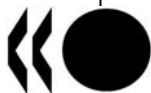


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Working Party on National Accounts

UPDATE ON THE WORK OF THE OECD/EUROSTAT TASK FORCE ON THE TREATMENT OF EMISSION PERMITS IN THE NATIONAL ACCOUNTS

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This document has been prepared by Nadim AHMAD, OECD and will be presented under item 3 of the draft agenda

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UPDATE ON THE WORK OF THE OECD/EUROSTAT TASK FORCE ON THE TREATMENT OF EMISSION PERMITS IN THE NATIONAL ACCOUNTS

1. Introduction

1. Tradable permits are a recent but rapidly growing phenomenon around the world. Permits issued under an emissions trading scheme (ETS) are intended to limit emissions and be tradable either domestically or both domestically and internationally. Emissions trading schemes are market-based mechanisms which share characteristics with environmental taxes.

2. In the framework of such schemes (and in particular of a cap and trade scheme), participating companies are allocated, or purchase, tradable emission permits¹. Units that succeed in reducing their emissions more than their allocated allowance can sell their surplus to other companies that have exceeded their allowance, or, often, (depending on the longevity of the permits) carry them forward for use in later years or sell them to other units that may choose to hold them for investment purposes or for their own later use.

3. Cap and trade mechanisms are the most common manifestation of emission permit schemes, as described below. They regulate (fix) the quantity of emissions (total cap), and the price of the permits fluctuate over their life in line with changes in demand and availability. Thus, the price signals received by companies engaged in the emission trading market are expected to encourage participants to find the most cost effective way to reduce, or even, using complimentary mechanisms such as Certified Emissions Reductions (see below), offset their emissions. In theory, an efficient market is expected to develop, allowing companies to decide whether to invest in environment-friendly production technologies or buy extra allowances.

4. The appearance of these schemes has created challenges for the national accounts. As described above the schemes share characteristics with taxes, and the permits themselves share characteristics with assets – indeed they can, in principle, be bought and sold by resident producers, non-resident producers, investment funds, households, NPISHs and other units². The immediate questions that come to mind therefore are: should payments for permits be treated as taxes? And, if the permits are assets, what type of assets are they?

5. But the issues to consider in an accounting sense go further still. The permits can be provided free, auctioned, or provided below a market price. Moreover, other mechanisms, such as the Clean Development Mechanism (CDMs), exist that result in permits that are interchangeable, economically, with those made available via cap and trade schemes. How should these flows be considered, and what

¹ According to the glossary of Integrated Environmental and Economic Accounting (SEEA, 2003), emission permits are defined as "The right to generate in the course of production activity a certain amount of specific emissions, for example greenhouse gases. Emission permits are a form of intangible non-produced assets." SEEA-6.53.

² Indeed examples exist of environmental groups purchasing permits with the specific intention of removing them from the market, so having an additional direct impact on emissions thresholds.

equivalence should there be, if any, between permits acquired via CDMs and those through cap and trade schemes say.

6. Some of these issues were considered as part of the 2008 SNA process and the sixth meeting of the Advisory Expert Group (AEG) on National Accounts (November 2008) concluded the following:

- ETS permits issued under cap-and-trade schemes should be recorded as taxes.
- The group favoured treating payments for permits as pre-paid taxes, paid as emissions took place but noted the implications for the measurement of government debt.
- There has been no recommendation on whether taxes and subsidies should be imputed when permits are issued without charge or at cost lower than the market price.
- Discussions did not reach a recommendation about how to record changes in the value of payments during their lives.
- No recommendations were reached for the treatment of other forms of emissions permits.

7. The key recommendation of the AEG however was to form a Task Force to further consider the treatment of emission permits in the national accounts.

8. This document reflects current progress and deliberations of the Task Force, which met on July 2009, and is scheduled to have its second meeting directly after the OECD National Accounts Working Party meeting in November 2009.

2. Emission Trading Schemes

9. Many emission trading schemes are in their infancy and it is likely that they will evolve in the coming years. In this respect the forthcoming Copenhagen Climate summit may add to the deliberations of the Task Force. This section provides some background on existing schemes.

2.1. The EU Emission Trading Scheme

10. The EU Emission Trading Scheme (EU ETS) is a cap and trade scheme for carbon dioxide emissions that has been operational since 2005, and reflects the result of extensive consultations in the context of the European Climate Change Programme as well as within the Council of Ministers and the European Parliament.³

11. Phase 1 of the scheme started on 1st January 2005 and ended in December 2007. The phase covered carbon dioxide emissions from 11.400 major sources owned by 5.000 companies in six key industry sectors across Europe including energy, glass, paper, metal and cement. The sources of emissions covered accounted for about half of EU carbon dioxide emissions.

³ Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for green house gas emissions allowance trading within the Community and amending Council Directive 96/61/EC. Brussels, 7 January, 2004 COM (2003)830 final.

12. Under the EU emission trading programme 27 participating countries handle the allocation process of allowances. A key characteristic of the scheme thus far, and of particular relevance for the Task Force, has been the free allocation of allowances: up to 95% in Phase 1 and up to 90% in Phase 2 (2008-2012), see below) which coincides with the Kyoto Protocol first commitment period.⁴ Several countries have announced their intention to conduct auctions however and so the proportion of permits provided free is likely to be below 90%.

13. The distribution of allowances in each Member State is based on guidance provided in Annex III of the ETS Directive. Member States communicate all the information related to the allocation of allowances through National Allocation Plans (NAP) for each trading period to the Commission for assessment.⁵

14. Phase 2, whose scope includes other greenhouse gases and not just carbon dioxide, started in 2008 and is scheduled to end in 2012. NAPs for all 27 EU Member States were assessed in October 2007, which were based on a targeted reduction of 6.5% of emissions compared to 2005 verified levels.

15. In Phase 2 emission "credits" can be used from two other mechanisms provided for by the Kyoto protocol: the Clean Development Mechanism (CDM) and the Joint Implementation (see below): Certified Emission Reductions (CERs) resulting from the former and Emission Reduction Units (ERUs) from the latter.

