

**Meeting:** International Public Sector Accounting  
Standards Board

**Meeting Location:** New York, USA

**Meeting Date:** March 8–11, 2016

## Agenda Item 14

For:

☐ Approval

☒ Discussion

☐ Information

### Emissions Trading Schemes

#### Objectives of Agenda Item

1. The objective of this session is to provide direction on development of an Emissions Trading Schemes consultation paper.

#### Materials Presented

Agenda Item 14.1	Issues Paper
Agenda Item 14.2	Draft Background Paper
Agenda Item 14.3	Case Studies for Background Paper
Agenda Item 14.4	ETS Accounting Options

#### Actions Requested

2. The IPSASB is asked to discuss the issues identified and provide direction for development of the Emissions Trading Schemes consultation paper and background paper.

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**Objectives of this Paper**

1. This paper identifies issues for development of a consultation paper (CP) on accounting for Emissions Trading Schemes (ETs). Staff seek direction from the International Public Sector Accounting Standards Board (IPSASB) on these issues.

**Background**

2. The ETS project was activated in late 2014. During 2015 IPSASB members directed staff to:
  - (a) Work closely with International Accounting Standards Board (IASB) staff to develop a coherent accounting approach that reflects the economic substance of transactions from both administrator and participant perspectives;
  - (b) Develop a background paper that describes governments' ETS public policy objectives, alternative interventions to reduce emissions, and their economic impacts, and which can inform both boards (the IPSASB and IASB) and be published as a staff paper; and
  - (c) Identify, describe and evaluate different accounting approaches for ETS involvement, to support the IPSASB's identification of a preferred treatment, including approaches that the IASB identifies for participants' accounting and the symmetrical treatment implied for an ETS administrator approaches given those participant approaches.
3. The ETS Task Based Group (TBG) consists of Angela Ryan, Aracelly Mendez, Fabienne Colignon (Conseil de Normalisation des Comptes Publics (CNOCP)), Martin Koehler (European Commission (EC)) and Umar Saeed (CPA–Canada).

*Collaboration with IASB Staff and Recent IASB Developments*

4. Development of the CP involves collaboration between IPSASB and IASB staff, where the equivalent IASB project is the "Pollutant Pricing Mechanisms" (PPM) project. The IASB last discussed PPM issues in June 2015, while an IASB education session occurred in October. There is no date presently for a further PPM discussion. In December, IPSASB staff indicated that a further PPM discussion could occur in the first quarter of 2016. Instead, as part of its Conceptual Framework project the IASB may discuss an ETS liability recognition issue in either March or April. Appendix A provides a summary of IASB discussions to date.

**Overview of Issues**

5. This paper requests the IPSASB's direction on the following issues:
  - (1) Background paper—directions on type of paper (e.g. staff paper or IPSASB paper), process to finalize, and directions for paper (agenda items 14.2 and 14.3); and,
  - (2) Accounting for an administrator's ETS involvement.
6. For issue 2, the following supporting information has been provided:
  - (a) Descriptions of three emission scenarios, provided in Appendix B to this Issues Paper; and
  - (b) Descriptions of four accounting options, provided as Agenda Item 14.4.

**Issue 1: Background Paper—Type of Publication and Process to Finalize**

7. Staff are developing an ETS background paper, which will describe governments' public policy objectives when developing an ETS, the other types of interventions that governments could use to reduce emissions and the economic impacts of different interventions.
8. In December the IPSASB supported a draft structure for the paper and the following development process:
  - (a) IPSASB and IASB staff work together on the background paper's development;
  - (b) Both boards—IASB and IPSASB—have access to the background paper, either as part of its development, as a meeting paper, or provided for information to support project considerations.; and
  - (c) Consider possible publication of the background paper as either an IPSASB staff paper or possibly a joint IPSASB–IASB staff paper.

*IASB Staff on Background Paper*

9. IASB staff had indicated scope to work together on the background paper's development. In December, what this could mean in practice was still unclear. During January–February, a teleconference between IPSASB–IASB project staff indicated that IASB staff were working on issues relevant to the paper. At that point IASB staff were working on:
  - (a) Classification of different government interventions; and
  - (b) Comparison of the economic impact of an ETSs and a tax on emissions.
10. It now appears that higher IASB priorities are likely to mean that IASB staff are unable to contribute to development of the background paper.

*Publication as Staff Paper, IPSASB Approved Paper or Meeting Paper?*

11. In December the IPSASB noted the question of the paper's publication with staff proposing to ask for direction closer to paper finalization. The publication options identified by staff are to publish the background paper as an IPSASB:
  - (a) Meeting paper, where its status as "final" could be noted;
  - (b) Staff paper; or
  - (c) Information paper, approved by the IPSASB.
12. Each option allows for circulation of the paper to the IASB, for its information, through either correspondence from the IPSASB staff or from the IPSASB Chair.

*Staff Recommendation—Publication as Staff Paper*

13. Staff recommends that, once completed, the background paper should be published as an IPSASB staff paper.
14. Agenda paper 14.2 illustrates a recommended format for the staff paper, which treats the set of case studies as separate documents linked to the main document. Agenda paper 14.3 includes all case studies developed to date.

#### Reasons for this Recommendation

15. The benefits of publishing the background paper as a staff paper are that:
  - (a) The paper will have more status and reach a wider audience, than would be the case for an IPSASB meeting paper.
  - (b) Publication informs stakeholders of work presently in-progress on the IPSASB's ETS project and could benefit national standard setters also considering ETS accounting issues.
16. Publication as an IPSASB-approved document (e.g. a consultation paper) does not appear appropriate, because the background paper would:
  - (a) Be published for information only;
  - (b) *Not* include questions for constituents to gain their views on specific matters raised in the paper; and
  - (c) *Not* be an IPSASB document that proposes views on financial reporting appropriate to a particular topic (i.e. it is not either a CP, exposure draft (ED), or final pronouncement).
17. The IPSASB has previously published a staff paper in similar circumstances, when it published an initial staff paper on public sector specific characteristics as part of its development of *The Conceptual Framework for General Purpose Financial Reporting by Public Sector Entities* (the Conceptual Framework). That paper was revised into an ED, and then became The Preface to the Conceptual Framework, both of which required IPSASB review and approval. Some or all of this background paper's coverage could eventually be included in the IPSASB's CP, *Accounting for Emissions Trading Scheme Involvement*. Therefore, publication as a staff paper does not preclude subsequent IPSASB review and approval of the background paper's coverage to the extent that it is also included in the CP.
18. Publication of the background paper as a joint IASB-IPSASB staff paper appears unlikely, because the IASB is reconsidering whether and when the IASB should publish staff papers.

