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Outcome Paper for Global Consultation

Issue #8b: Treatment of Emission Permits[1]

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[1] This outcome paper has been prepared by the SEEA Editor. It is based on papers presented to the London Group of Experts on Environmental Accounting and discussions among those experts. Investigation and research for this outcome paper was led by Ole Gravgard & Thomas Olsen of Statistics Denmark and Mark de Haan of Statistics Netherlands.

A. Introduction

1. With the increased attention to climate change and the different mechanisms being developed to respond to this policy challenge, there is a need to discuss specifically how to record emission permits in the revised System of Environmental and Economic Accounts (SEEA).

2. In the London Group discussion of this issue two primary alternatives were outlined. The first involves following the proposed treatment of the 2008 System of National Accounts (SNA). In general terms the 2008 SNA treatment considers payments for emission permits as tax payments. Beyond this however there has been considerable debate as to the precise amount of the tax payment to be recorded and the appropriate recording of related flows.

3. At the time of the London Group discussion the debate was ongoing and was being considered by an OECD/Eurostat Task Force. In October 2010 the report of the Task Force was delivered to the Inter Secretariat Working Group on National Accounts (ISWGNA) and in December 2010 the ISWGNA reached a determination on the treatment that should be applied in the context of the 2008 SNA. The details regarding this determination can be found in the February 2011 edition of the SNA News and Notes[2] and the key aspects are described in this paper.

4. An important feature of the 2008 SNA, and hence an underlying assumption of the proposed SNA treatment, is that the atmosphere is not within the asset boundary and hence pollution of the atmosphere is not considered use of an asset. Since the SEEA, as a separate and satellite system of the SNA can choose an alternative asset boundary, the London Group also discussed the accounting implications of extending the asset boundary to include the atmosphere. This alternative approach is described in this paper.

5. The London Group also discussed the availability of data on emission permits and proposals for the collection and tabulation of relevant data were made. Since the relevant input data are the same irrespective of the choice of accounting treatment these tables can be considered in their own right.

6. This outcome paper is structured to described the measurement issue in Section B, to discuss two alternative accounting treatments in Section C and, in Section D, to present tables for the compilation and presentation of data on emission permits. Recommendations are included at relevant points through the paper.

7. It is noted that the treatment of emission permits rests within a broader issue of the treatment of permits, leases and licences to use or access natural resources. The treatment in the SEEA-2003 was aligned to the treatment in the 1993 SNA but the treatment in the SNA has changed with the adoption of the 2008 SNA. Aside from the treatment of emission permits, the definition of key issues for consideration in the revised SEEA did not raise the issue of alignment between the revised SEEA and the 2008 SNA. However, the question was raised as to whether the SNA recommendations in this area were sufficiently clear for SEEA purposes. This matter has not been investigated or discussed in the London Group but, given the central role of natural resources in the SEEA, it is recommended that as much additional detail as possible be provided in the SEEA in respect of the various 2008 SNA treatments in this area.

B. Introduction to the measurement issue

8. The general issue under discussion concerns the increasingly common practice of governments to construct mechanisms, in the form of tradable instruments, to allow or permit people and businesses to emit various substances. So called Emission Trading Schemes (ETS), involve the issuing of permits that are tradable either domestically or internationally and ultimately are intended to limit the total volume of emissions.

9. Cap and trade schemes are the most common manifestation of emission trading schemes. They are designed to regulate the quantity of emissions (total cap) while letting the price of the permits fluctuate in line with changes in demand and availability. Thus, the price signals are expected to encourage

[2] http://unstats.un.org/unsd/nationalaccount/sna/nn30-31-en.pdf

polluters to find the most cost effective way to reduce or offset their emissions. In theory, an efficient market is expected to develop allowing companies to decide whether to invest in emission reducing technologies or to buy extra permits.

10. The accounting language in this area is developing and in the deliberations of the Task Force a distinction has made between *emission permits* as instruments that need to be acquired before emissions occur and *emission allowances* are instruments that do not need to be acquired before emissions occur. Emission permits are thus akin to driving licences or building permits that permit activity to be undertaken after they have been acquired. This restriction does not apply to emission allowances.

11. However, while there is merit in this distinction the ISWGNA took the view that it was not necessary to introduce new terminology for emission allowances. Thus the term emission permits will be used in this paper to describe the relevant contracts recognising that the recommendations are explicitly in relation to emission permits issued under cap and trade schemes. There may be other situations in which the distinction between allowances and permits needs to be introduced but such situations are not discussed here.