16. In Phase 3 (starting in 2013) a series of changes are foreseen following the proposals contained in the report of the European Climate Change Programme (ECCP) working group on the revision of the EU ETS.⁶

17. These changes include the centralization of the allocation process, increased auctioning of permits and the inclusion of other greenhouse gases. The changes were discussed by the Council and the European Parliament in 2008, with the prospect of them becoming effective from 2013 onwards (the 3rd Trading Period under the EU ETS).

18. The changes are designed to simplify and increase the harmonisation of the current EU ETS. For a start there will be a more centralised role in the allocation process, with the effective operation of a single Community registry for trading (which exists now, but EU Member State registries are being used until 2011). An important change is the increased use of auctioning, which is to become the general principle for allocation; increasing to more than 50% of allowances. Moreover free allocations will be made according to harmonised Community rules. Member States will no longer produce NAPs and allowances will remain valid indefinitely (being replaced at 8-year intervals).

⁴ Kyoto Protocol is an international agreement under the United Nations Framework Convention on Climate Change (UNFCCC), setting binding targets for 37 industrialised countries and the EU for greenhouse gas emissions (GHG). The targets aim at reducing total emissions by 5% over the period 2008-2012, compared to the base year 1990 level of emissions. The Kyoto Protocol was adopted in Kyoto, Japan in December 1997 and entered into force in February 2005.

⁵ NAPs for the first trading period were prepared and submitted in 2004. An account of the results of the implementation of the EU ETS in the first trading period (sometimes referred to as a learning or trial period) can be found in: National Allocation Plans 2005-7: Do they Deliver?, Key Lessons for Phase II of the EU ETS. Climate Action Network (CAN) Europe.

⁶ The Commission in 2000 launched the European Climate Change Programme (ECCP) responding to a request of the EU Council of Environment Ministers for putting forward a list of priority actions and policies for addressing the problem of climate change. The objective of the ECCP is to identify all the elements of an EU strategy for the implementation of the Kyoto protocol. The second ECCP was launched in 2005.

19. In addition agreement was reached in 2008 to include aviation in the ETS from 2012 onwards.

2.2. *The Kyoto protocol emission trading mechanisms*

20. In addition to tradable emission permits operated under a cap and trade scheme, the Kyoto Protocol (KP) provides for two other mechanisms:

- (a) The **Clean Development Mechanism (CDM)**, defined in Article 2 of the KP, allows a country with an emission reduction or emission limitation commitment under the Protocol (Annex B Party) to implement an emission reduction project in developing countries. Countries involved in such projects acquire tradable certified emission reduction (CER) credits (equivalent to one tone of carbon dioxide) which are counted for meeting their Kyoto targets. The mechanism has started operating from the beginning of 2006 and has already registered more than 1650 projects. It is projected that it will produce CERs amounting to more than 2.9 billion tones of CO₂ equivalent in the first commitment period (2008-2012).⁷
- (b) The **Joint Implementation Mechanism (JI)**, defined in Article 6 of KP, allows a country (of Annex B Party) with an emission reduction or emission limitation commitment under the Protocol to earn emission reduction units (ERU) from an emission reduction or emission removal project in another Annex B country. Each ERU is equivalent to one ton of CO₂ and can be counted for meeting the country's Kyoto target.⁸

*National practices*⁹

The US Acid Rain Program

21. The Acid Rain Program (ARP) is a cap and trade scheme for sulfur dioxide (SO₂) emissions. The program started in early 1990s with a goal to reduce annual SO₂ emissions by 10 million tons below their level in 1980. Phase I of the program (1995-2000) encompassed 110 coal-burning electric utility plants. Phase II, which started in 2000, reduced further the limit of emissions of these large emitting plants and also imposed restrictions on smaller, cleaner plants fired by coal, oil and gas.¹⁰

22. Under the program, participating units are allocated allowances based on their historic fuel consumption and a specific emission rate. Each allowance permits a unit to emit 1 ton of SO₂ during or after a specified year. For every ton of SO₂ emitted in a year one allowance is withdrawn. Allowances may be bought, sold or banked and can be acquired by anyone participating in the program. Allowances are auctioned annually by the Environmental Protection Agency (EPA) which runs electronic allowance and emission registries and is responsible for verification of emission data.

The US Nitrogen oxide (NO_x) program

23. This is a cap and trade scheme run by a partnership between federal and state governments. It first included nine northeast states in the late 1990s. The program was expanded in 2004 to include 19 states and the District of Columbia. The NO_x program covers large industrial boilers (like petroleum

⁷ For more information see on: <http://cdm.unfccc.int/index.html>

⁸ For more details see on: <http://ji.unfccc.int/index.html>

⁹ This section draws on information contained in: J. Reinaud and Cedric Philibert, IEA, Emission Trading: Trends and Projections, OECD, December 2007

¹⁰ For details see on: <http://www.epa.gov/airmarkets/progsregs/arp/basic.html#trading>

refineries, pulp and paper plants and steel plants) and electric generating companies. Under the program states have fixed NO_x budgets and each state may define the process of the allocation of allowances. EPA runs the allowance and emissions registries, verifies emissions data, and reconciles emissions and allowances at the end of each year.

The US Regional Greenhouse Gas Initiative (RGGI)

24. In 2005, seven Northeast States of the US agreed to implement the RGGI for the reduction of CO₂ emissions. The program covers electricity generators, and coal, oil and gas fired power generation with a capacity of over 25MW. The program was planned to start in 2009 to 2018 with 3 year trading periods. The program is mandatory and the allocation method was to be determined by each participating State. Some of the participating States (like Massachusetts and New York have committees to auction 100% of allowances and use the funds from trading allowances to finance energy efficiency, demand reduction and renewable energy programs.

The voluntary emission trading scheme of Japan

25. The voluntary emission trading scheme was first implemented in 2005 for CO₂ emissions from companies in the food, breweries, pulp, and chemical industries. The participating companies set voluntarily emission reduction targets. In 2007, the Scheme covered 61 units. Allowances are allocated by the Japanese Ministry of Environment. The allocation process is based on average emissions in the reference period excluding the expected emission reductions defined by the participating company.