#### *Progress on the Background Paper since December*

19. Since the IPSASB's December meeting, the main revisions to the background paper have been to address directions from the IPSASB's December discussion, include a new introduction, revise the intervention categories and makes changes so that the paper is more concise.

#### *Process to Finalize Background Paper—Staff Paper*

20. For publication as a staff paper, it is recommended that the following process be followed:
  - (a) Staff further develop the paper with TBG input and review;
  - (b) Once both staff and TBG members are satisfied with the paper's quality, provide to the IPSASB Chair for review;
  - (c) Once Chair agrees that the paper can be issued as a staff paper, it is referred to the Director of the IPSASB Technical Department for final review for publication.
21. Another approach would be to gain further IPSASB input via email or through review and discussion at an IPSASB meeting.

Case Studies: Development, review and permissions

22. The list of case studies in Appendix A of the draft background paper provides an illustrative selection of different types of intervention, while also covering a good selection of geographic regions. IPSASB views are requested on whether there are any case studies that should be included or excluded.
23. Two unknowns with respect to publication timing, both related to the case studies, are the length of time required to:
  - (a) Gain relevant government agencies' confirmations on case study descriptions; and
  - (b) Work through any reproduction permissions related to the case studies.
24. In several cases the information included in these case studies is derived from other sources, with one important source being country case studies developed by the International Emission Traders Association (IETA). Although the case studies for the background paper are brief summaries of the longer case studies, which means that it is not simply a word-for-word reproduction, staff still considers it prudent to check the situation with respect to copyright permissions. (The International Federation of Accountants (IFAC) Translations and Permissions department will be able to advise on what is required.)
25. If the IPSASB agrees with the process outlined above then the timing for publication appears likely to be mid-2016.

**Actions Requested:**

1. The IPSASB is asked to provide direction on the draft background paper (agenda item 14.2), and indicate whether:
  - (a) The paper should be developed into a staff paper;
  - (b) Paper finalization should follow the process described in paragraph 20 above; and
  - (c) Any additional case study should be included or any case study excluded from those listed in Appendix A of the background paper (agenda item 14.3).

## Issue 2: Accounting for ETS Involvement: Scenarios and Accounting Approaches

26. This issue asks for IPSASB views on accounting for an administrator's ETS involvement. To support the IPSASB's discussion the following information is provided:
- (a) Three scenarios, which illustrate different performance situations with respect to an ETS, and a discussion of elements that could arise under each scenario (See Appendix B.)
  - (b) Revised descriptions of the four accounting approaches discussed in December. (See agenda item 14.4.)
27. The four accounting approaches are:
- Approach 1, *Emission Notes (Financial Liability)*
  - Approach 2, *Emission Licenses (Intangible Asset)*
  - Approach 3, *Pollutant Pricing Mechanisms—Rights and Obligations*
  - Approach 4, *Emission Limits (Taxes and Contingencies, formerly Approach 3, Revenue)*
28. The IPSASB considered descriptions of these four approaches during 2016. Since the IPSASB's December discussion, these descriptions have been revised, with the main change being inclusion of detailed accounting entries for each option in an appendix.

Link to IASB Project's Identification of Accounting Options for ETS Participants

29. With respect to this set of four accounting options, staff notes that further accounting options could emerge from future IASB consideration of accounting options applicable to ETS participants, applying symmetry to the participant's accounting approach.

### **Actions Requested:**

2. The IPSASB is asked to:
- (a) Discuss administrators accounting for ETS involvement, with reference to the scenarios provided in Appendix B and the descriptions of four accounting approaches provided in agenda paper 14.4; and
  - (b) Provide direction on further development of accounting options.

## **APPENDIX A: IASB MEETINGS—EMISSIONS TRADING SCHEMES**

As of February 15, 2016

### **Introduction**

- A1. This appendix provides a list of those International Accounting Standards Board (IASB) meetings that have involved discussion on the IASB's Pollutant Pricing Mechanisms (PPM) (formerly Emissions Trading Schemes (ETs)) project, since it restarted in September 2014.
- A2. For a full understanding of the papers presented, IASB discussions and the ETS related meeting outcomes please refer to the relevant IASB papers. For each meeting below there is a link to the IASB agenda papers, where the audio discussion is also available. Meeting updates are available from: [www.ifrs.org/Updates/IASB-Updates/Pages/IASB-Updates.aspx](http://www.ifrs.org/Updates/IASB-Updates/Pages/IASB-Updates.aspx). Meeting agenda items can be accessed from the list of public meetings: <http://www.ifrs.org/Meetings/Pages/Meetings-Page.aspx>

### **October 2015**

- A3. A one hour education session on accounting for PPMs was provided to the IASB at its October meeting. No decisions were made. Next steps were for IASB staff to provide more detail on ETs and other types of intervention (schemes) world-wide and continue consideration of alternative accounting approaches. (This project was not discussed at the IASB's July and September meetings.)
- A4. The next IASB discussion of this project is expected to occur in the first quarter of 2016.

### **June 2015**

- A5. ETS issues were discussed at the IASB's June meeting. No decisions were made. Next steps were for IASB staff to provide more detail on ETs worldwide and continue consideration of alternative accounting approaches. (This project was not discussed at the IASB's July and September meetings. The next IASB discussion is expected to occur at the IASB's October meeting.)

