the amended 2003//87/EC directive. For example, it could consist in the occasional authorisation through a Community decision to increase the limit on the use of Clean Development Mechanism (CDM) and Joint Implementation (JI) credits for ETS participants. The price of these imported credits is generally slightly lower than European allowances (€2.5/t in May 2009), which offers the possibility of arbitrage for operators to reduce the cost of compliance. The total volume of usable allowances in the European trading system is currently subject to a ceiling on a national basis, i.e. around 1.6 billion allowances for the period 2008-2020 for all installations in the European Union. The limit on the use of project credits could thereby be increased so as to curb an increase in allowance price. Such a mechanism would require defining one or more triggers (price thresholds), for the activation

of the safety valve (the injection of more project credits). The increased use of this type of credits, the price of which is structurally lower than EU allowances, would result in a reduction in demand and, therefore, in prices on the secondary market for allowances. Setting up such a system could, however, be a source of added complexity and could recreate difficulties associated with the price fixing.

Nevertheless, as long as the modalities for the allocation of allowances offer guarantees in terms of secondary market stability, as proposed in chapter 3 of this report, the need to have specific price stabilising mechanisms becomes less important²². The interdiction of intervention of public authorities on the secondary market would also be justified once effective monitoring and regulation measures for the carbon market and the organisation of auctions are put in place.

RECOMMENDATION No. 17: In principle, prohibit governments' interference with the secondary market after 2012.

6.2 As the law stands, the priority should be to identify general objectives of carbon market monitoring and control of auctions implementation

The risks of market abuse or behaviour failing to respect rules of free competition on the European carbon market seem to be a real threat. This is the case, in particular, because of the relative influence of certain market players: some major compliance operators could indeed be encouraged to enter into massive buying patterns, in particular at the beginning of phase III, in order to hedge their medium-term positions. The capacity of public authorities to ensure proper regulation will fundamentally depend upon the modalities for the organisation of auctions. Indeed, the choice of an auction design and modalities of its concrete implementation so as to limit the possibility of collusive behaviour is also an effective means of regulating the market.

The main challenge associated with carbon market regulation is clarification of the legal status of allowances at Community level. Indeed, as the law stands, allowance trading is not entirely covered by legal mechanisms preventing market abuse. Furthermore, no market monitoring body or auction organisation monitoring body has been identified either at Community or national level.

The recent example of the Waxman bill in the US shows that it is possible to aim for an ambitious carbon market regulation and auction monitoring framework. Box No. 6 details its content. Broadly, the idea is that a complete regulation system should be based on four elements: a precise legal definition of CO₂ allowances and their derivatives as well as of the legislation in terms of market abuse which applies to them respectively; identification of a body in charge of regulation; definition of punitive powers in order to allow the regulating authority to apply the rules in the event of shortcomings, which goes hand in hand with the

²² However, it should be noted that, on the subject of unsold allowances linked to the reserve price, a solution of subsequent sale on the primary market should be envisaged: Community regulations for organising auctions could expressly require that unsold allowances from an auction would automatically be carried over to the following auction. The Commission, or another Community body, would be able to authorise a Member State on an exceptional basis to carry over to another auction operation in order to give the system some flexibility.

definition of a jurisdictional authority in case of recourse; a general market monitoring mechanism and complete reporting on auction operations.

Box No. 6 – Regulation and monitoring measures planned in the WAXMAN bill

In the Waxman bill²³, sections 401 and 761 specifically address the issues of carbon market regulation and auction process monitoring. The main characteristic of the bill is to distinguish regulation measures according to whether it deals with allowances traded or issued on the spot market or derivatives (for which allowances are the underlying commodity). In the original bill, the text specifies that regulation measures planned for the first category of allowances would have to be completed within 18 months of the text being voted via a secondary legislation instrument. Concerning derivatives, regulatory power is delegated by the President of the US to an inter-agency workgroup which includes the Environmental Protection Agency and federal agencies competent for financial product regulation. This group will have to propose additional regulation elements within 180 days of the law being passed.

The bill specifies the applicable legal regime for allowances. Section 761 first of all gives a distinct definition of allowances and their derivatives. The same section establishes a maximum limit of 10% on the share of total derivatives on the market that a single market player may hold. The text expressly states that transactions on derivatives must necessarily be cleared through an exchange specialised in commodities market.

The bill entrusts two different authorities with market monitoring according to a demarcation line between spot allowances and derivatives. Concerning the first category, jurisdiction in principle is attributed to the Federal Energy Regulation Authority – this federal body reports to the Department of Energy, but exercises its power independently: since the Energy Act of 2005, it has been primarily in charge of price monitoring on the energy market, and exercises associated competencies and, in particular, the authorisation for the installation of energy production units. Concerning derivatives, the ad hoc inter-agency workgroup has jurisdiction in principle and in this respect can exercise powers of regulation which are comparable to those of the Commodity Futures Trading Commission (CFTC), which is an independent federal agency in charge of the regulation of commodities markets. Initially set up to monitor futures operations on agricultural products, its competence is now extended to include all derivatives operations whose underlying commodity is a raw material.

The bill establishes a strict sanctions system. Concerning the first category of allowances, in case of proven violation of regulations, the regulating authority has policing powers, with the power to issue very strong behavioural injunctions in the case of serious threat to the functioning of the market and public interest. The bill details the scale of sanctions that the regulator can apply. The bill primarily includes provisions allowing the Federal Energy Agency to ensure the regulations are respected and to punish abuse. This agency has power allowing it to prohibit any market player from participating in trading; suspension of accreditation to access primary issuance for a maximum period of six months; the obligation to reimburse unduly collected profit and also compensation for any harm that may have been caused; the capacity to fine offenders or even impose financial penalties which can be as high

²³ The elements of box No. 6 refer strictly to the original text of the bill of March 31st 2009, without taking into account the amendments made before July 1st 2009, as part of the legislative process at the House of Representatives.

as \$1,000,000 per day. In parallel, the modalities of legal recourse have been specified. Concerning derivatives, the sanction powers of the ad hoc group are comparable to those of the CFTC. However, the text specifies that manipulation of the secondary market is a criminal offence liable to a fine of up to 25 million dollars and up to 20 years in prison. A ban on trading for five years in case of market manipulation or publishing erroneous information by a market actor can also be imposed by the regulator.

The reporting mechanism for auctions and the global oversight of the carbon market is also specified. It is the responsibility of the administrator of the Federal Energy Regulation Agency to publish the following information further to the auction (without any specific details): the number of bidders, the number of winners in the auction, the quantity of allowances allocated, the equilibrium price. Global oversight of the American carbon market is the responsibility of the Federal Energy Regulation Agency (in association with the Federal Agency competent for derivatives). The former continuously collects information on the market: prices, volumes, transaction types, trading instruments, peaks, troughs and price volatility; explanatory factors and microeconomic and macroeconomic effects; interactions between regulated allowances and derivatives, spot/futures on the energy market; (risks of) fraud and manipulation; the strategies adopted by the actors identified. On this basis, an annual report is submitted to the President and to Congress.

Finally, the bill details the means of financing the operations of the regulation body; a tax will apply to market actors to cover regulation costs, i.e. a flat rate of \$15 per tranche of one million dollars of transactions on the primary or the secondary market.