The New South Wales Greenhouse Gas Abatement Scheme (NSW GGAS)

26. The annual trading periods of this regional scheme started in 2003. The scheme is mandatory for electricity generators and sellers as well as electricity retail license holders (benchmark participants) while large consumers may voluntarily manage their own GHG benchmarks. An annual State-wide benchmark is set for the electricity sector. The mandatory GHG benchmark is allocated to benchmark participants according to their share in the NSW demand for electricity. Compliance requires that emission abatement certificates be surrendered by benchmark participants.

The emission trading scheme of Norway

27. The scheme was implemented in 2005. It is similar to the EU ETS; however it is not mandatory for plants which are already taxed for CO₂ emissions. Furthermore, in the Norwegian scheme the reserve allocation of allowances are fewer than in the EU ETS. The scheme covers several industries (energy production, mineral oil refining, coke production, production and process of iron and steel, cement, lime, glass and ceramics). The allocation of allowances is free for the period 2005-2007 and based on average emissions during the period 1998-2001. Norway implemented the EU Directive in 2008.

28. In addition to the national and regional initiatives described briefly above, *Australia* and *Canada* have announced the implementation of emission trading schemes. The Australian government has committed to implement an ETS scheme in 2010. The basic features of the scheme are outlined in the Green Paper of the Department of Climate Change, Carbon Pollution Reduction Scheme.¹¹

¹¹ See. <http://www.climatechange.gov.au/greenpaper/factsheets/pubs/fs1.pdf>. Also in: Peter Harper, The treatment of Emissions Trading Scheme (ETS) permits in the Australian System of National Accounts. Background document to AEG paper SNA/M1.08/06: Emission permits

29. Under the *Australian* scheme, the government would set a cap on the allowed total amount of carbon pollution and each year would issue permits up to the annual cap. Emitters should acquire a permit for every ton of greenhouse gas they emit. The pollution produced by each installment will be monitored and verified. The permits will be surrendered by firms at the end of each year. Permits will generally be auctioned but certain categories of firms might receive some emissions permits for free.

30. In the Clean Air Regulatory Agenda, the *Canadian* government proposed a comprehensive framework for implement a mandatory program to reduce emissions of greenhouse gases and air pollutants. The industrial sectors covered by this program include, electricity generation produced by combustion, oil and gas, forest products, smelting and refining, iron and steel cement, lime and chemicals. The target for the reduction of emissions is based on an improvement of 6% each year for the period 2007-2010. The participating firms will be given several options to meet their legal obligations. Emission trading is one of these options including inter-firm trading, emission reduction credits from non-regulated activities, and certain credits from the Kyoto Protocol's CDM.¹²

3. The OECD-Eurostat Task Force on Emission Permits in the National Accounts

3.1 Background

31. Permits issued under an emission trading scheme (ETS) (or cap and trade scheme) are addressed in paragraphs 17.363 to 366 of the 2008 SNA (shown below with relevant text underlined)¹³. In summary it recommends that payments for emission permits should be recorded as taxes, and once acquired, as assets of the permit holder, valued at their market price; consistent with the SNA principle that the atmosphere is not an economic asset¹⁴.

17.363 Governments are increasingly turning to the issuing of emission permits as a means of controlling total emissions. These permits do not involve the use of a natural asset (there is no value placed on the atmosphere so it cannot be considered to be an economic asset) and are therefore classified as taxes even though the permitted "activity" is one of creating an externality. It is inherent in the concept that the permits will be tradeable and that there will be an active market in them. The permits therefore constitute assets and should be valued at the market price for which they can be sold.

17.364 The case of payments for discharging water may be considered as an example of the different possible ways of treating the payments.

17.365 If a payment to discharge water is a fine intended to inhibit discharge, it should be treated as a fine.

17.366 If a limited number of permits is issued with the intent to restrict discharges, the payment should be treated as a tax if the medium into which the water is discharged is not regarded as an asset in the SNA.

¹² For details see on: http://www.ec.gc.ca/doc/media/m_124/toc_eng.htm

¹³ There is no specific reference to the treatment of emission trading schemes in SNA 2008, though some countries have established recording practices for active schemes

¹⁴ The treatment of emission trading schemes in the Environmental Accounts, being considered by the London Group, may formulate a different view on the atmosphere but this will not be unprecedented in the context of SNA and environmental accounts comparisons – for example depletion of sub-soil assets is another area where treatments diverge.

32. This view was confirmed at the November 2008 AEG meeting, which concluded:
- ETS permits issued under cap-and-trade schemes should be recorded as taxes was confirmed.
 - The group favoured treating payments for permits as pre-paid taxes, paid as emissions took place but noted the implications for the measurement of government debt.
 - There has been no recommendation on whether taxes and subsidies should be imputed when permits are issued without charge or at cost lower than the market price.
 - Discussions did not reach a recommendation about how to record changes in the value of payments during their lives.
 - No recommendations were reached for the treatment of other forms of emissions permits.
33. The recommendations and discussions left open a number of issues, therefore, namely:
- a. What type of asset is the ETS permit?
 - b. What transactions should be recorded when a permit is issued?
 - c. What transactions should be recorded when a permit is surrendered?
 - d. In which period(s) should transactions be recorded?
 - e. How should changes in the value of permits be treated?
 - f. How should permits that are issued free or at a cost lower than market price be treated?
 - g. How should international trade in permits be recorded?
 - h. Should all emission permit schemes be recorded in the same way?
34. Emission permits are (or shortly will be) sold in a number of countries and regions, and a number of countries have already begun to formulate recommendations and although there appears to be broad convergence on the main issues, some differences are already beginning to appear in the preferred statistical recording. Moreover other bodies such as the London Group are also investigating the issue. The pressing need for international guidance was recognized by the AEG who subsequently recommended the establishment of a Task Force of experts.

3.2 Mandate of the Task Force

35. The ISWGNA is the umbrella body for the OECD-Eurostat Task Force, whose remit will be to develop comprehensive guidelines for the treatment of ETS and similar types of emission permits related to the use of the environment as a sink function (air, water, etc).
36. The Task Force has not yet covered the general treatment of government permits, however the mandate is provide clear explanations on the consistency of recording, and links drawn to other forms of licenses and permits issued by government, such as those related to the use of natural resources (water, timber, fish etc).
37. Specifically the aim of the Task Force is to:
1. Investigate the nature of all relevant aspects of emission permits granted under an ETS and any similar types of emission permits.