### **February–May 2015**

- A6. The ETS project was not discussed at the IASB's February, March, April and May meetings.

### **January 2015**

- A7. Agenda paper available at: <http://www.ifrs.org/Meetings/Pages/IASB-Meeting-January-2015.aspx>.
- A8. The IASB considered staff recommendations on:
- (a) Scope of the project (and related name change);
  - (b) Approach to the project; and
  - (c) Direction of the project.
- A9. IASB members supported the staff's recommendations that:
- Scope: The scope of the project should be set broadly to encompass:
- (i) A variety of schemes that involve the issue of allowances for emission reduction and absorption projects, as well as ETS, and



- (ii) Accounting by emitters, traders and entities that carryout projects to reduce or absorb emissions.

*Project name:* The name of the project should be changed to “Emissions Management Schemes”

*Approach:* Staff should:

- (i) Take a “fresh start” approach to the project, and
- (ii) Work collaboratively with other standard setters during the research phase.

*Direction of project:* Staff should develop a discussion paper which outlines:

- The common characteristics of a wider variety of schemes, the accounting issues raised and the possible accounting or approaches that could provide a faithful presentation of the overall effects of the schemes identified;
- The approach should not be restricted to identifying separate assets and liabilities but also look at the relationships between rights and obligations; and
- The IASB’s developing Conceptual Framework should be the primary source for development of accounting approaches rather than existing Standards.

#### **November 2014**

- A10. Agenda papers available at: <http://www.ifrs.org/Meetings/Pages/IASB-Nov-14.aspx>.
- A11. First IASB meeting to discuss ETS issues since the project’s restart in September 2014. This was an education session. No decisions were made.
- A12. Staff provided the IASB with background information about the type of schemes in operation and related accounting issues. Two common types of ETs were described: ‘cap and trade,’ and ‘baseline and credit’ schemes. Staff research shows that there are diverse accounting approaches in use today.

## APPENDIX B: THREE SCENARIOS FOR EMISSIONS

30. This appendix provides three ETS scenarios that illustrate different emissions performance. It then discusses those scenarios in terms of creation of elements. The three scenarios are:

Scenario 1, *At level*: Participants emit to the level allowed by the EAs that they receive.

Scenario 2, *Beneath level*: Participants emit less than level allowed and sell their excess EAs

Scenario 3, *Above level*: Participants emit more than level allowed and must purchase EAs

**Table 1 Summary of Three Emissions Scenarios**

	Start of period: <i>EA issuance</i>		End of period: <i>Receipt of EAs</i>	
<b>Scenario: Emissions—</b>	EAs issued	Cash flows from <i>EAs issued</i>	EAs outstanding	EAs received
<b>1, At level</b>	10,000	1,500,000	10,000	10,000
<b>2. Below level</b>	10,000	1,500,000	5,000	5,000
<b>3, Above level</b>	10,000	1,500,000	15,000	15,000

31. Emissions are assumed to occur evenly across two sectors identified below (transport sector and energy sector) and across the five participants in each sector. This means that each participant emits the same volume of GHGs as all other participants during the compliance period.

### Fact Pattern: Domestic ETS with Two Sectors

#### *Step 1 Administrator creates an ETS*

32. Step 1(A) The administrator creates an ETS with the following characteristics:
- Five firms are identified in each of two sectors (transport and energy) as ETS participants that will receive EAs.
  - Specified emission levels for those sectors and firms.
  - The ETS is connected to three other national ETSs. EAs from those schemes can be used to cover local emissions, while local EAs can be sold to participants in those other ETSs.
  - The ETS compliance period is three years with submission of EAs required within one month after the end of the compliance period.
  - The administrator decides that EAs will be:
    - Transferred for free to participants in the transport sector (1,000 EAs per participant); and
    - Sold at CU300 per EA to participants in the energy sector. (1,000 EAs per participant @ CU300 results in total cash flow from sale equal to CU1,500,000)

33. Step 1(B) An electronic registry of EAs is created, with EAs numbered from 00001 to 10000. Each EA covers 1 tonne of GHGs. The EAs issued (10,000 EAs) cover 10,000 tonnes of GHGs.

*Step 2 Administrator Issues EAs*

34. The administrator issues EAs as follows:
- (a) 1,000 EAs transferred for free to each of the five transport sector participants. (Total of 5,000 EAs transferred at zero cost. The register is updated with EA recipients' names.)
  - (b) 1,000 EAs sold to each of the five energy sector participants, with each participant paying CU3,000 for their 1,000 EAs. (Total of 5,000 EAs transferred. CU1,500,000 received by administrator in cash. The register is updated with EA recipients' names.)

*Step 3, Administrator Monitors Emissions during Compliance Period*

35. The administrator monitors emissions and notes that, by the end of the compliance period, totals emissions for both sectors combined are:

Scenario 1: 10,000 tonnes of GHGs. (Equal to volume covered by EAs issued at start.)

Scenario 2: 5,000 tonnes of GHGs. (5,000 less than volume covered by EAs issued at start.)

Scenario 3: 15,000 tonnes of GHGs. (5,000 more than volume covered by EAs issued at start.)

*Step 4, Administrator Receives EAs back from Participants*

36. At the end of the compliance period, the participants in both sectors return all the EAs required to cover their submissions to the administrator. They submit the following quantities of EAs:

Scenario 1: Each participant returns the 1,000 EAs they received at the start of the period, with no surplus EAs remaining. (Note that participants do not have to purchase additional EAs and have no surplus EAs to sell.)

Scenario 2: Each participant returns 500 EAs. Each participant sold 500 surplus EAs for CU230 per EA, receiving CU1150 per participant. The group of participants as a whole were better off by CU11,500 due to their low volume of emissions.