6.2.1 The application of legal protection instruments against market abuse at Community level is not harmonised for CO₂ allowances

As the positive law stands, the regulation of the European carbon market is characterised by an uncertain legal framework. Within the European Union, the risks of market abuse are covered by directive 2003/6/EC. The “market abuse” directive addresses abuses which are being observed on the financial markets. Its provisions apply to all financial instruments traded on regulated markets within Member States. European Union allowances (EUA) futures, in this respect, are considered derivatives on the commodities market according to the directive, but only for products traded on a regulated market. Therefore the directive provisions do not seem to apply to spot allowance auctions, or to futures allowances which are not traded on a regulated market. On this basis, it would seem that legal rules are not sufficiently precise as they stand according to the different modalities of allowance trading. Thus, the existing legal regime does not guarantee prevention and repression of abusive behaviour under phase III.

Article 12.1.b of amended directive 2003/87/EC expressly states that, by December 31st 2010, the Commission must examine the suitability of adapting the implementation of the directive on market abuse for allowances, which would implicitly be considered in this case as commodities. This situation emphasises the advantages there would be in bringing before the European Commission the request for more precision in existing legal regulation instruments for all types of allowance trading.

6.2.2 *Amended directive 2003/8/EC does not identify any regulator for monitoring the carbon market, nor does it specify the modalities for the monitoring of auctions*

The amended ETS directive remains elliptic on this central issue, probably due to reasons linked to administrative culture and compartmentalization of approaches. The only regulation elements that it contains concern limiting possible abnormal price increases on the secondary market through early auctions. But it has no market control and oversight architecture built in.

The directive entrusts the European Commission with the mission of general oversight of the carbon market. Indeed, in application of article 10.5: “*The Commission shall monitor the functioning of the European carbon market*”. In this respect, it is responsible for submitting an annual report to the Council and the European Parliament on the functioning of the market, including the implementation of the auctions, liquidity and the volumes traded. In this respect the Commission plays a simple monitoring role on the basis of information sent to it by the Member States, two months before the end of the year.

However, the Commission has no general and systematic powers of intervention. In application of article 29.1, in the case of proof of blatant market dysfunction, the Commission submits a report to the Council and the European Parliament which includes proposals seeking to increase market transparency and improve its functioning. Therefore, the Commission only has a power of initiative, with any interventions with a view to improving market functioning depending *in fine* on a co-decision process. In the same way, the Commission has no powers to sanction a Member State that fails to comply with auction organisation regulations. As the law stands, no monitoring of auctions is organised at Community level. The directive says nothing either about the possibility of entrusting national bodies with this mission, bringing into play the principle of subsidiarity in the case of a decentralized auction system.

These gaps can only be filled in an inventive manner by the European legislator, who has no explicit mandate *per se* in the directive to set up an institutional and regulatory framework to regulate the market.

6.2.3 *As French law stands, no national body can ensure monitoring of auctions without modifying its frame of competence*

To confer the role of allowance auction oversight on the Financial Markets Authority (“*Autorité des marchés financiers*”, or AMF) would go beyond its current scope. Indeed, according to article L621-1 of the Financial and Monetary Code, the AMF is responsible for “*protecting savings invested in financial instruments and any other investments which involve public issue*”. The monitoring competence of the AMF is, therefore, strictly limited to financial instruments. However, in French law, greenhouse gas allowances are not financial instruments according to the definition of article L211-1 of the Financial and Monetary Code, but “*movable assets which are exclusively materialised by their inclusion on the national register (...), are negotiable, transferable by transfer on the register from one account to another and [which confer] identical rights to their holders*” (article L 229-15 of the Environment Code). This definition includes several elements which are in common with the definition of financial instruments (in particular, their negotiable and transferable nature), but it results clearly from this text that allowances may not be considered financial instruments.

Furthermore, this legal observation is true both for allowances with current year vintage for allowances with later vintages, with the Environment Code failing to make such a distinction between these two categories. The emergency committee of the National Public Accounts Council, in opinion No. 2004-C of March 23rd 2004, has in addition considered that greenhouse gas emission allowances could not be qualified as financial instruments, even when they are freely exchanged by trading companies. The conclusions of the Public Accounts Standards Committee of March 11th 2009 recently confirmed this analysis.

However, a distinction has to be made between futures which belong to the scope of financial contracts, as defined in article D 211-1 of the Monetary and Financial Code. Financial contracts include in particular futures contracts unwindable in cash, to which future contracts on allowances could belong, in particular in respect of article 38-3 of the implementation regulation (1287/2006) of the MiFID directive on markets in financial instruments: it is expressly stated that only certain derivative contracts concerning allowances can be considered as financial instruments, i.e. futures contracts unwindable in cash with allowances as underlying assets, as well as derivative contracts negotiated on a regulated market. In this respect, the competence of the AMF is limited to monitoring derivatives relating to allowances in application of the MiFID directive.

Therefore, according to the rules of national law, it would seem that only a legislative change specifying the competence of the AMF in terms of spot allowance auction monitoring would allow it to be entrusted with this new mission.

The status of derivatives on allowances is not totally stabilised either, to the extent that futures could, in fact, be likened to spot allowances but relating to a given vintage, i.e. whose legal value is deferred in time.

In the same way, as the law stands, the competences of the Energy Regulation Commission (*Commission de Régulation de l'Énergie*, or CRE) do not allow it to be entrusted with this mission. Indeed, whilst the CRE carries out a monitoring and surveillance mission for the electricity and natural gas markets, materialised where applicable by exercising powers of investigation and sanction (to check the proper application of accounting separation principles so as to prevent any cross-subsidisation, or any discrimination or threat to full and fair competition), this only applies within the limit of its duties which are legally set out. Article 28 of law No. 2000-108 of February 10th 2000 on the modernisation and development of the public electricity service refers to a restrictive list of competences of the CRE, which prevents it being given a monitoring mission for allowance auctions in France as it stands, i.e. without any legislative modification.

As for the AMF, it would not be possible, therefore, to entrust the CRE with a monitoring mission for auctions unless the legislator were to rule on the matter.

A third option could be to confer such a role to a State agency or an *ad hoc* administrative body on the condition that an exact definition of the missions and its composition are provided.

Of course, these reflections must be transposed at Community level, which is the proper level for creating a structured and coherent regulation system based on a uniform definition of allowances and on a stabilised institutional framework.

6.2.4 *At this stage, before all else, it would be appropriate to formulate recommendations on the general objectives of regulation*

The Commission seems to have realised what is at stake in the framework of its public consultation launched on June 3rd 2009. The Commission analyses European law in order to identify shortcomings, in particular in respect of the scope of application of the Community mechanism for the prevention and repression of market abuse. In this respect, the Commission's consultation considers three operational proposals in terms of market regulation and monitoring of auctions. Firstly, the Commission proposes to modify the "market abuse" directive to ensure, in particular, that it covers futures trading outside the regulated market. Secondly, the Commission invites market players to think about the benefits of having a specific sanction mechanism in case of failure to respect the provisions of the regulation on the organisation of auctions. Thirdly, it details possible sanctions: suspension of accreditation to participate in auctions and/or financial penalties. Implicitly assuming that the auctioning system is decentralised, the consultation of the Commission also looks into the possibility of introducing corresponding sanctions – in this case, this would mean authorising a dedicated body to take sanctions against a Member State, or a group of Member States having organised a joint auctioning platform. The consultation remains extremely open at this stage as to the choice of the authority upon which such powers of sanction could be conferred. The consultation thus introduces a number of possibilities and, in particular, the idea of giving these powers to national or Community regulation authorities (*ad hoc* bodies).