2. Develop comprehensive guidelines for recording the associated flows and stocks of emission permits (cap and trade schemes and related mechanisms, such as Joint Implementation and Clean Development Mechanisms) in the national accounts, consistent with the principles embodied in the SNA, the Balance of Payments manual and Government Finance Statistics and in the System of Environmental and Economic Accounting (SEEA).
3. Consider existing recommendations on the treatment of other licences and permits and justify any apparent divergence from them.
4. Collaborate with any other task force or working group addressing these issues, including the UN Committee of Experts on Environmental Economic Accounting (UNCEEA)

3.3 Treatment of permits/allowances in the accounts

38. Before considering the outstanding issues described above it is instructive at this stage to consider what the SNA has to say in general concerning emissions permits and allowances and in particular in their relation to taxes.

Rationale for a treatment as taxes (SNA 2008)

39. The idea that payments for tradable permits should be treated as a tax is not altogether surprising. They raise the costs of production. Moreover, one only need consider the analogy with direct taxes on emissions or other environmental taxes such as a petrol tax, to see that the payments themselves share close parallels with taxes. In addition permits that are sold also share the important characteristic of raising money for government.

40. More specifically, the improvement of the environment is the policy objective that government seeks to achieve by implementing measures intended to alter the behavior of economic agents. Thus, emission permits are the means to align social and private costs or to internalize the social costs created by the polluting activities. In this sense, it is a way for correcting market signals so that the polluter who is faced with a higher price per unit of production can either change the production method (by adopting environmentally friendly technologies) or reduce the amount of the activity that causes the pollution.¹⁵ On the other hand, governments may use the revenues raised by the sale of emission permits to finance investment in renewable energy sources or reduce other distorting taxes.

41. One could argue that the payments themselves are required as the purchasers acquire a traded asset (permits). However the SNA does provide a precedent of sorts in this respect with regards to casino and taxi licenses - which share some of the characteristics of emissions permits - where payments are recorded as taxes, in tandem with the appearance of a non-produced non-financial asset through other volume changes (OVC) in the accounts of the permit holder.

42. But there are some important differences to be recognised. Taxi or casino licenses, as non-produced non-financial assets, can be used continuously in production for the duration of the licence period and are compulsory in that they must be acquired before activity begins. Emission permits however are generally not needed during the period of production; they only need to be acquired at the end of any particular accounting period and producers can emit without actually holding a permit – they only need to acquire permits before the surrender date. Indeed, for the main emission schemes above, they may never need to acquire an emission permit issued under an ETS, because they may acquire instead another form of

¹⁵ In fact a polluter will buy permits as long as the marginal cost of permits is lower than the marginal cost of removing emissions (by adopting clean technologies).

permission such as a Certified Emission Reduction (CER). This raises some uncertainties about the ‘compulsory’ criterion of a tax in this sense, but it is clear that whether a CER or standard permit, acquired via an ETS, is surrendered, a compulsory transfer of an object of value to government is required at the surrender date.

43. There is, though, a clear difference relating to the uncertainty attached to the cost of a permit, which is established in practice by the market, compared to the cost of a taxi licence, which is often fixed, or an environmental tax. However in the case of emission permits government intervention is required for establishing, indirectly, a price for emissions and permits by establishing thresholds for emissions (restricting the supply of permits).

44. This difference between emission permits and taxi and casino licenses raises important questions about the time of recording of the tax. Taxi and casino licenses generally reflect tax payments that occur at the beginning of the accounting period¹⁶ whereas emission permits can be bought and exchanged many times over by institutions who never intend to use them for their intended purpose (covering own emissions). Recording a tax as having been paid by the original purchaser of the permit could mean that taxes on emissions could be recorded for an institution with no emissions. Moreover, as demonstrated above, permits in practice can last many years or indeed indefinitely. The issue of timing is discussed in more detail in later sections but the analogy with taxes on emissions, in a more general sense, points to a recording of taxes related to emission permits that aligns with the underlying economic event; namely the emissions.

45. At their first meeting, the Task Force took the view therefore that surrender of emissions permits satisfy the recording as a tax under SNA 2008.

Emission permits as assets

46. The decision not to consider the atmosphere as an asset in the 2008 SNA is consistent with the underlying philosophy of economic assets in the accounts. No value can meaningfully be placed on it in a national accounting sense, and crucially it is a common property resource that cannot be identified with a single owning entity, apart from at best, humanity in general.

47. However, there is a scarcity issue relating to the limited capacity of the environment to cleanse itself of pollution. Therefore, the abatement of pollution requires the use of scarce resources. In other words, it requires giving up other goods and services for having cleaner air. And the market value of emission permits reflects this trade off.

48. At the first meeting, the Task Force took the view that emission permits should be considered as assets in the SNA system.

4. Statistical treatment of emission permits issued under cap and trade schemes

4.1. User perspectives

49. Before moving on to describing the approaches considered by the Task Force to record transactions in emission permits it is perhaps instructive to reflect on a few relevant “user” issues.

50. Not surprisingly there is concern amongst fiscal analysts about the potential impact any recommendation has on the government accounts, in particular net lending/net borrowing, government

¹⁶ Though some may subsequently be tradeable, even if under heavy restrictions.

debt and the tax burden. These measures will be affected in different ways by the different proposals examined in the Task Force, and raise questions over potential volatility and gaps between cash receipts and accrued taxes.

51. But, important as the government accounts are, it is also important that one keeps in mind the perspective of the emitter, and the tradable nature of the permits. For example from an emitter's perspective, the acquisition of permits from another non-government unit, on the day that they are required to surrender permits, will, at least from an opportunity cost perspective, be considered by them as a tax on production, valued at the market price of the permits. This is an important issue for users of the accounts who wish to analyse the production process.

52. The cash actually received by government may differ significantly from the cash paid by the emitter for the permit and moreover, may have been received by government (indeed potentially a different government from that to which the permit was eventually surrendered) many years earlier. This potential, albeit presentational, conflict in the two perspectives is a natural consequence of the fact that unlike other taxes, it is the market that ultimately determines the price of permits at their surrender date.

Surrender date or date of pollution?