12. Permits are issued by governments in line with a targeted quantity of emissions. They may be issued for free to companies, they may be auctioned thus determining a point in time market price, or they may be issued at a price lower than the market price. Since there is a range of different schemes in operation and there are different allocations that might be traded across countries there may be, at any point in time, a range of different values and costs for permits that companies must consider depending on their emissions activity.

13. Where the price is non-zero, a payment must be made at the time of issue even though the emission event will occur sometime in the future. Some time after the emission occurs the polluter will need to surrender the permits covering the quantity emitted. For accounting purposes there are thus three key time points to consider: the permit issue date; the date of the emission; and the surrender date. Importantly, since the permits under consideration are tradable, the initial purchaser of a permit need not be the polluter required to surrender the permit – i.e. there can be trade in the permits.

14. Where trading does occur, the price paid by the initial purchaser to the government may not be the price paid by the polluter to the initial purchaser, with variation in price reflecting demand and availability of permits. Even in cases where no trading occurs, i.e. the initial purchaser eventually surrenders the permit, the market price of the permit may change over time depending on market conditions. Accounting for these various changes in price and the associated assets and liabilities has been the key issue under discussion.

15. The measurement issue can be summarised by the following series of questions:

> How should the initial payment to government for the permit be treated (including time of recording)?
>
> Is the permit, once issued, an asset for the holder, and if so what type of asset?
>
> How should changes in the price of the permit be recorded?
>
> What transactions need to be recorded at the time of the emission event and at the time of surrender?

16. More complex considerations arise in practice as there are multiple ETS and variations in the way in which they operate. For example, in addition to cap and trade schemes just described there is the Clean Development Mechanism (CDM) and the Joint Implementation (JI) mechanism both of which companies may use to manage the overall costs of emitting greenhouse gases. As well there are different considerations with respect to allocation of permits including the Assigned Amount Units (AAU) which are national ceilings for emissions established under the Kyoto Protocol. These AAU can themselves be traded.

17. While these more complex issues do need to be considered, answers to the core measurement questions noted above that must be found first. It is these questions that are considered in the next section.

C. Options for the treatment of emission permits

Treatment in the context of the 2008 SNA

18. The underlying assumption for the treatment in the 2008 SNA is that the atmosphere is not an economic asset since no separable ownership rights exist over it and no direct economic benefits can be earned from it. Consequently, payments for the use of the atmosphere as a sink cannot be regarded as either the purchase of an asset or as payments relating to the renting or leasing of an asset. Both of these treatments can be considered in the case of land, for example, which is regarded as an asset in the SNA.

19. Given the atmosphere is not an asset in the SNA, that the initial payments are to government, and that there is no production being undertaken by government (and hence no fee for service should be recorded) the payments must be considered as taxes.

20. Since the payment is made before the emission event occurs, then following normal SNA accrual accounting practices, the initial payment represents a financial asset of the purchaser (in effect pre-paid taxes) and a liability for the government. Where the price of the permit does not change between the issue date and the emission date this asset and liability pairing is unwound at the emission date since this is the time at which the tax should be recorded. (Note that it is assumed that the surrender date and the emission date coincide for the purpose of illustrating the accounting issues.) Where the permit is issued for free no taxes are recorded initially and no financial asset or liability needs to be recognised at the time of issue.

21. Where the price does change, as is to be expected in an emissions trading scheme, there are some significant accounting challenges that have been debated at length. As no clear answer could be found for the 2008 SNA release itself, a Task Force was established by the ISWGNA to discuss the matter and propose a way forward for subsequent ISWGNA decision.

22. The Task Force concluded that, given the institutional arrangements in place for emission permits, only two of all the options that it considered to record emission permits issued under cap and trade schemes, had merit.. Under the first alternative, in the simple case where all permits are issued for the same price, any difference between the pre-paid tax value of the permit

and the market value of the permit represents a marketable contract (non-produced nonfinancial

asset) for the holder . In the period in which the permit is issued this asset is brought into the accounts of the initial purchaser through an entry in the other changes in volume of asset account equal to the difference between the issue price and the market price of the permit. Then, when emissions occur, a tax payment equal to the value of the financial asset is recorded and the value of the permit in excess of the original issue price is removed from the accounts through an entry in the other changes in volume of assets account.