It seems necessary for the administration to engage in a more in-depth reflection on the legal rules framing the regulation of the carbon market on the one hand, and on the proposals formulated by the Commission on the other. Indeed, the door is open to different types of proposals in terms of regulation: rapidly initiating dialogue between the administrations concerned and, in particular, the Directorate General for the Treasury and Economic Policy, and the Directorate General for Energy and Climate (DGEC), with national regulators (AMF and CRE) is a priority. Indeed, while it would seem legitimate to specify in principle the rules in terms of sanctions on market abuse at Community level, carbon market regulation and monitoring of auctions could be entrusted either to a single body at Community level or delegated at national level, with a view towards a decentralised auctioning system. In this respect, a decentralised system would not be incompatible with a single and harmonised monitoring system at European level. However, these choices do imply consequences for the current missions of national regulators, and need to be elucidated through additional work by the administration, on the basis of the issues raised by the Commission.

Several general objectives would need to preside over the implementation of auction monitoring and, more generally, over the regulation of the European carbon market. The generic objective should, in the first place, be to protect the integrity of the carbon market through appropriate measures for auction monitoring, so as to guarantee the efficiency of the system for companies covered by the scheme. Secondly, the current legal and regulatory framework should be adapted to prevent fraud and market manipulation. Thirdly, appropriate market monitoring and regulation measures should limit counterparty risk and limit the concentration of excessive market power in the hands of a small number of actors, with potentially destabilising effects for the market. Fourthly, the monitoring of auction operations should ensure that the rules are obeyed, whilst allowing the greatest possible transparency.

Proposals can be brought forward by France in this sense as part of the European Commission's consultation.

RECOMMENDATION No. 18: Carry out a joint work between the Ministry of Economy, the Ministry of Ecology, the Financial Markets Authority and the Energy Regulation Commission and their European counterparts on the regulation and supervision of auctions and carbon markets.

RECOMMENDATION No. 19: This work should be conducted in light of four guiding principles: ensure the efficiency of the scheme for companies with compliance requirements; prevent fraud and market manipulation; limit counterparty risk; ensure enforcement of rules governing auctions.

6.3 Auction results must be communicated as soon as possible: regular reporting on the organisation of auctions should in addition be carried out at Community level

Effective monitoring of allowance auctions will also require the setting up of specific reporting mechanisms. The transparency of auction operations must indeed be guaranteed by the public issuer. This element is crucial to ensure the confidence of market players in the auction process. It is also important to allow participants in the auction to formulate their expectations and adapt their bidding strategies for subsequent operations. Several aspects must be envisaged: the precise purpose of reporting; the associated details; the bodies responsible for reporting; the nature of information communicated; the manner in which information is transmitted.

Reporting on auction operations concerns two different elements: the results of a given auction, on the one hand; and the analyses which can be made over the longer term as a result of several operations, on the other. Auction results should be communicated to market players as soon as possible after the end of the auction (for example, within an hour at the latest). This timeline must indeed be short so as to allow bidders to find out the results of their bids, in order to decide whether or not to intervene on the secondary market. The second category of information should allow regulation bodies to stay informed and, where necessary, to improve the auction process; it could take the form of reports submitted on a quarterly or half-yearly basis.

Reporting could be done at several levels. The body responsible for organising the auctions, i.e. the auctioning platform, should in any case be responsible for presenting auction results. In the case of several decentralised platforms, reporting on operations should be done at each level, but could also be made public at Community level. On the other hand, it would seem to be more pertinent to have quarterly or half-yearly reports on the organisation of auctions be prepared at Community level in any event, including in the case of a decentralised organisation of auctions. With a decentralised organisation, ensuring global reporting on auctions at Community level would have the advantage of giving the different actors involved an overall vision of the primary market.

At the very least, the following information should be made public by the issuer after the auction:

- *Equilibrium price;*
- *Total amount of bids;*
- *Total amount of allowances distributed to participants;*
- *Number of participants in the auction;*
- *Number of participants with eligible bids²⁴;*
- *Bid/offer ratio;*
- *Scaling ratio;*
- *Possibly figures capturing the concentration of allowances amongst successful bidders.*

However, certain elements must remain confidential and, in particular, bids and the identity of winning bidders. Quarterly or half-yearly reporting could take the form of a summary of the main results of several auctions over the period.

Auction results should immediately be made public in a form which is readily accessible to all market players. The auctioning body's website would seem the most appropriate, with immediate publication on the European Commission's website which already has a tab showing auction results for phase II. The results of the quarterly or half-yearly reporting could also be published on the European Commission's website.

RECOMMENDATION No. 20: Within an hour following the auction, disclose widely accessible information, inter alia: auction clearing price; total amount of bids; total amount of allowances distributed to participants; number of participants in the auction; number of participants with eligible bids; bid/offer ratio; scaling ratio; and possibly figures capturing the concentration of allowances amongst successful bidders.

RECOMMENDATION No. 21: Quarterly or half-yearly reporting on auctions at community-level; release of the outcomes on the EC web portal.

²⁴ However, this piece of information should not be published if a solution of indirect bidding via primary participants (cf. below) is adopted.

7 France has a leading role to play in the establishment of an EU-wide platform and in the promotion of strictly harmonised rules if several national or regional auction systems were to coexist within the European Union

The question of the number and nature of auctioning platform(s) is at the heart of the organisation of auctions in Europe. Firstly, it concerns the number of auction structures and their articulation within the European Union. Each structure is defined as a coherent unit which includes “counter” for the issuance of allowances and a series of procedures allowing companies to access auctions according to pre-established rules. Three main configurations can be identified:

- a totally integrated system, with a single platform in Europe, governed by a unique set of principles and rules concerning access and the format of auctions. The organising authority could either be a Community body (for example the European Commission), or a joint consortium created by the twenty-seven Member States;
- a completely decentralised system, with twenty-seven national platforms which could operate in a harmonised manner or conversely operate in a totally desynchronised manner;
- an intermediate situation where a limited number of “regional” platforms, bringing together several Member States, coexist, as well as, potentially, several individual national platforms.

Secondly, it concerns the nature of the auctioning platform(s). In the same way, three different options exist:

- an entirely new *ad hoc* structure, exclusively dedicated to allowance auctions;
- a platform using sovereign debt auctions infrastructure, with financial intermediaries as single participants in the auctions. This is the model for British auctions, which transposed to France, would rely on the French Treasury Agency (“*Agence France Trésor*”), the Banque de France, and a number of intermediaries similar to the treasury bonds specialists (“*spécialistes en valeur du trésor*”);
- the use of a carbon exchange, such as existing European exchanges and primarily Bluenext, ECX, EEX, Nordpool, provided that they create a special auctioning compartment.

7.1 The implementation of a single system for the primary issuance of allowances at European level is an optimal solution from the point of view of companies

Several factors do favour the setting up of a single issuance platform as the best alternative for companies with compliance requirements under the ETS. **Firstly, the current trading**

system operates in a horizontal manner throughout the European continent, on the basis of a unified legal and institutional framework, i.e. the amended directive No. 2003/87/EC. Accordingly, since there is a single European market, its main source of supply, i.e. auctions of primary allowances, should be unique as well.