53. The Task Force agreed that in theory the time of recording of a tax arising from emission permits should be the point at which the emission takes place. This links the tax firmly to the period over which the related production was undertaken.

54. However in practice there is often a delay between the period of emission and the point at which emission permits must be surrendered. This delay may overlap two accounting periods, and thereby raise practical recording issues. Task Force members were willing to accept a degree of pragmatism in the precise recording of emission permits, and therefore in all of the examples that follow, for simplicity, the surrender date is assumed to correspond to the time emissions occurred.

4.2. Terminology

55. The discussions of the first meeting of the TF pointed to the need for clarification regarding the use of the terms *emission permits* and *emission allowances*. In several documents dealing with the statistical treatment of emission trading schemes, these terms are used interchangeably for the allocated instruments that can be traded within the schemes. The relevant paragraph of the 2008 SNA § 17.363 refers to the issuance of "emission permits as a means for controlling total emissions".

56. On the other hand, Directive 2003/87/EC of the European Parliament and of the Council establishes "a scheme for greenhouse gas emission allowance trading within the Community". But the Directive (Chapter I, Article 3d) refers to a "greenhouse gas emissions permit", issued in accordance with Articles 5 and 6. And in the EU ETS the instrument that can be traded between participating companies is defined as 'emissions allowance'. The interchangeability of these terms is clear but for simplicity, and to avoid confusion, the rest of this report refers to an 'emission permit' rather than the equivalent tradable instrument 'emissions allowance'.

4.3. Type of economic asset

57. The key issue that ultimately determines the treatment of transactions related to permits is the nature of the emission permit asset. The SNA provides for 3 possibilities: (a) a non-financial non-produced asset, (b) a financial asset, and (c) split assets (part financial asset, part non-financial non-produced asset). The following considers each possibility in turn, before summarising and comparing the merits and disadvantages of each in a concluding section.

58. An important common point to consider for all of the options presented below concerns the treatment of permits issued for free, or below market price, (which is currently largely the case), in particular whether and how any implicit transactions between government(s) and permit acquirers should be recorded.

4.3.1. Non-financial non-produced assets

59. Non-financial assets, when created, can enter either the balance sheet of their holder or their provider via 'other changes in volume' OCV.

60. Both possibilities, and sub-variants, are considered below.

(a) OCV in the acquiring unit.

61. This is arguably one of the simplest statistical approaches. When a non-produced non-financial asset is created in the balance sheets of the initial unit acquiring the permit, via OCV, the transactions closely follow those recorded in the case of taxi licenses, and any cash payment from the unit to government reflects a tax payment at the time the permit is purchased.

62. This clearly increases government tax revenues and net lending (B.9) in the 'issue' year. Of considerable concern however is the fact that if governments issue permits in tranches with significant intervening periods, both net lending and tax revenues will be volatile.

63. In between the issue and surrender date the permit can be bought and sold by units with the flows recorded at their transaction prices, with changes in the value of the non-produced non-financial asset being recorded as holding gains or losses (revaluation account). At the surrender date, whichever unit owns the permit surrenders it to government, and the value of the asset is fully removed by another OCV.

64. Changes in the market price of the asset before surrender create a difficulty in the corporation accounts as the unit surrendering the permit may not have been the original acquirer and it may have paid a different price to the original acquisition price. The surrendering unit's perspective will be to have paid a tax on production, but this will not be reflected in the relevant entry in the accounts. Only the accounts of the original recipient would record a tax on production paid at the acquisition date despite the fact that they sold the permit on, and indeed may never have generated any emissions.

65. When permits are provided for free, two approaches present themselves.

66. The first is to merely record the flows as above, in other words there would be no impact (no flows at all between government and the acquiring unit) on net lending nor taxes in the issue year. But the problem relating to the flows recorded at the surrender date, from the perspective of the surrendering unit remains.

67. The second approach is to record a subsidy from government to the acquiring unit, and a corresponding, and equivalent, tax payment from the acquiring unit to government, with both flows equal to the market value of the permit. The problems inherent in the first approach remain but now there is an impact on overall taxes. As a solution the only benefit of this approach is that it provides a less volatile series of taxes than its variant if the mix of auctioned and free assets is itself volatile. In any case when permits are issued on an irregular basis even this benefit is marginal.

68. An important negative consequence to consider in a more general sense relates to cross-border trade. The proposal for example allows for the possibility of one country receiving the cash payments and recording them as a tax but another country accepting them in settling emissions payments. This could lead

perversely to a situation where high taxes related to emission permits (and so perceived as emission taxes) are recorded in one country with relatively little recorded in another country with higher overall emissions.

69. A downside of the recording is that the appearance of non-produced non-financial assets adds to net national wealth. There is however some contention here as the creation of the permissions to emit is also likely to have a negative impact on the value of emitting companies, having a downward effect on their net wealth. Moreover the impact on net wealth is to some extent a one-off event, which is reversed when the value of the non-produced non-financial assets returns to zero when surrendered.

70. The key advantage of the proposal is that the cash receipts, both in terms of size and timing, align with recorded taxes.

(b) OCV in government with taxes recorded when the permits are issued

71. This approach has similar consequences to recording the OCV in the acquiring unit's accounts. The permits are created by OCV in the government accounts, with a value equivalent to their market price. When the permits are sold, a disposal of an asset is recorded by government, matched by a capital transfer. The impact on net lending and taxes is no different to the case when an OCV is recorded in the accounts of the original acquiring unit, and total government expenditure remains unchanged. All subsequent transactions are recorded in the same way.

72. When permits are issued for free, the accounts could also record a corresponding subsidy and tax imputation to reflect the imputed tax flows; although, as before, these latter flows can also be ignored. Given the additional complexity involved, namely the increased number of imputed flows, and the fact that all of the problems relating to net lending and taxes remain, this proposal has little advantage over the proposal that records the OCV in the acquiring unit.

(c) OCV in government with taxes recorded when the permits are surrendered

73. An alternative approach is to record taxes in the accounts only at the time of surrender of the permits. The approach is arguably an addition to the SNA but not necessarily in contradiction with it.

74. When emission permits are sold the acquiring unit purchases a non-produced non-financial asset. This increases net-lending of government (with reduced government expenditure).