23. One implication of this treatment is that where the market price of the permit falls below the issue price an asset with negative value is recorded. While unusual since permits are typically provided for free, it is a recognised outcome from the adoption of this approach and can also occur for other non-produced, non-financial assets such as transferable contracts.

24. Under the second alternative the value of the permit at any point in time, the market price, is recorded as a financial asset of the holder and a liability of the government. Transactions in emission permits are then recorded as financial transactions. The key difference from the first alternative is that the amount of taxes that is recorded under second alternative is determined by the value of the permit at the time the emissions occur – i.e. the amount of taxes is likely to be different from the cash payment received by government at the time the permit was issued.

25. It is also noted that since the value of the financial asset varies with the price of emission permits, the liability of government in relation to the permits (and also measures of government debt) will also vary as permit prices change.

26. The Task Force could not make a unanimous recommendation and asked the ISWGNA to consider both alternatives in their recommendation to clarify the recording of emission permits issued under cap and trade schemes in the national accounts. The ISWGNA determined that the first alternative was the most suitable accounting approach in this situation.

27. A final note regarding the proposed accounting approach. In practice permits are rarely, if ever, all issued at the same price. This is particularly the case for international schemes, where different governments may sell the permits (that can be surrendered to any participating government) at different prices. The collective responsibility inherent in these schemes is reflected in the ISWGNA recommendation stating that the financial and non-financial shares of any permit at a given point in time must be the same for all permits, and are determined by the outstanding cash liabilities that governments have in respect of the outstanding permits. This means that the liability for a single permit can change over time but that total taxes recorded by governments remains equal to the total cash received.

28. Within the context of the preferred treatment the key issue from a SEEA perspective is where the cost of using the atmosphere is reflected in the accounts. Following the SNA treatment (and for explanation again assuming that all permits are issued at the same price) the initial payment to government is reflected as a tax on production recorded when emissions occur. This reduces the gross operating surplus and subsequent accounting aggregates of the enterprise that surrenders the permit. If the initial purchaser does not on-sell their permit then this cost does reflect the total monetary cost to the business for the use of the environment.

29. However, the enterprise that surrenders the permit may differ from the initial purchaser and may have paid a different price than that paid when the permit was issued. This means that the total monetary cost for the business that surrenders the permit will be equal to the tax component plus the difference (usually the excess) between the issue price and the market price. In practice, where these transactions take place between businesses in the same SNA sector, eg between corporations, then the value of the transaction will be netted out and not be shown in the sector accounts. The cost to the second business would therefore need to be inferred from assessment of the revaluation accounts. However, it is the case that the initial purchaser in this example is “better off” if the market price is higher than the initial price and hence the total monetary cost to the sector as a whole for the use of the atmosphere remains equal to the amount of the tax payment.

30. One advantage of recording the payments for permits as tax payments is that there is consistency in the recording of similar government regulation. For example, payments for CO_2 permits and CO_2 taxes are both recorded as taxes.

31. Another important advantage of adopting the SNA treatment in the revised SEEA is that both the SNA and the SEEA would adopt the same accounting treatment in this difficult area thus reducing potential levels of confusion among users of the accounts and reducing the workload for compilers of national and environmental accounts.

Treatment of the atmosphere as an asset

32. In the SEEA-2003 the atmosphere is recognised as an environmental asset within the broader category of ecosystems. The general definition of an asset in the SEEA-2003 includes those entities that provide environmental functions such as the sink function of the atmosphere. It is also understood that most environmental assets provide a range of functions and hence provide a range of use and non-use benefits to the economy and people more broadly.

33. Discussion regarding the asset boundary for the revised SEEA (see SEEA Revision Issue #10: Classification of assets) suggests that the same broad asset boundary will be retained. Hence, in general terms, the treatment of the atmosphere as an asset in the revised SEEA is possible. However, for the purposes of Volume 1 of the revised SEEA it is recommended that the asset boundary exclude ecosystems, including the atmosphere, due to their complex nature and also because they there are no direct economic benefits that are accrued from them.

34. Given this proposed asset boundary for Volume 1 of the revised SEEA some specific justifications are required in relation to the use of the atmosphere under ETS in order to adopt an accounting treatment of ETS in Volume 1 that is based on the treatment of the atmosphere as an asset. There are two primary justifications for an exceptional treatment. First, the development of ETS clearly links a series of economic benefits with the use of the atmosphere. Second, the atmosphere is only being considered in terms of its provision of a sink function rather than in terms of its broader set of benefits as an ecosystem. Thus the asset boundary could be drawn very specifically to allow for an alternative recording of ETS in Volume 1 of the revised SEEA.