Scenario 3: Each participant submits 1500 EAs. To do this each participant had to purchase an extra 500 EAs (at CU360 per EA) to cover their EA deficit., which involved a cash outflow of CU1,800 per participant. The group of participants as a whole were worse off by CU18,000 due to their high volume of emissions.

**Discussion of the Three Scenarios—Rights, Resources, Cash Flows and Obligations**

37. The discussion below focuses on the administrator. It mainly considers:

- (a) Cash flows, rights and obligations; and
- (b) Existence of elements (assets, liabilities, etc.).

38. The Conceptual Framework defines an asset to be:

- (a) A resource that is...
- (b) Presently controlled by the entity....

- (c) As a result of a past event<sup>1</sup>.
- 39. For recognition an asset needs to:
  - (a) Satisfy the definition of an asset; and
  - (b) Be able to be measured in a way that achieves the qualitative characteristics and takes account of constraints on information in GPFRs.
- 40. Measurement involves:
  - (a) Attachment of a monetary value to the item.
  - (b) Choice of an appropriate measurement basis.
  - (c) Determination of whether the measurement of the item achieves the qualitative characteristics, taking into account the constraints on information in GPFRs, including that the measurement is sufficiently relevant and faithfully representative for the item to be recognized in the financial statements.

*Discussion of Step 1 Administrator Creates ETS*

- 41. The administrator incurs operating costs during this step. There will be staff-related costs as ETS design decisions are made, approval for the ETS is gained, and the EA registry created. The administrator also creates a right to receive cash for EAs.

Are either the ETS or EAs assets, and do they meet the recognition criteria?

- 42. The ETS includes scope to charge a fee for EAs. Once that has been enshrined in legislation the administrator has that right and can generate future cash flows. Therefore the very earliest point at which a resource may exist is the point at which the ETS is passed into legislation, when the ETS itself is (arguably) a resource. At that point it is unclear whether and to what extent the ETS will be used to generate future cash flows, although its role in pursuing the government's service objectives suggests that the ETS has service potential.
- 43. The ETS may be considered an asset (a resource over which the administrator has control due to a past event). However it would be difficult if not impossible to attach a monetary value to the ETS. How would its service potential be measured and will a monetary value attached achieve the qualitative characteristics?
- 44. The EAs will, in these three scenarios, generate cash flows. In addition, as a regulatory tool to achieve public policy aims, the EAs appear to have service potential. Arguably, these self-generated EAs meet this definition of an asset at some point prior to their transfer or sale to ETS participants. However, should the EAs be recognized?
- 45. Prior to Step 1(A) (d) it appears that the EA asset cannot be measured, because there is no monetary value information that would achieve the qualitative characteristics.
- 46. At Step 1(A) (d) there is a transfer price (CU300) for some of the EAs, and information on those participants that will pay that price (five firms in the energy sector). It appears that the administrator can attach a monetary value to the asset. Arguably that monetary value achieves the qualitative characteristics, including being sufficiently relevant and faithfully representative. Although ETS participants still have to decide to purchase the EAs arguably, the administrator

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<sup>1</sup> See Chapter 5, paragraphs 5.6 to 5.13.

already has a recognizable asset, applying the Conceptual Framework's asset definition and asset recognition criteria.

47. For the EA asset, measurement issues that arise include:
- (a) Is attachment of a monetary value affected by the zero transfer fee for half of the EAs?
  - (b) Should the monetary value per EA be their average price (i.e. CU150 per EA) or the highest amount that could potentially be charged (i.e. CU300 per EA) or the lowest amount (i.e. zero)? Or does the potentially wide variation in value affect the ability to attach a meaningful value?
  - (c) Does the administrator's ability to set the value mean that it does not meet the qualitative characteristics, or does a formal process resulting in publication of a price list, allow for an objective indication of value?
  - (d) What is the appropriate measurement base for EAs held by the administrator?

Does creation of an ETS and EAs result in a liability for the administrator?

48. The Conceptual Framework defines a liability to be "a present obligation of the entity for an outflow of resources that results from a past event"<sup>2</sup>. A present obligation could be a legally binding obligation (legal obligation) or non-legally binding obligation, which an entity has little or no realistic alternative to avoid<sup>3</sup>. Obligations are not *present* obligations unless they are binding and there is little or no realistic alternative to avoid an outflow of resources<sup>4</sup>.
49. When an ETS is created the administrator becomes responsible for managing the ETS, which will require an outflow of resources in the form of administration costs, including the costs of administering EA issuance, emissions monitoring and EA receipt at the end of the compliance period. The past event for ETS creation would be enactment of ETS legislation. From this point onwards, does the entity have a present obligation, which it has little or no realistic alternative to avoid? Arguably the administrator still has sufficient discretion to avoid future cost (outflow of resources) arising from the ETS. The legislation provides the basis for the ETS but a government may nonetheless choose not to use that power and, instead, defer steps to give effect to the legislation. On that basis there is no obligation because the ETS administration obligations are not binding and an outflow of resources can be avoided.

#### *Discussion of Step 2, Administrator Issues EAs*

50. When the EAs are issued the administrator transfers control to the participant or other EA recipients. In these three scenarios, the administrator receives cash back from the energy sector participants. The cash is an asset, which can be recognized.
51. The EA recipients (participants and others) are able to restrict access to the EAs and use them as they choose. They can choose to hold the EAs, sell them to others, resubmit them to the administrator or simply allow them to expire, without using them to cover emissions<sup>5</sup>. The only powers that the administrator retains relate to EAs' useful life (previously established at three years, for these scenarios). In unusual circumstances an administrator may choose to extend

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<sup>2</sup> Paragraph 5.14 of the Conceptual Framework.

<sup>3</sup> 5.15, *ibid*.

<sup>4</sup> 5.15 *ibid*.

<sup>5</sup> Environmentalists have been known to purchase EAs and then hold them until they expire. They do this in order to further reduce companies' ability to emit and drive up the price of emissions by reducing EA supply.

EAs' useful life. From the control perspective it appears that EAs are no longer an asset to the administrator after issuance.