Secondly, allowances issued through auctions each represent an elementary unit of the same European “currency” which is freely tradable and fungible in the whole of the European Union. An allowance allocated today by a Member State can indeed be sold on the European market and be used without restriction by an industrial from another Member State in order to be surrendered as part of the annual compliance procedure.

Thirdly, if access to auctions is unrestricted geographically or according to participant category at European level, there is, on the face of it, no economic reason for opting for national auction systems. Indeed, opting for this second solution would risk inflating management and administration costs, in particular through the duplication of controls applicable to the same operators. As a corollary, different national auction systems would result in increased risks and operational costs for market players. They would indeed have to simultaneously “manage” their participation in several auction systems which differ in terms of design and operating rules: conditions of access (prequalification standards, in particular, financial criteria), volumetric conditions, differences in schedules (multiple and non-synchronised auctions), multiplicity of settlement-delivery mechanisms on national registers, and reporting obligations.

A completely decentralised system would also result in harmful distortions in the allocation of allowances at European level, which could result in decorrelations of prices between the different auctions and, therefore, harm the quality and credibility of the carbon price signal, which today is unique in Europe. The uniqueness and predictability of allowance price is indeed a key parameter for guiding investment decisions for industrial companies and energy producers over the medium to long term and, thus, respecting the bottom line objective of the ETS: substantially and sustainably reducing greenhouse gas emissions as cost efficiently as possible.

It is also probable that this situation would tempt States into adopting “free rider” and non-cooperative strategies. The development of aggressive strategy to make certain platforms more attractive to the detriment of others could certainly lead in the short term to a rationalisation of the auctioning process and result in productivity gains, but with a risk in the medium term of a race to find the cheapest solution which would lead to an overall decline in the level of regulatory requirements. The multiplicity of platforms, if not regulated, could lead to strategies to capture the financial proceeds of auctions and attempts at national revenue maximisation at the expense of partners, for example by optimising the auction schedule: early isolated sale of a large quantity of allowances at the very beginning of the period, and optimisation in the choice of auction dates.

The needs for allowances seem sufficiently great in phase III for operators to be required to turn to several platforms, especially since the volume of allowances that each State is qualified to issue is precisely defined in the directive. This will clearly limit the risk of massive eviction of minor States through volume but would not eliminate the possibility that some less attractive auctions (due to small quantities put up for auction or overly restrictive regulations) could be undersubscribed and result in an equilibrium price which is too low for lack of demand. This consideration is particularly important for France in phase III, given that

it is one of the small primary issuing States, according to the distribution rules adopted in amended directive 2003/87/EC.

In terms of international visibility, a single auctioning platform structured around a unified and regulated European carbon market also seems to be the best solution in order to position the European Union as a leader on the international carbon market.

In conclusion, the uniqueness and perfect substitutability of allowances issued, the supposedly unvarying scope of participants in the auctions in Europe, the risk of fragmentation in the European space and the argument of international visibility would favour the creation of a single platform for the organisation of auctions in Europe, in a similar way to the RGGI. French companies strongly support this idea.

Table No. 8: Advantages and disadvantages of the different organisation scenarios for auctioning platforms

<i>Scenarios</i>	<i>Advantages</i>	<i>Disadvantages</i>
1. Single European platform	<p>Is favoured by companies</p> <p>Minimises management and transaction costs</p> <p>No distortions on price signal</p> <p>Scope of the market covered by the auction is as broad as possible</p> <p>Contributes to positioning the European Union ahead of a global carbon market which will be set up in the coming years</p>	<p>Considering current positions of Member States, will lead to very difficult discussions</p> <p>Distance between the issuer and buyers of allowances</p>
<p>2. Coexistence of a limited number of regional platforms (multi-country) and national platforms</p> <p><i>2.1 Harmonisation of regulations (access, format of auctions, schedule) and centralisation of the price function (European Commission's hybrid approach)</i></p>	<p>Proximity between issuers and buyers of allowances</p> <p>Same advantages as the single platform in terms of visibility and homogeneity of the process for companies</p> <p>Scope of the market covered by the auction is as broad as possible</p> <p>Predictable, homogenous auctions</p>	<p>Multi-“counter” system, duplication of costs, uncertainty as to the nature of the centralised clearing platform</p>

<p>2.2 <i>Harmonisation without centralisation of the price function</i></p> <p>2.3 <i>Fragmentation</i></p>		<p>Same as in point 2.1 (except on the issue of clearing) + no firm guarantees as to the uniqueness of prices between auction platforms</p> <p>Smaller scope covered by the auction</p> <p>High risk of race to the cheapest solution and decline in the level of regulatory requirements and of non-cooperative strategies</p> <p>High risks and operational costs for participants</p> <p>Lesser scope covered by the auction.</p>
--	--	--

RECOMMENDATION No. 22: Emphasise that a single EU-wide platform would maximise the efficiency of auctions in Europe, ensure a uniform price signal, minimise operational risks and costs for all participants, and help the European Union act as a frontrunner with regard to the future development of carbon markets world-wide.

7.2 Directive 2003/87/EC does not rule formally on the issue of single or multiple platforms but orients more towards a decentralised configuration at State level

The single European platform scenario was discussed at European negotiations during the second half of 2008 and, therefore, could have been adopted along with the modified ETS directive in December 2008. In the end, the new text implicitly associates the platform with a simple question of organising the auctions, arbitrated within the framework of the regulations, to be adopted before June 30th 2010. If at this stage the directive does not explicitly exclude the option of a single platform, it implicitly confers the operational responsibility for auctions on Member States. Several of its provisions suggest indeed a choice in favour of the decentralised solution. Article 10 § 1 states that: “*Member States shall auction all allowances which are not allocated free of charge*”. In the same way, article 10 § 2 refers to “*the total quantity of allowances auctioned by each Member State*”, whilst article 10 § 4 states that “*Member States shall report on the proper implementation of the auctioning rules for each auction, [...] within one month of the auction*”.

A priori, these reflects an overall pattern whereby Member States organise the auction procedures themselves, according to a body of uniform principles (openness, transparency, non-discrimination, predictability) and harmonised rules (concerning the schedule, access to auctions, access to information, management of auctions, available

volumes) which are drawn up at European level as required under article 10 § 4 of the directive.

Several factors contribute to explaining this orientation. The European Commission, which could have been a key vector of the integrated approach based on the centralisation of auctions, has not made it a central element of its position. The architecture defined by the directive in this respect illustrates the desire to afford the States all attributions in the auction chain, from running the auctions to the collection and use of revenues. Having the organiser of the auction be the same entity as the final beneficiary of their revenues has the advantage of being consistent and simple. Each State is attributed a “carbon budget”, i.e. a number of allowances, which it has responsibility for auctioning and over which it has complete freedom of use. The alternative option would have been to allow the Member States to control these revenues whilst entrusting the auctions to a Community platform. This would also have been possible through a redistribution of revenues in euros on a *pro rata* basis of the allowances attributed to each State. This would, however, have brought about some dissymmetry that the directive seeks to avoid.