35. Once the atmosphere is defined as an asset there is a range of accounting options that can be considered within the 2008 SNA. The key choice that must be made is whether the use of the atmosphere involves the effective leasing of the atmosphere by the government (as de facto legal owner) or whether the atmosphere is in fact effectively sold to the polluting industries and hence the risks and rewards of economic ownership are transferred.

36. To make this choice the 2008 SNA provides a series of considerations. These are whether:

- the contract (i.e. the permit) is of short-term duration, or renegotiable
- the contract is non-transferable
- the contract contains detailed stipulations on how the lessee should make use of the asset
- the contract includes conditions that give the lessor the unilateral right to terminate the lease without compensation
- the contract requires payments over the duration of the contract or a large upfront payment.

37. Consideration of these criteria against the nature of emission permits as described in Section B does not lead to a clear conclusion. Emission permits are, in general, transferable once purchased thus giving the purchaser considerable rights to economic benefits, but at the same time can only be used once even if this use may occur at any time over a lengthy period of time. A single payment is made upfront rather than on an ongoing basis but in many cases the permits are allocated with no payment at all. Thus it must be an on-balance assessment of whether the risks and benefits associated with the right to use the asset are appropriately allocated.

38. The conclusion of the London Group was that given the way that ETS generally operate the government should be considered as the legal owner of the atmosphere who makes it available to the purchaser of the permits for use in production in return for a payment described as rent. The rent is the income receivable (property income) by the owner of the atmosphere, i.e. the government. The key feature in this conclusion is that the permit has a one-off use rather than granting access for longer periods of time and hence the holder of the permit does not take on the risks and rewards of ownership.

39. In this regard, an emission permit differs from a permit to use for example radio spectra which give access for an extended period of time. Pollution permits under a cap and trade regime are more comparable to tradable fish quota. Like annual catch entitlements, carbon emission permits relate to the one-off use of an environmental asset.

40. As for the option of recording the payment as a tax described above, several accounting considerations remain to be resolved. The timing of the rent payment occurs at the time of the issue of the permit and hence a financial asset reflecting pre-payment of rent must be recorded and unwound in the period the emissions occur. The amount of rent that is recorded is equal to the initial issue price.

41. Since the market price of the permit can change an accounting treatment is also needed for the difference in value between the market price and the initial purchase price. It is proposed that this be done in the same way as for the earlier proposal, i.e. the creation of a non-produced non-financial asset. The need to account for the trading of permits means that the accounting treatment cannot be the same as would generally be applied in the case of non-produced assets such as land.

42. In terms of interpretation recording the payment as rent implies that there is no impact on measures of gross operating surplus of the polluter but measures of saving are reduced to the extent of the rent payment.

43. One potential disadvantage of this approach is that there would be a difference in the accounting treatment between the SEEA and the 2008 SNA.

Discussion and recommendation

44. In accounting terms there is relatively little difference between the two approaches (payments for emission permits as taxes or as rent) even though there is a fundamental difference in the asset boundary. Since under both approaches the payments are seen as payments to government, the distinction between recording as a tax payment and as a rent payment has a reduced significance in compilation terms. However, there are clear differences in the impacts on the generation of income account since the tax treatment affects this account but the rent treatment does not.

45. In both approaches the complicating factor is the upfront nature of the payment and the subsequent ability to trade the permits thus driving a wedge between the initial issue price and the market price. In this situation there is a need to record transactions in non-produced non-financial assets under both approaches.

46. On balance, it is recommended that the SEEA follow the treatment recommended by the ISWGNA whereby payments for emission permits are treated as taxes on production and the timing difference between cash received by government for the permits and the time of the emission gives rise to accounts receivable and payable (financial asset) and that the difference between the prepayment of tax and the market price of permits represents a marketable contract (a non-produced non-financial asset) for the holder). From an accounting perspective this approach allows more compatibility in the presentation of data under different government regulatory arrangements – e.g. both CO2 emission permits and CO2 taxes would be treated as taxes. Further the tax based approach provides a consistent message to users and compilers in relation to the treatment of these schemes in both the SNA and the SEEA. While extending the SEEA asset boundary is possible there are no clear accounting or analytical advantages to adopting an approach that regards payments for emission permits as payments of rent.