52. With respect to administrator obligations when it issues EAs, the administrator is obliged to accept EAs back from participants, in payment for their emissions-related obligations. There is also an implied obligation to continue to administer the ETS so that it works as intended, which includes monitoring and enforcement of the ETS emission restrictions. When a participant entity purchases EAs, it is with an expectation that the ETS rules will apply going forward.

*Discussion of Step 3, Administrator Monitors Emissions during Compliance Period*

53. During the compliance period, the administrator monitors emissions and waits for the eventual return of the issued EAs.

ETS—Resource and Obligation

54. After EA issuance and during the compliance period the ETS continues to be a resource for the administrator. The ETS arrangement continues to support a government's public policy objectives by influencing emission behavior. Participant entities internalize the pollution externality, and respond to the restrictions that an ETS places on them, including the new emission-driven costs they experience.
55. As noted above, the ETS could be seen as implying an obligation to administer the ETS, with associated resource outflows, and the issuance of EAs seen as an event that makes the obligation binding for the administrator.

Right to receive EAs

56. During the compliance period, the administrator has an ever-increasing right to receive EAs back from participants, because participants continue to emit GHGs. By the end of Year 3 the amount of EAs owed to the administrator differs under each scenario is as follows:

*Scenario 1:* Administrator has right to receive 10,000 EAs.

*Scenario 2:* Administrator has right to receive 5,000 EAs. (Market value for an EA is CU230.)

*Scenario 3:* Administrator has right to receive 15,000 EAs. (Market value for an EA is CU360.)

57. If the administrator is able to on-sell EAs then the right to receive EAs could be a resource. Under Scenario 3 the extra 5,000 EAs could be international or other-national EAs that the administrator is able to sell to generate future cash flows.

*Discussion of Step 4, Administrator Receives EAs back from Participants*

58. When the administrator accepts the EAs back from participants this could be viewed as either:
  - (a) Some kind of payment or settlement; or
  - (b) The sign-off process for a special type of regulatory tool.
59. Although the EAs were resources at the start of the compliance period they do not appear to be resources when returned to the administrator, because they are cancelled and no longer have service potential or future cash flow.
60. Under Scenarios 1 and 2 the administrator has achieved its main policy objective to reduce national emissions. The amount of EAs (10,000 and 5,000) returned indicate this achievement, although the measurement of emissions themselves provides the most direct confirmation.

## Further discussion

### *ETS as Investment in Regulatory Infrastructure*

61. The discussion above highlights the capacity of an ETS to act as a resource (an investment in regulatory infrastructure) controlled by government. That investment is able to generate both service potential and cash flows. Applying this perspective EAs would be inventory, generated by the ETS, which can be sold to customers. Until the transfer of EAs occurs the government would report them as inventory on its statement of financial position, and the monetary value attributed would reflect government intentions (and any regulatory constraints) with respect to the EAs' transfer fee or (if sale is expected) sale price.
62. Is this approach appropriate, given the coercive powers that administrator uses to establish and enforce an ETS? Arguably, this perspective is equivalent to recognizing a government's power to tax as an asset. If this path can be followed then it argues in favor of the government's tax-generating infrastructure also be conceived as an investment in regulatory infrastructure, with each registered taxpayer treated as inventory.

### *ETS Similar to a "Sin Tax"*

63. An alternative view is that an ETS is similar to a tax designed to influence behavior rather than generate revenue. Pollution taxes belong to a group of taxes called "sin taxes", which make behaviors more expensive to discourage those behaviors. Sin taxes include, for example, taxes on cigarettes, which aim to stop people smoking tobacco. A government needs taxation to generate funds, but sin taxes are not designed for that purpose and, from a government's perspective, the hoped-for outcome of a sin tax is a downwards revenue trend over time, leading towards zero revenue. The three scenarios above show an ETS's similarity with a sin tax in that Scenario 2, which reduces emissions, also returns fewer EAs, while Scenario 3, with an excess of emissions, returns an excess of EAs to the administrator.
64. From this regulatory perspective, the cash flows that an administrator receives from EAs and other aspects of an ETS (for example, financial penalties for companies that fail to reduce emissions) should be viewed as a by-product of the government regulator's primary policy objective, which is to change behavior and reduce GHG emissions. Arguably, the regulatory perspective is also illustrated by the disparity of prices for EAs on issuance where energy sector participants pay for the EAs they receive, while transport sector participants receive identical EAs at zero cost. Staff further notes that governments have scope to design hybrid interventions which bring each intervention closer to the other in terms of their economic impact for the administrator<sup>6</sup>.

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<sup>6</sup> See, for example, Goulder and Schein (2013) *Carbon Taxes Versus Cap and Trade: A Critical Review*, Climate Change Economics Vol. 4, No. 3, which notes the existence of hybrid cap-and-trade ETSs and argues that "the various options are equivalent along more dimensions that often are recognized."

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## STAFF PAPER

July 2016

# EMISSIONS TRADING SCHEMES BACKGROUND PAPER

This publication is issued by the staff of the International Public Sector Accounting Standards Board® (IPSASB) to provide information on Emissions Trading Schemes (ETSs) and other government interventions that reduce emissions causing global warming. It describes different types of government interventions and their economic impacts, and provides a list of illustrative case studies.

*"The objective of this document is to support the IPSASB's work on accounting for involvement with Emissions Trading Schemes."*

This publication does not constitute an authoritative pronouncement of the IPSASB. Its objective is to support the IPSASB's considerations on accounting for involvement with

ETSs. The IPSASB decided to make this document available to the public as a resource to IPSASB stakeholders, including national standard setters and users and preparers of general purpose financial reports, for their considerations of accounting for involvement with ETSs. The IPSASB is not seeking comments on this background paper. The consultation paper will ask constituents to provide their views on specific matters for comment.