75. In between the issue and surrender date the permit can be bought and sold by units with the flows recorded at their transaction prices, with changes in the value of the non-produced non-financial asset reflecting holding gains or losses

76. When permits are surrendered, government repurchases the non-financial non-produced asset at the prevailing market price and the OVC is immediately revalued to zero on acquisition by government. The unit returns the equivalent amount received from government for the sale of the asset as a payment of tax. Net lending would not be affected (although general government expenditure would).

77. When permits are issued for free, the accounts would need to record a capital transfer from government to the acquiring unit and a corresponding receipt from the acquiring unit to government to reflect the transfer of the non-produced non-financial asset. This would have no impact on net-lending. At surrender the transactions would follow as if the assets were auctioned, as described above, resulting in no impact to net-lending.

78. For cross-border trade, the approach presents little difficulties. Moreover because the tax is only recorded at the time of surrender, recorded taxes align with emissions and also align with the perspective

of the unit that surrendered the permit (recalling that the unit is not necessarily the same unit that initially acquired the permit). The only potential difficulty relates to recording revaluation changes of the permits in the original issuing country when permits are surrendered.

79. The key downsides of the proposal are:

- i) assets of significant value would be created and destroyed in the system by OVCs, impacting (albeit temporarily) on net worth and investment series for general government and other sectors.
- ii) recorded cash values for permits sold by government would not necessarily align with recorded tax revenues.

4.3.2. *Financial asset*

(d) Financial asset approach

80. Under this option the permit is recorded as a financial asset with a corresponding liability of government.¹⁷

81. The price paid for the permits at auction is considered as a tax prepayment. This has no impact on net lending or tax revenues at that point as the exchange is merely a financial transaction, similar to transactions in government securities. However there will be a direct impact on government gross debt (although this will be indirectly offset if government uses the cash received to redeem other government debt instruments).

82. In between the issue and surrender date the value of the permit (financial) asset can vary. This will have an on-going impact on government gross and net debt as the value of government liabilities will fall and rise in line with the market value of the permit.

83. At the surrender date, government accepts the surrender of the permit (D.29) as settlement of a tax liability of the polluter. This will impact on government net-lending.

84. When permits are provided for free, the acquiring unit gains an asset and government a liability. The accounts could record a subsidy or a capital transfer to the receiving unit. This would affect government net-lending. Subsequent flows related to transactions after the issue date follow those for auctioned permits.

85. The benefit of treating permits as financial assets, from a practical perspective, is that the tax receivable recorded in the accounts aligns with the economic activity to which it relates, and, the polluter's perspective.

86. However, even with this approach, complications remain. One is that the cash receipts received by government when the permit is issued may not align with the accrued flows, as the value of taxes received by government will reflect the market price of the permits immediately before they are surrendered. A second is that government gross debt is increased by the permits and varies in market value as the value of permits fluctuates.

¹⁷ Some TF members have precisely specified the asset within 'securities other than shares', although recording as other accounts payable (the counter-part of a prepayment of tax) was also considered.

87. Moreover when governments accept a permit issued by another government the accounts would need to reflect the debt cancellation or other form of debt-related transaction. This has implications for cross-comparisons of government debt, especially when permits of different origins and maturity can be freely exchanged and surrendered (permit holders can be expected to be indifferent to which particular permits they surrender, providing that all permits are equally acceptable).

4.3.3. *Split asset*

(e) *Split asset with non-produced asset written off at surrender*

88. The TF also examined a third major option, namely the treatment of a permit as two separate assets, a financial asset and a non-produced non-financial asset.

89. At issue of a permit, a financial asset is created to be valued at the price of purchase from government and, at any point in time the difference between the market-price and the original purchase price is treated as a non-financial non-produced asset. The non-produced non-financial asset is created through an OCV in the accounts of the acquiring unit. A liability corresponding to the financial asset is recorded in the government account, and remains the same value (initial purchase price) throughout the life of the permit. This would have no impact on government net-lending at the time of permit issue.

90. Between the issue and surrender date the permit (representing both a non-produced asset and a financial asset) can be bought and sold, with changes in the value reflecting changes in the value of the non-produced non-financial asset – which could have a negative value¹⁸.

91. At surrender, the financial part of the mixed asset is considered as the payment of the tax while the non-financial part is removed by an OCV in the accounts of the unit surrendering the permit. Tax revenues (and therefore net-lending) of government would increase by the value of the financial asset surrendered (i.e. the original price paid for the permit).

92. Free permits would be entirely non-financial assets as the financial part of the mixed asset would be zero.

93. The TF noted that the split asset approach, while neatly addressing the valuation issue, raises the possibility of a non-financial non-produced asset with negative values and retains some of the problems of the two other options discussed above; for example those relating to the impact and indeed comparability of government debt and the need to impute cancellations of debt between governments.

94. A particular additional problem with the approach relates to the time-series of recorded taxes, as the method differentiates between the taxes recorded in association with a particular permit at surrender depending on the actual price paid at the time the permit was issued. For example if just before it was required to surrender 10 permits, a polluter acquired permits on the market that were initially allocated for free but now had a market value of 20, no taxes on production would be recorded. If however the same polluter instead acquired 10 permits that originally had a market value of 30, taxes on production of 300 would be recorded. From the polluter's perspective this is incongruous as the polluter is indifferent to the original price paid for the permits. Clearly this is problematic but the problems become more complex if one considers such transactions at an international level.

¹⁸ The Task Force took note that the possibility of non-financial assets with negative value is highly unusual in the SNA system, with the only case being that of transferrable leases.

95. The underlying rationale for the approach is to have equality between cash received by government and taxes recorded (over the term) but maintaining this equality at the international level will require the recording of taxes on production to other governments. The production accounts will therefore show gross value-added being expropriated directly by other governments with further flows recorded in the generation of income accounts. This is not impossible but it will require, in practice, sophisticated registries to correctly record these flows.

(f) Split asset with non-produced asset not written off at surrender

96. One possible way around the two particular problems described above - the differential recording of taxes, dependent on their issue price; and the reallocation of income from taxes on production across governments – is to relax the objective of preserving equality between cash received by governments for permits and taxes recorded over the term. This can be achieved by recording the value of taxes received at surrender date as being equivalent to the combined value of the non-produced non-financial asset and the financial asset.