Recommendation 8b.1: That in the revised SEEA the treatment of emission permits should be consistent with the treatment recommended by the ISWGNA in their clarification of the 2008 SNA where the payments to government for emission permits at the time the emissions occur are treated as payments of taxes on production on an accrual basis and the timing difference between cash received by government for the permits and the time of the emission gives rise to accounts receivable and payable (financial asset) and that the difference between the prepayment of tax and the market price of permits represents a marketable contract (a non-produced non-financial asset) for the holder.

E. Tables for recording emission permits

Introduction

47. Discussion within the London Group concluded that whatever treatment might be adopted for the recording of emission permits in the SNA and the SEEA, it would be useful for tables to be described in the revised SEEA on the physical stock and flow of emission permits and the associated values of these permits.

48. Preparing such tables serves two main purposes. First, the tables account for all flows of permits within the national economy as well as between economies. That is, including the creation of the permits by general government or the use of mechanisms, e.g. Joint Implementation (JI) or the Clean Development Mechanism (CDM), to the trade with the permits and ultimately the surrendering of the permits.

49. The tables allow users and compilers to see which industries hold the permits and how industries comply with emission targets laid down in emission trading schemes. Furthermore, they allow users to see how national economies are complying with emission targets laid down in international agreements, for instance the Kyoto Protocol.

50. Second, the quantity tables, because of the close link with energy flow accounts and air emission accounts, allow users and modellers to analyse the energy input structure in the industries and hence, the industries' demand for permits. When the tables are compiled in monetary terms, it allows users to analyse the effect of for instance changes in the permit prices on the industries' decisions on which type of fuel to use.

Description of the quantity tables

51. The following description should be read in conjunction with the presentation of the proposed tables in Annex 1. The quantity tables on the physical emission permits comprise information on the stock of permits as well as the flows. It is important to emphasize that the tables should include information on the flow of all types of permits no matter what the origins of the permits are.

52. The balance sheet of general government in the first table (Table A1.1) contain information on the government's stock of permits as well as the number of permits the government issues, buys, sells or surrenders to international agencies, for instance to the UNFCCC.

53. The second table (Table A1.2) contains the balance sheet by institutional sector comprising information on the opening and closing stock of permits as well as the flows of the different types of permits by institutional sector.

54. The issues and purchases table (Table A1.3) shows the issues and purchases of permits broken down by industry and type of permit. That is, whether the permits have been given to the industries free of charge or the industries have bought them or finally, if the permit originates from mechanisms like the Joint Implementation (JI) or Clean Development (CDM) mechanisms. Furthermore, the supply table includes permits issued or purchases from the rest of the world.

55. It is important to be aware that some of the permits might be traded several times, which leads to a double counting in the issues and purchases table. Therefore, it is important to confront this table with the surrenders and sales table to make sure that the table is in balance.

56. The surrenders and sales table (Table A1.4) shows the actual use of the permits. That is, if the industries have surrendered the permit or if it has sold the permits. Another "use" is when industries or households decide to cancel the permits so that they are no longer available for others. The surrenders and sales table also includes information on flows of permits to the rest of the world as well as changes in inventories.

57. It is only industries covered by an emission trading scheme (ETS) and governments that can surrender permits. The government can surrender permits to international agencies like the UNFCCC on behalf of industries and households not covered by an ETS.

58. The fifth table (Table A1.5) comprises information on the opening stock and the closing stock of permits as well as the flows of the different types of permits. The table contains the same flows as in Table 3 and 4. The table however, contains information on each industry's stock of permits.

Description of the monetary tables

59. In addition to the tables on the physical flows, five similar tables (Tables A1.6- A1.10) are proposed where the flows are in monetary values. The only difference to the tables on the physical flows is that the balance sheets also contain information on revaluations.

60. Several market prices for emission permits already exist and it is thus possible to obtain (daily, monthly or yearly) average prices, which can be used to calculate the values. Fluctuations in the market price can be dealt with in the same way as fluctuations in the stock market are dealt with in the financial accounts of the national accounts.

61. Furthermore, the monetary tables are expected to support the recording of the flow of permits in the national accounts.

Other considerations

62. The proposed tables have been developed to be as simple and as general as possible. However, there are a few dimensions not reflected in the tables, which might be useful for analytical purposes and therefore could be included in national permit accounting systems.

