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For discussion

## **WS.7 Treatment of Emission Trading Schemes Summary of Workshop and Proposed Recording**

Prepared by the WS.7 Workshop Coordinators

INTERNATIONAL MONETARY FUND



## GN WS.7 Treatment of Emission Trading Schemes

### Summary of Workshop and Proposed Recording

Prepared by the workshop organizers with contributions from the Editorial Teams of the updates of BPM6 and the 2008 SNA, and with the support of David Bailey

The guidance note (GN) WS. 7 Treatment of Emission Trading Schemes has been prepared for the updates of the System of National Accounts 2008 (2008 SNA) and the sixth edition of the Balance of Payments and International Investment Position Manual (BPM6).

The majority of AEG on National Accounts and BOPCOM members have agreed on option 4a for recording emission permits, as a financial asset, more specifically categorized as other accounts receivable/ payable. The annex reproduces a numerical example for how to record emission permits under option 4a<sup>1</sup>. They have also agreed on the recording of the surrender of emission permits at issuance prices. However, a few members preferred a different treatment, namely, to treat emission permits as non-produced non-financial assets – contract, leases, and licenses (option 1).

The AEG and BOPCOM acknowledge that this is a very complex issue that has solicited varying and strong preferences across all macroeconomic domains. And that there are varying views regarding practical implementation of Option 4a. Key amongst them include how to treat changes in the market value of tradeable emission permits, emission permits issued freely, issues related to the measurement of transactions in emission permits, particularly those between residents and non-residents, and the treatment of multi-country schemes. It is also noted that there would be challenges in implementing the other options.

AEG and BOPCOM agreed with the view of the SNA and BPM editorial teams that, based on the comments received, the treatment of emission permits could not be finalized until after a proposed workshop had the opportunity to consider the practical implications associated with the recording of emission permits in macroeconomic statistics.

A virtual workshop with participation from both national accounts and balance of payments compilers was organized on 23 January 2024 to enable a full discussion of the issues through a purposeful dialogue on the data available and sources and methods used to record emission permits.

#### **Workshop**

The workshop consisted of country presentations from Canada, New Zealand and the U.S., a joint presentation from Eurostat and ECB, and a presentation from the IMF on the results of the global data consultation questionnaire. The workshop also provided for an opportunity for discussion amongst the participants.

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<sup>1</sup> The example was taken from a SHORT NOTE on the measurement of emission permits August 2023 Prepared by the Editorial Teams of the updates of BPM6 and the 2008 SNA, with the support of David Bailey, Emmanuel Manolikakis, and Pete Harper.

## Country and International Organizations Presentations

The country and international organization (IO) presentations highlighted the challenges faced by compilers in recording emission permits stemming from data gaps, diverse, evolving and changing emission schemes and resources constraints.

In Canada and the U.S., emission permits are recorded as other taxes on production at issuance price when the transaction occurs and no further additional recording in the accounts is undertaken<sup>2</sup>. (It is considered that the transactions – international and cross sectoral associated with the countries' schemes are at least for the present negligible).

Stats New Zealand has experimented with the various options and concluded that adjustments are needed for business accounts in all options; timing adjustments are also important; and lastly, issuance prices at the time of surrender aligns with government revenue, whereas the market prices – particularly when free permits are considered -- tend to overstate government revenue<sup>3</sup>.

Finally, the joint Eurostat/ECB presentation had three main components - an overview of the European Union Emission Trading Schemes (EU ETS), recording of international transactions using current data holdings, and lastly, a presentation by Eurostat GFS. From these presentations, it was evident that the current EU data holdings have some data gaps which create challenges for macroeconomic statistics compilers. The Eurostat GFS presented some interesting results:

- i) the ETS government revenue, while not negligible at 0.2% of GDP for the EU level on average, which can also constitute much larger revenue for some member states (exceeding 1% of GDP in certain cases) owing to uneven ETS/GDP distribution as well to differences in selling ratios, thus requiring proper accounting of ETS;
- ii) recording emission permits using the SNA News and Notes formula at the national level (option 4a\* or 5) produces negative stocks for 10 economies and spiraling stocks for some others, and thus the SNA News and Notes formula (option 4a\* or 5) can only be used at the scheme level (i.e., EU level).
- iii) time adjusted cash approaches distorts corporate tax expenditure (and net operating surplus), while correctly capturing government revenue (and broadly correctly its time of recording); and
- iv) the issuance prices or market prices of permits is not that different (owing to a fairly rapid 'rotation' of the stock of ETS in circulation, of less than 2 years), when permits issued freely are accounted as subsidies- (and their return is included in government revenue). However, when free permits are counted for at a value of zero, market prices and average issue price diverge considerably, as half of ETS are given for free (with wide divergences amongst countries).

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<sup>2</sup> According to Statistics Canada the government has no obligation to buy-back or render any "service" tied to the emission permit. Statistics Canada, therefore, does not constitute emission permits as financial claims nor records permits on the balance sheets of governments.

<sup>3</sup> If emission permits freely issued are considered as subsidies this would not result to an overestimate of government revenue.

To overcome some of these constraints, compilers need to adjust their methodologies and assumptions for time of recording, valuation, and other adjustments. For example, it is assumed that the time the emission permit is surrendered corresponds to the time that emissions occurred. This assumption implies that the payments for emission permits issued by the government in year  $t$  will be recorded as tax revenue in year  $t+n$  (often  $t+1$  or  $t+2$  given the relatively rapid rotation of these permits). Adjustments are also needed to align corporate expenses reported in business accounts with government revenue.

### **Data Sources Questionnaire**

A total of 70 respondents contributed to the global data consultation questionnaire, of which 50 respondents indicated that estimates for emission permits are currently available either in their national accounts or balance of payments programs. The analysis only included responses for those countries where emission permits are existent.

### **Data Availability to Record Emission Permits**

Government revenue at issuance prices is collected predominately from auctions. The issuance price is known in most cases, however knowing the price after issuance is a challenge and often impossible.

The number of surrendered permits and the institutional sector surrendering the permit is available for a small majority of respondents. For most respondents, the issuance price and the market price of the surrendered permit is not available. Few respondents can obtain market prices from public exchange listings.

Information available from corporate financial statements is not widely available. Only a third of respondents reported that they could collect information on the purchases and sales of emission permits and of holdings (assets). Businesses do not provide clear and uniform disclosures of cap-and-trade impacts to the market, while accounting guidelines recommend different recording options depending on the company's intention for the permit. As a result, when permits are used to offset greenhouse gas emissions they may be reflected as "current" assets and classified and valued similarly to inventories. In other cases, they may be recorded as intangible assets, financial assets or not disclosed altogether. Consequently, it is difficult to obtain consistent information from a corporation's financial statements.

Repository data is available for a limited number of economies. In the European Union practice, the EU Union registry has information on participating entities (e.g. compliance entities, financial intermediaries, national authorities), transactions (only the absolute number of emission certificates transferred is known, no monetary values), and other important information, however a lack of a unique identifier (ISIN number of EU emission permits does not identify the issuing country) creates identification challenges of emission permits and significant challenges in tracking secondary trading of emission permits.

For the joint California-Quebec emissions trading scheme, information is not publicly available for the place of issue or surrender for specific permits; however, this information may be available from the register. Permits may be differentiated by vintage but not by issuer.

### **Multi-Country Emission Trading Schemes**

Another complication pertains to international or multi-country permit schemes / arrangements, such as the European Union Emission Trading Scheme (EU ETS) which covers all the EU member states, United Kingdom in respect of generation of electricity for Northern Ireland, 3 EEA/EFTA countries, including

some issuance directly at EU level (Innovation Fund, Modernization Fund and RRF - Recovery and Resilience Facility for REPowerEU) and the joint California-Quebec emission trading scheme.