## Background

The IPSASB has an active project to address accounting for ETS involvement, where the first step is to develop a consultation paper on this topic. Public sector entities may be either administrators of an ETS or participants in an ETS. The International Accounting Standards Board (IASB) also has a research project which considers accounting by ETS participants. The IASB's project is named the Pollutant Pricing Mechanisms (PPM) project.

IPSASB discussions during 2015 indicated the importance of understanding the economic impacts of an ETS and contrasting those with the economic impacts of other government interventions designed to reduce emissions, particularly environmental taxes such as carbon taxes. This description of governments' policy objectives for an ETS, the alternative interventions that governments could use to achieve the same objectives, their economic impacts and real world examples of such interventions is expected to provide a good foundation for development of accounting options for inclusion in the IPSASB's consultation paper on accounting for ETS involvement.





## **Public Policy Objectives for an Emissions Trading Scheme**

1. A government's primary public policy objective for an ETS is to reduce greenhouse gas (GHG) emissions. That objective arises within the context of international agreements and local pressure to address environmental damage, global warming and environmental hazards. Sharing the costs of emissions, while achieving an economically efficient solution that maximizes benefits while minimizing the intervention's costs are further concerns.

### *Primary Policy Objective—To Reduce Emissions*

2. An ETS controls or "caps" emissions and, over time, reduces them. "Emissions" are gases emitted into the atmosphere. An ETS is working effectively when the volume of target pollutants released into the atmosphere each year stops rising and then, over time, reduces down to lower limits.
3. The goal of an ETS is not necessarily to completely eliminate emissions, because some level of emissions may be both necessary and desirable. For example, one target gas for an ETS is carbon dioxide, which is a "greenhouse gas" (GHG). Carbon dioxide is naturally emitted by almost all life forms and will be emitted into the atmosphere for as long as life exists on this planet. The unnaturally high volume of carbon dioxide presently in earth's atmosphere causes global warming. Human activities that emit carbon dioxide include burning coal to produce electricity and burning petrol in combustion engines to drive machinery, cars and airplanes. An administrator's target for carbon dioxide will be to reduce emissions to earlier, more sustainable levels, rather than attempt to eliminate them entirely.

### *Secondary Concern—Share the Costs of Emissions*

4. In addition to an ETS's primary policy aim (to reduce emissions), a government may also use an ETS to redistribute or share the cost of emissions. Governments incur costs due to emissions. These include costs related to:
  - (a) Health care for illnesses caused by emissions;
  - (b) New infrastructure to ensure sufficient water supply for communities and businesses;
  - (c) Increased emergency response activities arising from forest fires and more powerful storms caused by global warming;
  - (d) New and improved infrastructure for flood prevention, including relocation of residences after flooding, to address increased risk of flooding due to global warming; and,
  - (e) Increased border control activities due to environmental changes as a result of global warming (droughts, rising water levels, etc.) affecting neighboring or related countries.

### *Government Interventions that Work Best—Maximize Benefits and Minimize Costs*

5. When a government develops its policy to address emissions, its intervention approach is likely to take into account a complex set of other considerations, including the political context for an intervention. Two considerations that support use of an ETS are that a government wants to:
  - (a) Avoid negative impacts (as far as is possible) on business activity and the economy. (For example, the ETS should not result in significant additional costs that make businesses less competitive and/or drive business to leave that jurisdiction in order to find cheaper locations.



Government aims to avoid interventions that could cost jobs, cause inflation, add to the costs of ordinary people and/or damage the economy.)

- (b) Achieve an economically efficient way to achieve emission reductions. (For example, an ETS provides scope to trade EAs, which is expected to ensure that the overall costs of emission reductions for ETS participants are less than the costs of other types of government intervention. An ETS provides economic incentives to find efficient, future-oriented solutions to the problem.)

#### *International Pressure and International Agreements*

- 6. A government's policy on emissions intervention may arise due to international pressure, expressed through an international treaty or other mechanisms for international agreement. In that situation compliance with the international agreement is likely to be a major public policy objective for the national government. The application of international agreements can be an important factor for a government's choice of intervention, because they may either partially restrict choices or facilitate the choice of one option rather than another. For example, where a government can access an international ETS that is already working effectively with a reputation for delivering emission reduction results there are likely to be practical and political benefits to joining that ETS.

#### **Overview of Types of Government Intervention**

- 7. Once having established a policy objective to reduce emissions, a government chooses one or more interventions to achieve that objective. This paper identifies four broad types of intervention as follows:
  - (a) Regulation;
  - (b) Funding;
  - (c) Taxation; and
  - (d) Emissions Trading Schemes.
- 8. The Kyoto Protocol (described in more detail in Appendix A) provides national governments with choices, also called "flexibility". An excerpt from a Parliament of Australia document describes the different interventions that a government may use, under the Kyoto Protocol, to meet its emission reduction target:

The parties to the Kyoto Protocol can meet their obligations either by reducing their greenhouse gas emissions or increasing their removals sinks or both. Removals sinks are limited to direct human-induced land-use change and forestry activities (afforestation, reforestation and deforestation since 1990).

The Kyoto Protocol does not specify the mechanisms by which Parties to the Protocol must meet their emissions target, thus providing an Annex I country such as Australia reasonable amount of discretion as to the policies and measures it implements domestically to meet its target. Domestic abatement action should be the primary means by which Annex I countries such as Australia meets their emissions target. Parties are also provided with an indicative list of policies and measures that they may wish to consider. These include promoting sustainable agriculture, promoting the renewable



energy, removing market assistance for environmentally damaging economic activities, confronting the issue of transport sector emissions, and so forth.