63. First, it is often the case that only a part of the economy is part of an ETS. Therefore, in order to be able to identify the proportion of the emissions covered by the ETS it would be very useful if it was possible to identify the share of each industry (or institutional sector), which is part of the ETS.

64. Second, a distinction between whether the permits originate from the primary or secondary market may also be of analytical value.

Recommendation 8b.2: That the tables for recording information on emission permits as presented in the annex to the outcome paper should be incorporated into the revised SEEA.

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ANNEX 1

1.1 Quantity tables in number of permits

Table A1.1. Balance sheet of General Government (year YYYY)

			Government
		Million CO2 permits (=million tonnes of CO2)	
	Permits issued by Government		
	Permits to be allocated free of charge	**2355**	
	Permits to be allocated via sale	**987**	
1	**Opening stock**		**225**
2	Permits issued by Government to be allocated free of charge		2355
3	Permits issued by Government to be allocated via sale		987
4	Permits purchased by Government from other Government / Agents		241
5	Credits purchased by Government or generated via projects e.g. ERUs, CERs or AAUs		375
6	Government supply of permits allocated free of charge		2355
7	Government supply of permits allocated via sale		1169
8	Government supply of credits e.g. ERUs, CERs or AAUs allocated via sale		0
9	Permits owned by Government which are lost (cancelled permits)		0
10	Permits which are surrendered by Government e.g. to the UNFCCC		144
11	**Closing stock (=1+2+3+4+5-6-7-8-9-10)**		**515**

Please note that the figures in the tables are fictitious and serve an illustrative purpose only.

Table A1.2. Balance sheet by institutional sectors (year YYYY)

	Institutional Sectors				Total
	S.11 Non-financial corporations	S.12 Financial corporations	S.13 General government	S.14 Household and non-profit institutions serving households	
	Million CO_2 permits (=million tonnes of CO_2)				
1 Opening stock	**1083**	**50**	**225**	**5**	**1363**
2 Allocated free of charge	**2355**	**0**	**987**	**0**	**3342**
3 Purchased	**1165**	**0**	**241**	**0**	**1406**
Of which free permits	*235*	*0*	*80*	*0*	**315**
Of which non-free permits	*930*	*0*	*161*	*0*	**1091**
Of which from ROW	*0*	*0*	*0*	*0*	**0**
4 Credits e.g. ERUs, CERs or AAUs	**686**	**0**	**375**	**0**	**1061**
Of which purchased	*211*	*0*	*375*	*0*	**586**
Of which from domestic projects	*375*	*0*	*0*	*0*	**375**
Of which from ROW	*100*	*0*	*0*	*0*	**100**
5 Sold – permits	**304**	**35**	**1169**	**0**	**1508**
Of which free permits	*200*	*35*	*0*	*0*	**235**
Of which non-free permits	*104*	*0*	*987*	*0*	**1091**
Of which to ROW	*0*	*0*	*182*	*0*	**182**
6 Sold - credits e.g. ERUs, CERs or AAUs	**586**	**0**	**0**	**0**	**586**
Of which to other residents	*586*	*0*	*0*	*0*	**586**
Of which to ROW	*0*	*0*	*0*	*0*	**0**
7 Losses (cancelled permits)	**9**	**0**	**0**	**2**	**11**
8 Surrendered in order to offset emissions	**3612**	**0**	**144**	**0**	**3756**
9 Closing stock	**778**	**15**	**515**	**3**	**1311**

Table A1.3. Issues and purchases of permits (year YYYY)

	Industries by ISIC									Total domestic issues and purchases	From Rest of world	Total issues and purchases
	A	B	C	D	E	H	K	O	(F-U)		Total	
	Agriculture, forestry and fishing	Mining and quarrying	Manufacturing	Electricity, gas steam and air conditioning supply	Water supply; sewerage, waste management and remediation activities	Transportation and storage	Financial and insurance activities	Public administration etc.	Other Industries			
Emission permits	Million CO_2-permits (=million tonnes of CO_2)											
Total issues and purchases	**375**	**79**	**0**	**211**	**0**	**0**	**25**	**3342**	**0**	**4032**		**4132**
Of which free permits								2355		2355		**2355**
Of which non-free permits		79					25	987		1091		**1091**
Of which credits e.g. ERUs, CERs or AAUs	375			211						586	100	**686**

Please note that the figures in the tables are fictitious and serve an illustrative purpose only.