With these types of schemes, the issuing country will receive the proceeds of the sale of the permits through an auction process, however the use (surrender) of the permits can be – and in practice generally is – in a completely different jurisdiction including emission permits issued for free, which could result (and often results) in countries being structurally net exporters or net importers of emission permits without any direct correlation with emissions in that country. As a result, the SNA News and Notes formula is only applicable at the scheme level not at the country level.

In the absence of a unique identifier for emission permits, it's challenging (or impossible) to trace the sales and purchases of emission permits by issuing regions / countries. To overcome some of these challenges, additional assumptions and adjustments are required by compilers, including to record cross border transactions and stocks for these types of schemes.

One methodological approach proposed by one participant at the workshop for the EU multi-permit scheme would be to assign the counterpart of stocks and related transactions (following the debtor creditor principle) with the EU institutions (then deemed issuer of the ETS, thus entering "EU institutions' liabilities") that are then seen as on-lending to the issuing countries. This proposal solves the thorny BoP/IIP difficulties of identifying the debtor associated with each ETS claim. More generally, this solves most difficulties related to secondary market transactions (primary market transactions being already well documented through the EEX or the EU log). A numerical example was provided to the workshop.

A second methodological solution proposed, also adapted for multi-country scheme (and consistent with the first), is to separate the calculation of the tax revenue (= tax expenditure of corporation = ETS surrendered times an average issue price, using the SNA news and notes formula) from the government revenue (some sort of cash time adjusted) and record the difference as other current transfers (D.7) to or from the EU – reflecting the redistributive element of the ETS. This second proposal eliminates the distortion of the S.11 accounts that a simple time adjusted cash approach entails. These two proposals are consistent with approaches 4a.

The proposals emerging from the workshop have not been fully vetted by Eurostat, ECB nor any country. As such, further review is required prior to any endorsement. More importantly, to date, a general global solution has not been proposed.

### **Emission Permits Provided Freely**

It should be emphasized that emission permits issued freely were not discussed at the workshop. Emission permits provided freely to corporations do not have an associated tax cashflow. If taxes are maintained at issuance price (i.e. at zero), this implies that freely provided emission permits have zero value. However, the market value of emission permits (including freely provided ones) is clearly not zero.

When emission permits are transacted amongst corporations, domestically or with non-residents they should be recorded in the accounts. If a corporation exceeds its quota and requires additional permits, it will purchase them from the market some of which could have been initially provided freely. Additionally, one could argue that these are subsidies – governments are subsidizing polluters as they transition to cleaner production processes. Although, these are good arguments that could be considered for

emission permits issued freely to be assigned a value, numerous imputations (adjustments) will be required throughout the sequence of accounts.

Given the complexity, conceptual and practical difficulties, it is proposed for compilers not to record any asset/liability for freely issued emission permits, and instead revalue them back to zero every time there is a transaction with an emission permit that was freely issued.

## **Summary**

The workshop participants agreed that there has been substantial debate on the conceptual merits and the associated practical aspects for the recording of emissions permits and recognized that not everyone has been pleased nor will be pleased with any final decisions. It was acknowledged that any solution will not be “perfect”, either from a practical or from a conceptual perspective, but when taken together something that could be considered “good enough” should be possible, even if some remain dissatisfied.

It should be noted that there was no strong objection from participants of the workshop regarding the feasibility of implementing option 4a beyond the practical difficulties discussed during the workshop which in different degrees would be applicable to all possible methods. It is acknowledged that challenges remain, and that additional data sources and assumptions may be required in some cases.

Additionally, the recording of emission permits could be reconsidered if emissions trading schemes evolve over time, including in new ways that further impact the proposed treatment<sup>4</sup>.

## **Way Forward**

The workshop organizers along with the SNA and BPM lead editors recommend for emission permits to be recorded using option 4a – Emissions Permits recorded as Financial Assets with taxes on production recorded at surrender (issuance value). The editorial teams also note that freely issued emission permits are practically very difficult to implement and therefore propose that they should be assigned a value of zero. In so doing, emission permits auctioned or provided freely will follow the actual cash revenue received by governments.