9. The Kyoto Protocol also sets out three 'flexibility mechanisms' that Annex I parties such as Australia may use as a supplementary means of meeting its target. These potentially help Annex I Parties cut the cost of meeting their emissions targets:
  - (a) The Clean Development Mechanism—this mechanism allows Australia to implement projects that reduce emissions in developing countries (non-Annex I Parties to the Protocol), or absorb carbon through afforestation or reforestation activities, in return for certified emission reductions that Australia can use towards meeting its own target.
  - (b) The Joint Implementation Mechanism—this mechanism allows Australia to implement an emission-reducing project or a project that enhances removals by sinks in the territory of another Annex I Party and count the resulting emission reduction units towards meeting its own target.
  - (c) Emissions Trading.
10. Intervention choices are not restricted to those that the Kyoto Protocol makes available to national governments. Subnational governments and even individual companies may take their own initiatives, using emission reduction mechanisms such as carbon pricing, to reduce emissions.
11. Table 1 on the following page provides an overview of the four groups of intervention identified above, classifying them as either market or non-market interventions. Market interventions require a market for some aspect of the mechanism in order to operate as intended. By contrast, non-market mechanisms do not require a market to operate.
12. The next four subsections will consider each category of intervention in more detail. First, however, some general points applicable to all four categories.

#### *Combinations of Intervention and Availability of Choice*

13. A government may (and usually does) use a combination of different interventions to reduce emissions. For example, a government may choose to use a command-and-control approach that requires coal-burning power plants to be shut down progressively over the next 15 years, while also introducing an ETS that impacts on the same companies. The Australian, South African, Swiss and United States governments have, for example, used a mixture of different interventions to achieve their emission goals.
14. Governments can also allow affected entities some level of choice with respect to the type of intervention that applies to them. For example, the Swiss federal government has, broadly-speaking, allowed a choice between paying a carbon tax or joining, as participants, an ETS. Where an ETS provides its participants with the ability to earn EAs by carrying out projects that reduce emissions (e.g. forestation projects) then this could be characterized as providing a choice between results based financing and participation in an ETS. In practice, participants are likely to still be required to surrender EAs for some percentage of their emissions. A government may specify the extent to which one approach can be replaced with another.

**Table 1: Types of Emission Reduction Interventions**

Market Intervention		Non Market Interventions		
Pollutant Pricing Mechanisms				
Emission Trading Scheme		Taxation	Funding	Regulation
Over-the-Counter Market	Organized Market			
EAs exchanged between nations (States) as occurs with the European Union (EU) ETS	<ul style="list-style-type: none"> <li>Primary market: e.g. auctions on exchange platforms such as the EU ETS's platform between States/EU and participants;</li> <li>Secondary market: between participants/States where all types of allowances (whether initially allocated for free or auctioned) are tradable</li> </ul>	<p>Mandatory tax that applies, for example, to actual emissions</p> <p>Increases the cost of emissions.</p> <p>Encourages entities to reduce &amp; innovate</p> <p>Includes environmental taxes and carbon taxes</p>	<p>Funding provided for emission reducing actions, either as subsidies or in payment for projects, etc.</p> <p>e.g. Results-based financing where contributors of finance receive funds (or EAs) in exchange for projects that reduce emissions. The EAs received may be remitted to the ETS administrator instead of EAs issued by that ETS</p>	<p>Regulations set to address pollution such as imposing the use of filters in polluting industries, etc.</p> <p>Regulation through legislation, irrespective of level of emissions (Also called command and control)</p>
<p><i>Applies to both types of market mechanism:</i></p> <ul style="list-style-type: none"> <li>The regulator/administrator sets a limit (cap) on the total level of covered GHG emissions;</li> <li>EAs must be submitted to cover actual emissions;</li> <li>Unused EAs are tradable; setting a price on GHGs, which acts as an economic incentive to reduce GHGs, including incentive to innovate.</li> </ul>				

*Many Different Interventions*

15. Governments can choose between many different interventions to reduce emissions and reduce the amount of GHGs in the atmosphere. The list below is not exhaustive:

(a) *Reduce emissions:*

Replace GHG-producing technology with sustainable technology (e.g. solar or wind-powered generators to replace coal-burning generators);



Develop public transport systems to replace use of cars;  
Tax cars (taxes on their purchase, fuel, driver license renewals);  
Improve building designs to reduce energy needs (insulation, etc.); and  
Introduce limits on emissions, with penalties for exceeding those limits.

*(b) Make fossil fuels more expensive:*

Create scarcity by reducing the number of drilling and mining permits for gas, oil and coal; or  
Add new taxes to fossil fuels either at entry into the country, as sales taxes or when burnt.

*(c) Increase or protect carbon sinks (forests):*

Provide communities with low-interest funding to plant trees;  
Provide tradeable EAs in exchange for projects to plant trees;  
Impose penalties on those that destroy forests (e.g. obligations to surrender EAs or imposition of government fines); and  
Penalize regions that destroy forests (e.g. withdraw central government funding for those regions).

*Complexity to Address Specific Situations*

16. Appendix A's examples of government interventions illustrate both complexity and evolution. Governments consider their specific situation when developing interventions and customize one or more interventions to address that situation. Factors that a government is likely to consider include:
- (a) Application of international agreements;
  - (b) Scope to cooperate with other governments on emissions reduction;
  - (c) The pattern of emissions in the region, including identification of the main sources of emissions;
  - (d) Scope to change emissions behavior;
  - (e) Impact on consumers and their ability to cope with consequential price changes, if any, for different goods and services; and
  - (f) Impact on the economy, including impact on GDP and competitiveness of exports.
17. Any one intervention can be applied in a variety of different ways, without changing the fundamentals of the intervention. For example, individual ETSs differ with respect to their start date, length of compliance period, and ability to carry EAs forward to future periods.

*Changing Interventions—Learning from Experience and Responding to New Developments*

18. Before choosing a particular intervention (or mixture of interventions) a government will evaluate the specific situation that it needs to address. There is likely to be a consultation period, where proposed interventions are put out for comment.
19. Experience shows that, after introducing an intervention, a government will review the results, consider comments and concerns, and then make adjustments or major changes to what has been





introduced. Factors that lead a government to change emission–reduction interventions are both technical and political. They include, for example:

- (a) Effectiveness of a particular intervention, which could indicate that further interventions need to be introduced or the parameters of the first intervention may need to be adjusted;
- (b) Scope to extend an intervention to a wider group and a different set of industries;
- (c) Negative impacts on the economy and/or cost of living;
- (d) Economic downturns that impact on the market for EAs with the result that EA issuance and/or the useful life of an EA changes;
- (e) A change of government and the new government is more (or less) friendly to business with the result that the intervention changes to one that rewards businesses for positive actions (or imposes costs on business that emit) or there is a hiatus while the new government consults on a new set of possible interventions; and
- (f) A legal challenge stops the intervention, and the government develops alternatives that are less vulnerable to future legal challenges.