Table A1.4. Surrenders and sales of permits (year YYYY)

Surrenders and sales															
	Industries by ISIC														Total surrenders and sales(incl. losses)
	A	B	C	D	E	H	K	O	(F-U)	**Total**	House-holds	Chan-ges in inven-tories	To Rest of world	**Total**	
	Agriculture, forestry and fishing	Mining and quarrying	Manufacturing	Electricity, gas steam and air conditioning supply	Water supply; sewerage, waste management and remediation activities	Transportation and storage	Financial and insurance activities	Public administration etc.	Other Industries	Total Indu-stries			Total		
	Million CO_2-permits (=million tonnes of CO_2)														
Permits															
Total surrenders, sales and losses	**0**	**533**	**754**	**2110**	**0**	**415**	**35**	**144**	**9**	**4000**	**2**	**-52**	**182**	**132**	**4132**
Of which surrendered to offset emissions	0	481	854	1877	0	400	0	144	0	3756					
Of which sold permits	0	52	0	133	0	15	35	0	0	235					
Of which losses	0	0	0	0	0	0	0	0	9	9	2				

Please note that the figures in the tables are fictitious and serve an illustrative purpose only.

Table A1.5. Balance sheet by industries (year YYYY)

		Industries by ISIC										Households	Total
		A Agriculture, forestry and fishing	B Mining and quarrying	C Manufacturing	D Electricity, gas steam and air conditioning supply	E Water supply; sewerage, waste management and remediation activities	H Transportation and storage	K Financial and insurance activities	O Public administration etc.	(F-U) Other Industries	A-U **1. Total industries**	**2. Households**	
		Million CO_2 permits (=million tonnes of CO_2)											
1	**Opening stock**	**15**	**135**	**278**	**411**	**0**	**244**	**50**	**225**	**0**	**1358**	**5**	**1363**
2	**Allocated free of charge**	**0**	**300**	**472**	**1183**	**0**	**400**	**0**	**987**	**0**	**3342**	**0**	**3342**
3	**Purchased**	**0**	**204**	**206**	**538**	**0**	**208**	**0**	**241**	**9**	**1406**	**0**	**1406**
	Of which free permits	*0*	*0*	*52*	*50*	*0*	*133*	*0*	*80*	*0*	***315***	*0*	***315***
	Of which non-free permits	*0*	*204*	*154*	*488*	*0*	*75*	*0*	*161*	*9*	***1091***	*0*	***1091***
	Of which from ROW	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	***0***	*0*	***0***
4	**Credits e.g. ERUs, CERs or AAUs**	**375**	**0**	**121**	**100**	**0**	**90**	**0**	**375**	**0**	**1061**	**0**	**1061**
	Of which purchased	*0*	*0*	*21*	*100*	*0*	*90*	*0*	*375*	*0*	***586***	*0*	***586***
	Of which from domestic projects	*375*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	***375***	*0*	***375***
	Of which from ROW	*0*	*0*	*100*	*0*	*0*	*0*	*0*	*0*	*0*	***100***	*0*	***100***
5	**Sold – permits**	**0**	**131**	**0**	**133**	**0**	**40**	**35**	**1169**	**0**	**1508**	**0**	**1508**
	Of which free permits	*0*	*52*	*0*	*133*	*0*	*15*	*35*	*0*	*0*	***235***	*0*	***235***
	Of which non-free permits	*0*	*79*	*0*	*0*	*0*	*25*	*0*	*987*	*0*	***1091***	*0*	***1091***
	Of which to ROW	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*182*	*0*	***182***	*0*	***182***
6	**Sold - credits e.g. ERUs, CERs or AAUs**	**375**	**0**	**0**	**211**	**0**	**0**	**0**	**0**	**0**	**586**	**0**	**586**
	Of which to other residents	*375*	*0*	*0*	*211*	*0*	*0*	*0*	*0*	*0*	***586***	*0*	***586***
	Of which to ROW	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	***0***	*0*	***0***
7	**Losses (cancelled permits)**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9**	**9**	**2**	**11**
8	**Surrendered to offset emissions**	**0**	**481**	**854**	**1877**	**0**	**400**	**0**	**144**	**0**	**3756**	**0**	**3756**
9	**Closing stock (9=1+2+3+4-5-6-7-8)**	**15**	**27**	**223**	**11**	**0**	**502**	**15**	**515**	**0**	**1308**	**3**	**1311**