Subsidiarity is also present in the current organisation of the trading system: the States have responsibility in the first instance for the allocation of allowances to each activity sector and to each installation, under the control of the European Commission, which is the guarantor of the proper application of Community regulations. In this sense, directive 2003/87/EC, in its provisions relating to auctions, is very much an extension of the first two phases of the ETS and marks a transition towards a real pan-European approach. The experience of the national allocation plans has shown that an institutional framework, even fragmented into twenty-seven countries, could function viably on condition that the Commission fully plays its role of supranational authority for control and supervision in order to ensure the reality of efforts required of industrials and maintain a minimum of homogeneity in the treatment of sectors covered by the ETS in the different States. Since 2005, the main limits observed have come not so much from the lack of harmony and the central role allowed to the Member States but the very nature of certain rules imposed by the directive and, in particular, the ban on banking between phase I and phase II as well as the preponderance of free allocations based on historic emissions, as well as shortcomings, particularly in terms of transparency and periodicity of emission data. Maintaining the national level also reflects the desire to demonstrate a certain proximity between the auctioning authority and the smallest installations covered by the ETS.

Finally, the States do have great legitimacy and far-reaching and varied experience in the area of auctions of all type of assets (debt issues, allocation of wireless frequency bands, airport slots, hunting licences and permits, capacities of electrical production and rights to use the network), which is not the case of the Commission and of European agencies, whose primary mission is to produce standards and control their application. **This consideration does not in any way question the relevance of creating an *ad hoc* body at European level to pilot auctions, but highlights that there is no valid precedent in this area.**

In conclusion, it would seem that the directive constraints, but does not completely close the door to a single European platform, which is still a possibility for the organisation of auctions after 2012. In the Commission’s public consultation document of June 3rd 2009, it indeed appears explicitly as one of the options considered in the framework of the preparation of the June 2010 regulation.

7.3 The setting up of a single European platform, as a unique central issuer of allowances in Europe, could be delayed by the individual strategies of Member States

The notion of single platform is itself not devoid of ambiguity. It reflects the finality for which most private actors and States could legitimately hope, i.e. one of reducing to a minimum disruptions caused on the market by auctions and avoiding the fragmentation of the frame of reference for the carbon price in Europe. But it could also conceal the strategies of actors which, when combined, could result in failing to achieve the desired results. Three categories of actors must be distinguished. First of all, “small” countries, which have a limited number of allowances to allocate, could be in favour of a single platform with a view to optimising costs, without strategic ambitions.

Secondly, several major issuers of allowances could be tempted to organise their own platform and seek to convert it into a European platform, or at least a regional one. The will to set up a single platform could, therefore, be motivated by the collective objective sought (efficient allocation of allowances at European level) as well as by other arguments such as the development of a carbon finance hub, for example.

Finally, certain other major countries may also follow an exclusively national strategy and set up their own autonomous platform. Their motivation could be to create a national platform which is believed to be easier for the national industrial sectors to access.

The combination of these different strategies contributes *de facto* to moving the possibility of a future centralised auctioning platform at European level further down the line, *all the more* if the variety of operational choices already adopted by the European States in terms of their organisation of auctions in phase II is taken into account (use of a carbon exchange in Germany and Austria, an over-the-counter system with a bank in Norway).

7.4 Without a single European platform, forms of organisation without a central issuer, which could result in equivalent economic benefits for companies with requirements under the ETS, should be examined

The definition of a single platform is, in fact, multiple. It designates both the identity and the localisation of the issuer, and the main operational parameters of the auction. In the most immediate and most common interpretation, the single platform is understood in its “organic” sense as an auctioning authority and its institutional level (national, Community).

Within this framework, the main question would be to determine who allocates the allowances, with three possible scenarios. The first corresponds to an “autarkic” approach: each State issues and distributes allowances that it has on account of the rules of the directive. The second is a “reinforced cooperation” approach: the States mutualise their allowances and delegate the responsibility for auctioning them as part of a common pool to one of them or to a regional structure. The third scenario is part of an “integrated” approach: the twenty-seven Member States agree to hand over the operational responsibility of auctions and decide to mandate the Commission or a new European body to organise the auction of all allowances attributed to Member States. The revenues would then be redistributed to each State according to the apportionment established under the directive. The third scenario would

appear to be the most favourable from the point of view of the companies, to the extent that it necessarily implies not only good visibility over the issuing authority, but also and more importantly, a single set of rules and procedures which limit the costs of participation and uncertainty as to the price paid.

The relatively low probability of having a single issuer in Europe leads to consider a single European platform less from an “organic” point of view (one or more issue points), than from the point of view of the standardisation and predictability of rules, with a probable plurality of issuers. This allows to disconnect the question of the issuer from that of the auctioning system(s) set up by the issuer(s), and to protect the notion of ‘single’ platform with its inherent economic advantages.

This avenue is explored by the European Commission in its public consultation document through the idea of a “hybrid” model. In fact, this model separates the auction process into two levels. For participants, the auctions would first and foremost be carried out at State level or at the level of groups of States, according to a schedule which would be defined in advance., Control of eligibility criteria to participate in the auction would be carried out at this level, as well as the collection of bids. At the second level (Community level), a central auctioning platform would collate bids collected at national level. Price clearing according to the overall supply of allowances from the Member States and demand from bidders, would therefore happen at Community level. All the settlement-delivery arrangements would also be carried out at this level, for example via a centralised European clearing house.

Thus, the Commission imagines a coexistence between several auction processes (managed by the States or by regional platforms), with centralised price clearing on the basis of aggregation at European level of price/quantity curves collected from each platform. In this configuration, the national or regional platforms would only be responsible for filling the role of local interface with participants; the process, which would in fact be fairly highly automated, of determining prices and subsequently distributing allowances would be carried out at European level.

This proposal illustrates the variety of possible approaches to implement the concept of single platform from an operational point of view, whilst preventing it stalling over the political issue of the issuing authority. The main benefit of this solution is to retain some of the respective benefits of the entirely integrated and centralised auction system, in particular, the existence of a single auction schedule which is known to all actors at European level. This approach would maximise the allocative efficiency of auctions by operating in part at Community level. Such a configuration would also allow real transparency of the auction process, whilst offering guarantees in terms of open access for participants. In parallel, this solution would allow States to capitalise on existing carbon platforms: politically this would offer guarantees to those Member States that wished to set up their own regional platforms. Finally, it offers more guarantees in terms of cost reduction compared to a strictly decentralised system. Finally, this solution is not incompatible with the centralisation of certain functions at European level, in particular, market regulation and monitoring of auctions. However, as in the auction scenario with several issuers, this hybrid approach would require extremely strong harmonisation in terms of access to decentralised platforms, on the one hand, and the expression of demand on the other.