97. There would still be a need to have information on the respective values of the two types of assets as, for the non-produced non-financial asset, an imputed sale and purchase and subsequent revaluation in government's accounts, would need to be recorded (as described in option (c) above). But this information is also needed in option (e).

98. This neatly solves both problems, whilst providing a mechanism that records taxes paid from the producer's perspective. However the link between cash received and taxes is broken and the difficulties presented by the financial asset, related to government debt, remain.

4.3.4 Comparing proposals

99. Before comparing the various proposals it's instructive to consider the relationship between emission permits issued under a cap and trade scheme and permits acquired via CDMs or JIs, as, by design, instruments resulting from these mechanisms are equivalent, when surrendered, to those acquired via standard ETS allocation/auction schemes.

100. Permits gained via CDMs (CERs) or JIs (ERUs) result from actions undertaken by a unit that result in emission reductions in another country. In principle there is no effective limit on these (other than the de facto limit of zero global emissions) and the permits themselves, certainly for the two mechanisms in question, are not issued by one single government. Like standard emission permits, CERs and ERUs are tradable and, so, following the same logic, are economic assets. But, unlike, standard emission permits, it is difficult to see how CERs and ERUs can be treated as a financial asset, as no obvious counterparty with a financial liability appears to exist – unless one considers convoluted arguments that treat an international body, such as the UN, as being the counterparty; which is arguably stretching the argument too far.

101. This suggests that CERs and ERUs should be treated as non-financial non-produced assets that appear as OCV on the books of the units that acquire them. When this happens no flows between the unit and any government occur. However CER/ERU permits can be surrendered to governments in the same way as standard permits, and they can be purchased via any other unit before the surrender date.

102. From an emitter's perspective therefore, there is an indifference as to whether CERs/ERUs or standard emission permits are purchased as both can be used to extinguish 'liabilities' arising from emissions. Indeed, again from an emitter's perspective, especially an emitter that purchased the asset immediately prior to their surrender, the surrendering of permits is seen as a tax payment. This follows approach (c), with the sole difference being that CER/ERU permits initially appear on the books of the unit that qualified for them rather than government.

103. The only other alternative is to consider recording a tax payment when the unit acquires the CER/ERU (as in approach (a)). But this makes little sense. For a start it is not obvious which government actually receives the tax and, moreover, what the underlying tax event actually is. Moreover the acquisition of a CER/ERU is clearly not compulsory. It follows therefore that approach (c) best aligns with the preferred treatment of CERs/ERUs.

104. To simplify the discussion the table below summarises the key pros and cons of the various options.

105. The table illustrates that none of the approaches is perfect, and as stated earlier, this to a large extent reflects the fact that unlike other taxes, the market is de facto setting the price at the time of surrender. This has the inevitable consequence that it is impossible to reconcile two competing preferences – the desire to record taxes as seen from the perspective of emitters and the desire to reflect an equivalence between cash received by governments and taxes.

106. The table does not however describe all of the problematic issues inherent in each of the approaches and so it is worth recapitulating them here:

Non-financial non-produced assets

(a) OCV in the acquiring unit.

Cons

Potentially volatile net lending and tax series;
 Tax payer may not be the emitter;
 Taxes recorded as being paid in one country may bear little relation to emissions in that country.
 Net wealth affected
 Inconsistent with treatment of CERs and ERUs

Pros

No imputations needed for free permits
 Cash received = taxes.
 Simple to implement

(b) OCV in government with taxes recorded when the permits are issued

Cons

Potentially volatile net lending and tax series;
 Tax payer may not be the emitter;
 Taxes recorded as being paid in one country may bear little relation to emissions in that country.
 Net wealth affected
 Imputations for free permits
 Inconsistent with treatment of CERs and ERUs

Pros

Cash received = taxes.
 Simple to implement

(c) OCV in government with taxes recorded when the permits are surrendered

Cons

Net wealth affected
Cash received does not equal taxes.
Imputed flows to reflect sale, purchase and repurchase of permits.
Imputed flows for free permits

Pros

No problems dealing with international trade
Tax aligns with emitter's perspective
Tax paid in line with the underlying tax event
Consistent with treatment of CERs and ERUs
Simple to implement

Financial asset

(a) Financial asset approach

Cons

Government debt affected
Cash received does not equal taxes
Difficult to reflect international flows relating to cancellation of government liabilities
Potential distortionary impact on debt comparability
Inconsistent with treatment of CERs and ERUs

Pros

Tax aligns with emitter's perspective
Tax paid in line with the underlying tax event

Split asset

(a) Split asset with non-produced asset written off at surrender

Cons

Potential negative non-produced non-financial asset
Government debt affected
Difficult to reflect international flows relating to cancellation of government liabilities
Taxes recorded do not reflect taxes seen as being paid by the emitter
Differential treatment of the value of permits at surrender date – leading to potential volatility in tax statistics
Taxes on production paid to other governments

Pros

Cash received = taxes (albeit with a complicated realignment of flows across countries)
Tax payer is the emitter
Simple treatment of free permits
Tax paid in line with the underlying tax event

(b) Split asset with non-produced asset not written off at surrender

Cons

- Potential negative non-produced non-financial asset
- Government debt affected
- Difficult to reflect international flows relating to cancellation of government liabilities
- Taxes on production paid to other governments

Pros

- Tax payer is the emitter
- Simple treatment of free permits
- Tax aligns with emitter's perspective
- Tax paid in line with the underlying tax event