1.2 Quantity tables in monetary values

Table A1.6. Balance sheet of General Government (year YYYY)

		Government
	Billion (national currency)	
Permits issued by Government		
Permits to be allocated free of charge		
Permits to be allocated via sale		
1 Opening stock		
2 Permits issued by Government to be allocated free of charge		
3 Permits issued by Government to be allocated via sale		
4 Permits purchased by Government from other Government / Agents		
5 Credits purchased by Government or generated via projects e.g. ERUs, CERs or AAUs		
6 Government supply of permits allocated free of charge		
7 Government supply of permits allocated via sale		
8 Government supply of credits e.g. ERUs and CERs allocated via sale		
9 Permits owned by Government which are lost (cancelled permits)		
10 Permits which are surrendered by Government e.g. to the UNFCCC		
11 Revaluations		
12 Closing stock (=1+2+3+4+5-6-7-8-9-10-11)		

Table A1.7. Balance sheet by institutional sectors (year YYYY)

	Institutional Sectors				Total
	S.11 Non-financial corporations	S.12 Financial corporations	S.13 General government	S.14 Household and non-profit institutions serving households	
	Billion (national currency)				
1 Opening stock					
2 Allocated free of charge					
3 Purchased					
Of which free permits					
Of which non-free permits					
Of which from ROW					
4 Credits e.g. ERUs, CERs or AAUs					
Of which purchased					
Of which from domestic projects					
Of which from ROW					
5 Sold - permits					
Of which free permits					
Of which non-free permits					
Of which to ROW					
6 Sold - credits e.g. ERUs, CERs or AAUs					
Of which to other residents					
Of which to ROW					
7 Losses (cancelled permits)					
8 Surrendered to offset emissions					
9 Revaluations					
10 Closing stock					

Table A1.8. Issues and purchases of permits (year YYYY)

	Industries by ISIC									Total domestic issues and purchases	From Rest of the world	Total issues and purchases
	A	B	C	D	E	H	K	O	(F-U)		Total	
	Agriculture, forestry and fishing	Mining and quarrying	Manufacturing	Electricity, gas steam and air conditioning supply	Water supply; sewerage, waste management and remediation activities	Transportation and storage	Financial and insurance activities	Public administration etc.	Other Industries			
Emission permits	Billion (national currency)											
Total issues and purchases												
Of which free permits												
Of which non-free permits												
Of which credits e.g. ERUs, CERs or AAUs												

Table A1.9. Surrenders and sales of permits (year YYYY)

Surrenders and sales															
	Industries by ISIC														**Total surrenders and sales (incl. losses)**
	A	B	C	D	E	H	K	O	(F-U)	**Total**	House-holds	Chan-ges in inven-tories	To Rest of world	**Total**	
	Agriculture, forestry and fishing	Mining and quarrying	Manufacturing	Electricity, gas steam and air conditioning supply	Water supply; sewerage, waste management and remediation activities	Transportation and storage	Financial and insurance activities	Public administration etc.	Other Industries	Total Indu-stries			Total		
	Billion (national currency)														
Permits															
Total Surrenders, sales and losses															
Of which surrendered to offset emissions															
Of which sold permits															
Of which losses															

Table A1.10. Balance sheet by industries (year YYYY)

	Industries by ISIC										Households	Total
	A	B	C	D	E	H	K	O	(F-U)	A-U		
	Agriculture, forestry and fishing	Mining and quarrying	Manufacturing	Electricity, gas steam and air conditioning supply	Water supply; sewerage, waste management and remediation activities	Transportation and storage	Financial and insurance activities	Public administration etc.	Other Industries	**1. Total industries**	**2. Households**	
	Billion (national currency)											
1 Opening stock												
2 Allocated free of charge												
3 Purchased												
Of which free permits												
Of which non-free permits												
Of which from ROW												
4 Credits e.g. ERUs, CERs or AAUs												
Of which purchased												
Of which from domestic projects												
Of which from ROW												
5 Sold – permits												
Of which free permits												
Of which non-free permits												
Of which to ROW												
6 Sold - credits e.g. ERUs, CERs or AAUs												
Of which to other residents												
Of which to ROW												
7 Losses (cancelled permits)												
8 Surrendered to offset emissions												
9 Revaluations												
10 Closing stock (9=1+2+3+4-5-6-7-8-9)												