RECOMMENDATION No. 23: *Should there be no Community platform, strive to attain the highest level of harmonisation of auctioning schemes in Europe with regard to: standards of participation in auctions, auction format, distribution of allowances amongst bidders, auction schedule and volumes supplied, reporting and disclosure of auction results, links between national registries and the future single EU registry, auction oversight.*

RECOMMENDATION No. 24: *Should the EC « hybrid approach » be accepted by all Member States, promote the highest level of harmonisation at EU level in terms of access to individual auction platforms and bidding rules.*

RECOMMENDATION No. 25: *In this configuration, strive to achieve high standards in terms of harmonisation and homogenisation of auction systems and coordination between the platforms, not only with the partner Member States within the same platform, but with the other European platforms.*

7.5 France should opt for a robust platform in terms of auction efficiency and security

Schematically speaking, there are three generic approaches concerning the nature of auctioning platforms to put in place. The first would be to create *ex nihilo* an ad hoc auctioning platform, with a specially designated governing body which may, in this case, be a new one created to carry out this mission and define a specification of *ad hoc* procedures, and exclusively dedicated to operating CO₂ allowance auctions. From a practical point of view, this would virtually result in the setting up of a new administrative or para-administrative agency, or by a delegation contract signed by the Member State with a dedicated private operator. The downside of this operation would obviously be to create an entirely new auction system within a short timeframe without capitalising on existing similar systems.

The second would involve a hybrid approach inspired by the scheme used for public debt management, where the State would use for allowance auctions the methods and infrastructure developed for the auctioning of sovereign debt. In the UK, these auctions are organised by the *Debt Management Office* (DMO) and based on processes tried and tested for debt management and, in particular, the use of a limited number of exclusive intermediaries designated for the collection of bids (“primary participants”), and the use of a secure IT interface (Bloomberg), as described in chapter 2. Transposed to France, the British example would lead to mandate the AFT (Agence France Trésor) to manage auctions, who would then delegate operational management (transmission of price/quantity bids, control of counterparties) to a limited number of “carbon value specialists”. Having the AFT in the role of an indirect operator would enable to manage several hundred participants in the auctions, which would be open to any European actor. The AFT would certainly not be able to shoulder on its own the burden of controlling several hundred potential counterparties, without using intermediaries who could manage the relationships with these counterparties. *A priori*, this scenario could be implemented without any real difficulties on the basis of the Telsat telematic infrastructure which is currently being used by the Banque de France, and which, according to its current users, the Specialists in Treasury Bonds, offers full guarantees of security, reliability and proper execution of operations and, in particular, settlement-delivery. Choosing this solution would however involve defining upstream a legal and institutional

framework for allowance auction operations (access to auctions, legal regime of allowances, primary participants' obligations) and implementing the necessary adaptations at an operational level (introduction of new modules for allowance auctions in addition to those used for debt issues, connecting to the national allowance registry, etc.).

The third scenario would be based on the use of an existing carbon exchange, as in the German auctions, which will take place from 2010. The organiser of the auctions would in this case be an exchange already active in the carbon finance market. The biggest amongst them today are Bluenext (spot market) and ICE-ECX (for futures), which have clearly moved ahead of their competitors who are of smaller size (Nordpool, EEX, Climex). The carbon exchanges have implemented a set of rules and procedures in the framework of their current activity, to which major market players have become accustomed to over several years, and on the basis of which specific modules could be created to pilot auctions. The incremental costs of developing auctions on an existing market platform would, on the face of it, be limited, given that several of the technical components of the auctions are already in place as part of the market's current operations, both in terms of front office (negotiation system used by the traders for spot and futures, standard interface for monitoring transactions), middle office (Know Your Customer control system) and back office and post-market transaction processing (settlement-delivery of allowances on the registry accounts of participants). The main challenge in this scenario would lie in the selection procedure of the platform, on the one hand, and the need to remunerate its use by public authorities on the other.

The first approach should be rejected because, contrary to the others, it would completely ignore the existing systems and would not allow any benefit to be derived from instruments already in place, thus generating very high set-up and operating costs. Arbitration should, therefore, primarily focus on the other two options. Although there is no obvious solution, **three categories of criteria can be considered to assess the respective advantages and disadvantages of the two types of platform.**

The first one is efficiency, i.e. the capacity of the system to achieve its objectives at a satisfactory cost for companies and for the State. Controlling platform costs is a must, both for participants (access to auctions under economically reasonable conditions) and for the taxpayer who pays for it in the end: the first criteria of the success of an auction from the State's point of view (in addition to allocative efficiency) is the maximisation of expected revenues.

The elements brought to the attention of the group do not allow us in their present form to precisely assess the respective costs of development, operation and maintenance of an AFT platform based on intermediaries, on the one hand, and of an auctioning platform linked to an existing exchange on the other. It is likely that the marginal costs are globally similar in both cases, even though they are not necessarily of the same type. The two systems have already largely amortised their fixed costs: a secure IT access platform for participants. For a same number of participants (open access in both cases), the costs of control (respecting eligibility rules) and counterparty risk management (solvency, integrity) are, on the face of it, of the same order. However, it is important to emphasise that risk control is precisely at the heart of the profession of financial intermediaries who in this area have the necessary experience and tried and tested practices. This element is susceptible to secure operations carried out on behalf of the public authorities.

Both mechanisms are based on a complex system of agreements between the State and the auction manager(s). It would involve a “carbon value specialists” charter for the financial intermediaries, and a mandate/delegation contract between the State and an exchange. In both cases, a competitive European procedure will be necessary, either a primary participant selection procedure (as in the UK) or a European call for tenders to choose a carbon exchange (as in Germany for auctions beginning in 2010). Using an exchange (option 2) raises specific problems of contractualisation with the State, particularly from the point of view of the status of the AFT in relation to the exchange.

A robust and high performance payment-delivery system is already in place in both cases, allowing for financially secure transactions and the issuance of bonds/allowances on participants’ accounts (via Euroclear France for the AFT and the Banque de France, through a link to the national registry for Bluenext). It is important to emphasise that the use of an exchange avoids (or at least reduces) costs associated with linking up to the French national registry and the future Community registry. The choice of a platform organised via the AFT would *a contrario* mean setting up a new payment-delivery mechanism with a special connection to national registry accounts.

Taking into account these “hidden” costs associated with the discovery and learning curve of companies participating in a new auction system *a priori* plays in favour of a platform based on an existing carbon exchange. Several industrials and energy suppliers have in this respect emphasised their attachment to the fact that new auction procedures should not be too distant from the mechanisms put in place by their trading entities on the secondary market. Thus, the British auctions may have been penalised, to a certain extent, by a “surprise effect”, which may explain some of the discrepancy between the auction price and the average market price. The forthcoming auctions, which will include a fee of €5c/t paid by the Government to the financial intermediaries, as well as the setting up of the German auctions in 2010 (through an exchange), should allow us to refine our analysis on this point.

The second criterion to be taken into account is the platform’s capacity to guarantee broad access to the auctions for all European operators. An auction mechanism using the control and intermediation services of specialised financial institutions could in this respect function with a large number of counterparties at European level, in addition to the 300 regular participants in the European market. In practice, as the British auction shows, although access is open to all European operators, the number of final bidders is, however, fairly low (a few dozen only, with the number nevertheless doubling at each auction). In comparison, an exchange would initially only allow its own members to bid in the auction. For example, the Bluenext network (99 member companies) would cover the equivalent of 40% of European emissions, and 55% of French emissions²⁵, but would likely need to find a way of broadening its base within the framework of the European auctions without being able to reduce its membership standards, which are a fundamental guarantee of the respect of its KYC principles in the framework of a public mission delegation. In this respect, several possibilities are open, such as the nomination of *ad hoc* representatives amongst the members of the exchange who would be authorised to centralise orders on behalf of small buyers (who are non –members of the exchange) or the direct entry of bids from non-members by the exchange itself, thus acting on behalf of third parties. None of these options seems to provide a fully satisfactory solution to the problem. The first one would create a new category of “carbon value specialists”, who would be accredited within the exchange and who could both

²⁵ Source: *Bluenext*.

bid on their own behalf and on behalf of third parties. This would introduce a duality and distortion between, on the one hand, the participants who are members of the exchange, without obligation to pass on bids from third parties, and on the other, designated intermediaries, who would have an obligation to collect bids from the smaller players. The second solution would risk leading to bottlenecks in the case of major demand flows (a sharp increase in the number of orders to be entered for small emitters, explosion of control costs for the exchange).