Table 1: Comparing the options

Asset type/Flow		Non-Produced Non Financial			Financial	Split			
		<i>OCV in the acquiring unit</i>	<i>OCV in government with taxes recorded when the permits are issued</i>	<i>OCV in government with taxes recorded when the permits are surrendered</i>	<i>Financial asset approach</i>	<i>Split asset with non-produced asset written off at surrender</i>	<i>Split asset with non-produced asset not written off at surrender</i>		
Auctioned	Government Net lending	Issue	Up	Up	Up	zero	zero	zero	
		Surrender	zero	zero	zero	Up	Up	Up	
	Taxes - from the perspective of	Producer	Does not align - producer may not be the emitter	Does not align - producer may not be the emitter	Aligns	Aligns	Does not align - producer may not be the emitter	Aligns	
		Government	Cash received = taxes	Cash received = taxes	Cash received does not equal taxes	Cash received does not equal taxes	Cash received = taxes	Cash received does not equal taxes	
		Debt	zero	zero	zero	Up	Up	Up	
		Wealth	zero in government accounts	Up in government accounts	Up in government accounts	zero	zero in government accounts	zero in government accounts	
		Government Net lending	Issue	zero	zero	zero	Down	zero	zero
	Free	Government Net lending	Surrender	zero	zero	zero	Up	zero	Up
			Producer	Does not align - final emitter may have purchased a permit on the market but this will not be recorded as a tax	Does not align - final emitter may have purchased a permit on the market but this will not be recorded as a tax	Aligns	Aligns	Does not align - final emitter may have purchased a permit on the market but this will not be recorded as a tax	Aligns
		Taxes - from the perspective of	Government	zero	zero	Cash received does not equal taxes	Cash received does not equal taxes	zero	zero
Debt			zero	zero	zero	Up	Up	Up	
Wealth		zero in government accounts	zero in government accounts	zero in government accounts	zero in government accounts	zero in government accounts	zero in government accounts	zero in government accounts	

4.4. *More on cross-border trade in permits*

107. The TF considered separately the issue of international transactions in permits. For some cap and trade schemes (notably the European ETS) the statistical recording of permits that can be traded across borders, both within the scheme's jurisdiction and outside it, is a rather complicated issue.

108. As a national government is obliged to accept the surrender of valid permits which were issued in another country, one key issue is whether cross-border taxes should be recorded (a) in the country where the permits were issued, (b) in the country where permits were surrendered or (c) in the accounts of international institutions.

109. Recording taxes in the accounts of governments involved in the transaction, creates additional complications when the permits are issued at below market price as it could lead to government paying subsidies to or receiving taxes from non-resident producers.

110. In particular, when there is a subsidy/transfer element to be recorded this creates two issues for recording cross-border transactions:

- (i) It creates a situation where recorded subsidies and taxes may not match for an individual country (depending on if that country is a net purchaser or seller of emissions permits) and therefore, for example, the government's net lending/net borrowing is affected.
- (ii) It raises a contradiction with existing national accounting rules, which specify that a national government shall not pay a subsidy on production to a non-resident unit.

111. An alternative to taxes being payable to national government would be to record taxes in the accounts of international institutions. More specifically, in the case of permits issued for free the tax revenue to be recorded should be payable to international institutions (whether the EU or UN¹⁹), with the accompanying subsidies payable by international institutions. This has the implication that the securities other than shares should be recorded as liabilities of the international institutions. It also has the implication that the recorded taxes would not enter into the most common definitions of the national tax burden.

112. The Task Force also considered two alternative approaches to this option:

- (a) the "double financial transaction", firstly between the international body and the national government, then between the national government and resident units, and (b) the direct taxation and subsidy transactions between international institutions and resident units (i.e. a national government does not act as a counter-party).

¹⁹ Policymakers in the EU take the view that the EU ETS is an independent, self-standing EU measure and therefore should not be assimilated to a UN scheme, even if "CDM" credits are accepted into the EU scheme under quantitative and qualitative safeguards.

In the case of auctioned permits which are treated as financial assets and taxes are recorded when permits are surrendered, B.9 of domestic government is improved by the value of permits surrendered to the domestic government by domestic operators as well as the amount received as current transfers (D.74) from the foreign government for the permits surrendered in the foreign country. The difference between the auctioned price and the market price of the permit is recorded as revaluation of securities (F3) in the accounts of domestic government.

B.9 of the foreign government is not affected, as taxes of production accrued with the surrender of permits by foreign companies is offset by the current transfer made to the domestic government. Thus, the net worth of the domestic economy (net claims against foreign economy) is affected by the amount of current transfers.

The transaction of permits between the two companies is a financial transaction and is reflected in their financial accounts.

5. Summary

113. Each of the options described above will be considered at the forthcoming meeting of the Task Force 9-10 November, together with a number of worked examples that fully illustrate the impact of the various proposals on the accounts, together with their implications in a practical context. Some of the options clearly require more detailed information than may be practicably available for example, and this emphasis on pragmatism will form an important part of the deliberations of the Task Force.

114. Many other issues will need to be developed further by the Task Force, in particular the relationship and implications of any recommendation on the treatment of permits more generally (and specifically) in the 2008 SNA. Indeed, recent discussions in a forum on industrial classifications, of entities involved in CDMs and JIs, have raised issues that may also need to be considered by the Task Force.

115. The Task Force intends to have a final report ready for wider dissemination and approval of the ISWGNA by the beginning of 2010.

APPENDIX: Other instruments***Emission permits not issued under a cap-and-trade scheme***

The treatment of these would have to be decided according to the nature of the regime involved. For example, a scheme where the revenue from the sale (or auction) of permits is used to further green technologies could be seen as one where the payments for the permits was seen as payment for services (within the production boundary of the SNA). However, if the beneficiaries of the green technologies are not the same group of units that pay for the permits, the case for continuing to treat the payments as a tax is still strong. In this case, implicit taxes and subsidies might be introduced as under the cap-and-trade schemes but given the variations in schemes that might exist, keeping a parallel with other ETS schemes in all cases might be difficult. Keeping a parallel between Kyoto and non-Kyoto schemes in the absence of implicit taxes and subsidies would inevitably be simpler.

Private, voluntary carbon offsets

More information on exactly how these work would be helpful but it seems that the authorities responsible for monitoring qualifying schemes would be aware of the sums involved, the countries of origin of the payments and the particular enterprises benefiting from the payments. Many of the same problems of recording the transactions involved appear as in the CER and ERU case.

It is unusual for current transfers to be made by households to corporations, but when individual consumers opt to make voluntary carbon offset payments, this might be one solution. Finding a solution to this problem has implications for the BPM as well as the SNA.

The environmental accounting solution of treating this as a payment to improve environmental services would fit well with similar treatment of the other types of permits but does not carry over immediately to the national accounts.