It is important for users to be able to easily identify all recordings of emission permits in the accounts. In order for emission permits to be visible, it is recommended that a separate classification for emission permits be assigned that aligns with the new environmental classifications (see [GN WS.12](#)).

The recommendations from the workshop will be brought back to the AEG and BOPCOM for their consideration and endorsement.

The workshop organizers along with the SNA and BPM lead editors propose that additional guidance be developed to support compilers with implementation of the recommendations, which could include follow-up workshops. In particular, the expertise that has been developed by the countries/IOs that presented at the workshop would be invaluable in taking the work on practical implementation forward.

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<sup>4</sup> The post 2025 SNA research agenda will review the treatment of the atmosphere as an economic asset, which potentially may have an impact on the current recording treatment of emission permits.

**Annex:**

The AEG on National Accounts and BOPCOM have agreed on option 4 for recording emission permits, i.e. as a financial asset, more specifically other accounts receivable/ payable. They have also agreed on the recording of the surrender of emission permits at issuance prices.

This annex provides a numerical example for the recording of emission permits in line with Guidance Note WS.7, option 4a.

The starting point for the numerical example is that corporation A and corporation B have liquid assets (currency) in the value of \$1000 and \$1500, respectively. The numerical example then starts with the government issuing 100 emission permits at a price of \$10 each. The recording of the purchase of these permits by corporation A is rather straightforward. Government receives cash of \$1000 with the equivalent increase of liabilities (other accounts receivable/payable) representing the prepaid taxes on production, while corporation A pays \$1000 in cash with a concomitant increase in claims towards the government.

The next step in this example is that corporation A manages to sell the permits to corporation B at a price of \$15 for each permit. To arrive at an appropriate accounting according in line with option 4(a), the claims first need to be revalued from \$1000 (= 100 \* \$10) to \$1500 (= 100 \* \$15), after which the claims are sold at the agreed market price, in exchange for cash, to corporation B. Here, a problem arises, because the value of the financial claims in the books of the government differs from the value of the corresponding claims in the books of corporation B. Given that it has been agreed not to change the value in the government accounts, and in view of the surrender of the permits at issuance prices at a later moment in time, the claims in the books of corporation B need to be revalued downwards, as a consequence of which net worth of corporation B is misrepresented.

The last step relates to the surrender of half of the permits. This is relatively straightforward, as the value of the emission permits was already revalued to the issuance price. Taxes on production are recorded with a counterpart decrease in the value of the financial claims. All of this is starting from the assumption that one can apply the relevant valuations, which may be quite different from actual practice.



**Option 4(a): Recording of financial assets (other accounts payable/receivable) with recording of taxes on production at surrender at issuance prices.**

	Government		Corporation A		Corporation B	
<b>Starting point</b>						
Balance sheet: cash			1000		1500	
<b>Establishing emission permits</b>						
<b>Financial account</b>						
Cash	+1000		-1000			
Other accounts receivable/payable		+1000	+1000			
<b>Balance sheet</b>						
Cash	1000		0		1500	
Other accounts receivable/payable		1000	1000			
<b>Market price of emission permits increases from \$10 to \$15 and is sold to another corporation</b>						
<b>Financial account</b>						
Cash			+1500		-1500	
Other accounts receivable/payable			-1500		+1500	
<b>Revaluation account</b>						
Other accounts receivable/payable			+500		-500	
<b>Balance sheet</b>						
Cash	1000		1500		0	
Other accounts receivable/payable		1000			1000	
<b>Surrender of half of the emission permits at the issuance price</b>						
<b>Current account</b>						
Taxes on production	500					500
<b>Net lending/borrowing</b>	500				-500	
<b>Financial account</b>						
Cash						
Other accounts receivable/payable		-500			-500	
<b>Revaluation account</b>						
Other accounts receivable/payable						
<b>Balance sheet</b>						
Cash	1000		1500		0	
Other accounts receivable/payable		500			500	