RECOMMENDATION No. 26: In the absence of a Community platform, the platform put in place by France should be able to fulfil the objectives defined, i.e. ensure an effective distribution of allowances between participants and minimise the financial risks associated with the auction. In this respect, the two possible types of platform are difficult to rank at this stage. The “AFT/primary participants” solution would seem, on the face of it, preferable to the “turnkey” approach using a carbon exchange, with regards to managing broad access to the auction. This solution would imply defining a selection procedure for primary participants. The objective of creating a single European platform could however provide a case for using an existing carbon exchange, which could be selected through a European call for tenders open to all potential service providers.

SUMMARY

Auctioning CO₂ allowances: main goals and efficiency criteria	
Recommendation No. 1	<i>The guiding principles of any auction procedure should be to ensure an efficient allocation of allowances and to minimise financial losses for the auctioneer and for participants, especially those with compliance requirements under the ETS.</i>
Recommendation No. 2	<i>The auctioning procedure should be designed according to two main criteria in accordance with the abovementioned goals: keep the impact of auctions on the secondary market as low as possible; prevent against market manipulations, while minimising operational costs for all participants to the auction.</i>
The institutional set-up and price setting mechanisms	
Recommendation No. 3	<i>Opt for a single round sealed bid auction format.</i>
Recommendation No. 4	<i>Opt for the uniform closing price rule.</i>
Recommendation No. 5	<i>Keep the door open for a reserve price, depending on the state of the market with regard to potential disruptions. Should a reserve price be retained, its level should be linked to the secondary market prices. The reserve price should be publicised ahead of the auctions. Unsold allowances should be rolled into the “pot” of a next auction, depending on price developments on the primary and secondary markets.</i>
The implementation of auctions: calendar, volumes, spot vs. futures	
Recommendation No. 6	<i>In phase III, propose the organisation of CO₂ allowance auctions preferably on a weekly basis at European level.</i>
Recommendation No. 7	<i>Facilitate regulatory compliance by having auctions taking place shortly before yearly deadlines for surrendering of allowances. Take account of settlement and delivery specifications in futures and forward contracts (on the 2nd workday of December and on the 2nd workday of March). Rule out auctions in August.</i>
Recommendation No. 8	<i>The minimum amount of allowances auctioned should be 5 million tonnes in phase III for France. Lot specifications should be aligned with those on the secondary market (1000t).</i>
Recommendation No. 9	<i>Depending on upcoming community-wide rules, start early auctions for phase III from 2011 onwards, on the basis of a non-linear distribution of allowances (frontloading). Selling spot allowances would be immediately operational. Subject to thorough investigation of financial and accounting consequences for the State, move towards “blending” spot and futures as soon as 2011.</i>
Recommendation No. 10	<i>Disclose overall volumes to be auctioned each year during phase III as soon as 2011. The auction calendar and volumes to be supplied within a given year should be made public two months before the beginning of this year (1st workday of November).</i>
Recommendation No. 11	<i>Any changes to the amount of allowances to be auctioned or to the auction schedule should be made public in accordance with specific rules established ex ante at Community-level (for</i>

	<i>instance, a maximum annual percentage of allowances may be subject to modifications). Any other changes that do not comply with those requirements should be banned.</i>
Open auctions to all qualified bidders in a regulated environment	
Recommendation No. 12	<i>Any nationality-based or activity-related restriction in terms of participation to the auctions should be avoided as it would undermine the effectiveness, not to say the very existence of the emissions trading scheme in its current fashion. In order to prevent unintended consequences or disguised barriers to entry for operators with compliance requirements, the auctioning procedure and more generally the secondary market should be subject to community-wide regulation and oversight with a view to ensuring their resilience to market abuse and anticompetitive behaviors.</i>
Recommendation No. 13	<i>Squeeze risk should preferably be addressed through the customisation of auction features (sustained frequency, small amounts) and possibly through an early warning system. Purchase limits should be envisaged as a last resort instrument.</i>
Recommendation No. 14	<i>Participation to auctions and to the secondary market should be subject to community-wide standards, with regard to reputation and solvency, in order to avoid dumping that would harm the proper operation of the EU ETS.</i>
Recommendation No. 15	<i>The magnitude of the costs incurred by checking bidders' qualification implies that governments outsource the management of participation to auctions.</i>
Recommendation No. 16	<i>Ensure open access to small and medium companies. Non-competitive bidding facilities have so far not proven being effective and should therefore be avoided.</i>
The role of States on the secondary market	
Recommendation No. 17	<i>In principle, prohibit governments' interference with the secondary market after 2012.</i>
Regulation and oversight of auctions and of the secondary market	
Recommendation No. 18	<i>Carry out a joint work between the Ministry of Economy, the Ministry of Ecology, the Financial Markets Authority and the Energy Regulation Commission and their European counterparts on the regulation and supervision of auctions and carbon markets.</i>
Recommendation No. 19	<i>This work should be conducted in light of four guiding principles: ensure the efficiency of the scheme for companies with compliance requirements; prevent fraud and market manipulation; limit counterparty risk; ensure enforcement of rules governing auctions.</i>
Recommendation No. 20	<i>Within an hour following the auction, disclose widely accessible information, inter alia: auction clearing price; total amount of bids; total amount of allowances distributed to participants; number of participants to the auction; number of participants with eligible bids; bid/offer ratio; scaling ratio; and possibly figures capturing the concentration of allowances amongst successful bidders.</i>
Recommendation No. 21	<i>Quarterly or half-yearly reporting on auctions at community-</i>

	<i>level; release of the outcomes on the EC web portal.</i>
Auction platform	
Recommendation No. 22	<i>Emphasize that a single EU-wide platform would maximise the efficiency of auctions in Europe, ensure a uniform price signal, minimise operational risks and costs for all participants, and help the European Union act as a frontrunner with regard to the future development of carbon markets world-wide.</i>
Recommendation No. 23	<i>Should there be no Community platform, strive to attain the highest level of harmonisation of auctioning schemes in Europe with regard to: standards of participation in auctions, auction format, distribution of allowances amongst bidders, auction schedule and volumes supplied, reporting and disclosure of auction results, links between national registries and the future single EU registry, auction oversight.</i>
Recommendation No. 24	<i>Should the EC « hybrid approach » be accepted by all Member States, promote the highest level of harmonisation at EU level in terms of access to individual auction platforms and bidding rules.</i>
Recommendation No. 25	<i>In this configuration, strive to achieve high standards in terms of harmonisation and homogenisation of auction systems and coordination between the platforms, not only with the partner Member States within the same platform, but with the other possible European platforms.</i>
Recommendation No. 26	<i>In the absence of a Community platform, the platform put in place by France should be able to fulfil the objectives defined, i.e. ensure an effective distribution of allowances between participants and minimise the financial risks associated with the auction. In this respect, the two possible platforms are difficult to rank at this stage. The “AFT/primary participants” solution would seem, on the face of it, preferable to the “turnkey” approach using a carbon exchange to manage broad access to the auction. This solution would imply defining a selection procedure for primary participants. The objective of creating a single European platform could however play in favour of using an existing carbon exchange, which could be selected through a European call for tenders open to all potential service providers.</i>

APPENDICES

COMMISSION MEMBERS

Chairman: Jean-Michel CHARPIN, Inspecteur général des Finances
Rapporteurs: Jean-Jacques BARBÉRIS, Directorate General for the Treasury and Economic Policy Joffrey CÉLESTIN-URBAIN, Directorate General for Energy and Climate
Luc BAUMSTARK, Université Lumières Lyon II, Associate Professor in Economics
Loïc BONHOURE, Caisse des Dépôts et Consignations, Project Manager, Finance and Strategy Division
Xavier BONNET, Directorate General for the Treasury and Economic Policy, Deputy Director for Sectoral Policies
François-Nicolas BOQUET, Association Française des Entreprises Privées, Environment Director
Jean-Yves CANEILL, Electricité de France, Project Manager, Sustainable Development Division
Gaétan CADERO, Lafarge, Manager of Climate Change Initiatives
Philippe CHAUVEAU, Orbeo, Marketing Director
Dorothee COUCHARRIERE, Poweo, Institutional Relations Manager
Clémentine DE CRECY, Union des Industries et des Métiers de la Métallurgie, Environment Manager
Isabelle CURIEN, Deutsche Bank, Commodities Research, Carbon Analyst
Denis DAUMAL, Veolia, Trading desk Director
Daniel DELALANDE, Directorate General for Energy and Climate, Head of the climate change department
Pierre DUCRET, Caisse des Dépôts et Consignations, Director of Banking Services
Emmanuel FAGES, Orbeo, Head of Business Development
Christine FAURE-FEDIGAN, GDF-Suez, CO₂ Strategy Director
Sylvain DE FORGES, Veolia, Risks and Markets Director and MEDEF expert
Christian FRINGHIAN, Barclays Capital, Treasury Bond Specialists Manager,

Sylvain GOUPILLE, BNP Paribas, Head of Carbon Finance Solution
Soizic HEMION, Union Française de l'électricité, Deputy Agent General
Stéphanie JAMET, Organisation for Economic Cooperation and Development, Economist in the Economic Affairs Department
Henri LAMOTTE, Directorate General for the Treasury and Economic Policy, Head of the Public Policy Unit
Hélène LE DU, Directorate General of Energy and Climate, Deputy Director for Climate and Air Quality
Frédéric LEHMANN, Directorate General for Competitiveness, Industry and Services, Sustainable Industrial Development Unit
Vincent MAGES, Lafarge, Director of Climate Change Initiatives
Axel MARMOTTAN, Agence France Trésor, Operational Research Manager
Michel MOUGEOT, Université de Franche-Comté, Professor
Anna NGUYEN, Budget Division, Sustainable Development Unit
Christian de PERTHUIS, Université Paris-Dauphine, Associate Professor
David RAPIN, Bluenext, Business Development Director
Jean-Paul RENNE, Agence France Trésor, Operational Research Manager
Philippe ROSIER, Orbeo, Chairman
Raoul SALOMON, Barclays, Treasury Bond Specialists Manager, Barclays Capital
Jean-Luc SCHNEIDER, Organisation for Economic Cooperation and Development, Deputy Director of the Economic Affairs Department
Jean TRICOU, Fédération Bancaire Française, Investment Banking and Markets Director
Audrey ZERMATI-MALKIN, Société Nationale d'Electricité et de Thermique, Head of Regulations and Institutional Relations

*** Representatives of the Réseau Action Climat and World Wildlife Fund France were involved in the workgroup without participating in its meetings.

BIBLIOGRAPHY

German federal environment agency (UBA): « Entgeltliche Abgabe von Emissionsberechtigungen in der Handelsperiode 2008-2012 : Verkauf oder Auktionierung », (*Paying allocation of emission allowances during phase II of the ETS: sale or auctions*), May 2007

Caisse des Dépôts et Consignations, Reports n°6 & n°7 of the Club Tendances Carbone, March and June 2009

Centre d'analyse stratégique, « Rapport sur la valeur tutélaire du carbone » (*Report on the tutelary price of carbon*), July 2008

European Commission, « Etude d'impact pour le paquet énergie climat » (*Impact assessment for the Energy and Climate Package*), 2006

European Commission, « Auctioning of CO₂ emission allowances in the EU ETS - Report under the project "Review of EU Emissions Trading Scheme" », October 2006

Diekmann, and Schleich: « Auktionierung von Emissionsrechten - Eine Chance für mehr Gerechtigkeit und Effizienz im Emissionshandel », (*Emission allowance auctions – An opportunity for greater fairness and efficiency in the marketplace*), Zeitschrift für Energiewirtschaft 30, 2006

Evans and Peck: « National Emissions Trading Task Force – Possible Design for a Greenhouse Gas Emissions Trading System. Further Definition of the Auction Proposals in the NETT », Discussion Paper, August 2007

Fazekas : « Auction Design, Implementation and Results of the European Union Emissions Trading Scheme », Corvinus University of Budapest, Hungary; Columbia University, New York, April 2008

UK Government: « The Community Emissions Trading Scheme – Allocation of Allowances for Payment », Regulations and Scheme, 2008

Hepburn et al.: « Auctioning of EU ETS Phase II Allowances: how and why? », Climate Policy 6, June 2006

Holt et al.: « Auction design for selling CO₂ emission allowances under the regional greenhouse gas initiative », October 2007

Kieken : « Le rôle des enchères dans le système européen de allowances d'émissions échangeables » (*The role of auctions in the European Emissions Trading Scheme*), Idées pour le débat n°10, 2006

Klemperer: « What really matters in auction design », 2002

Matthes and Neuhoff: « Auctioning in the European Union Emissions Trading Scheme. Final report », Öko Institut e.V. and University of Cambridge, September 2007

Matthes and Neuhoff: « The role of auctions for emissions trading », Climat et Stratégies, September 2008

German environment ministry (BMU), « Release of EU Allowances in Germany », Monthly reports, January to November 2008

Austrian environment ministry (BMLFUW): « Verordnung des Bundesministeriums für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft über die Versteigerung von Emissionszertifikaten für die Periode 2008-2012, Entwurf und Erläuterungen », (*Rules on the auctioning of emission allowances for the period 2008-2012 – Proposals and clarifications*), 2008.

Neuhoff: « Auctions for CO₂ allowances – a straw man proposal », Climate Strategies Workshop report, University of Cambridge, Electricity Policy Research Group, May 2007

Pagnozzi: « Should Speculators Be Welcomed in Auctions? », March 2007

Regional Greenhouse Gas Initiative: « CO₂ Allowance Auction. Notice for CO₂ Allowance Auction 1 on September 25, 2008 », RGGI Inc., New York, 24 July 2008.