#### *All Four Interventions Involve Government Control*

20. All four interventions, described further below, involve some form of direct government control. For example, an ETS is expected to work through economic incentives and a market approach, because it transforms the ability to emit GHGs into a scarce, tradeable commodity instead of a free good. Yet an organization that fails to surrender sufficient EAs to cover its emissions will find itself forced to pay financial penalties. There is some flexibility to trade and reduce, then an absolute requirement to surrender sufficient EAs. From the perspective of all ETS participants (and when the government considers the group as a whole) the cap (or baseline) for an ETS—as established by the available EAs—is an absolute upper limit on emissions<sup>1</sup>.

#### *Other Perspectives on Interventions—Statistical Categories*

21. The statistical community has developed categories relevant to different types of government intervention in the economy, including interventions that involve the creation of different types of permits, licenses, quotas and allowances. Appendix B provides information on these from the perspective of the statistical community.

#### **Intervention—Regulation**

22. Regulations (also called “command and control” interventions) consist of government regulations that directly addresses pollution, without the involvement of a market mechanism. For example, governments can pass legislation that requires coal powered electricity generators to install filters to reduce the amount of pollutants emitted, set limits on emissions and use fines to enforce the limits. Command and control does not involve issuance and trading of EAs or EA equivalents. Descriptions of what is meant by “command and control” include:

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<sup>1</sup> The emissions limit for a national scheme may be exceeded, if the ETS allows participants to submit either international EAs or project-based EAs that are not part of the original EA allocation for that compliance period. An excess of emissions over the planned level has been the experience, for example, of the New Zealand ETS.



- (a) Command and control policy refers to environmental policy that relies on regulation (permission, prohibition, standard setting and enforcement) as opposed to financial incentives, that is, economic instruments of cost internalization<sup>2</sup>.
  - (b) Command and control regulation can be defined as “the direct regulation of an industry or activity by legislation that states what is permitted and what is illegal”. This approach differs from other regulatory techniques, e.g. the use of economic incentives, which frequently includes the use of taxes and subsidies as incentives for compliance. The ‘command’ is the presentation of quality standards/targets by a government authority that must be complied with. The ‘control’ part signifies the negative sanctions that may result from non-compliance e.g. prosecution<sup>3</sup>.
23. Command and control interventions rely on governments’ coercive power to achieve changed behavior rather than economic incentives. Companies must change their operations or incur penalties. Penalties include financial costs (fines, for example, or temporary shut-down), personal costs (penalties for management, including convictions, fines or prison), and/or business closure. The market is not directly relevant to this type of intervention, in the sense that it does not require a market for its application. However, the value of shares in a company and its ability to raise finance may be negatively impacted if government requirements are viewed as imposing significant costs or creating a risk that the company could have to shut-down some or all of its operations.

*Command and Control Example—Regulations under the Clean Air Act (U.S.A)*

24. The United States government agency the Environmental Protection Agency (EPA) has, in application of the Clean Air Act, taken the following command-and-control style actions:
- (a) Required industrial sources to install controls or change production processes in order to reduce polluting emissions. The EPA publishes regulations that cover a range of industrial categories, including chemical plants, incinerators, dry cleaners, and manufacturers of wood furniture. The regulations do not generally prescribe a specific control technology, but set a performance level based on a technology or other practices already used by the better-controlled and lower emitting sources in an industry. Companies must meet the emissions levels required in the regulations.
  - (b) Established limits on emissions from vehicles, which affect manufactured and imported vehicles, and requirements to restrict fuels used to very low Sulphur gasoline and diesel fuel.
  - (c) A ban on lead in gasoline, implemented in 1996, which followed earlier requirements to limit lead in gasoline.
  - (d) Requirements to:
    - Use reformulated gasoline in vehicles.
    - Install vapor recovery nozzles at gas stations. (These reduce the release of gasoline vapor into the air when people put gas in their cars.)

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<sup>2</sup> Glossary of Environment Statistics, Studies in Methods, Series F, No. 67, United Nations, New York, 1997.

<sup>3</sup> McManus, P. (2009) Environmental Regulation. Australia: Elsevier Ltd





- Carry out regular car maintenance through mandated inspection and maintenance programs.
- Equip passenger vehicles with on board emission diagnostics.

#### *Economic Impact for Government*

25. This type of intervention is relatively low cost for the government. From a cash flow perspective the overall effect will either be neutral or slightly negative.
26. The government incurs costs “to develop and manage” the intervention, as follows:
  - (a) One-off, initial costs to develop and implement the intervention; and
  - (b) On-going costs to manage the intervention, which will involve a monitoring and enforcement aspect.
27. The government may receive cash flows from the entities affected. For example, under the United States’ Clean Air Act system polluting companies are required to purchase permits before they can operate their facilities. The purchase costs are likely to help to finance the monitoring and enforcement related to the permit system. Fines and other penalties will also result in positive cash flows. For example, the financial penalties applied to Volkswagen are likely to be large, given the extent to which its actions attempted to evade the regulations with respect to car emissions and the potential for such behavior to undermine regulations aimed at reducing emissions.

#### *Economic Impact for Polluting Entities*

28. Command and control is likely to involve one-off unavoidable costs for polluting entities, which could be large. Facilities may need to be shut-down (moth-balled) because they are no longer viable. Pressure to change operations so as to reduce emissions can lead to costs for new investment, with the alternative being higher product costs and a loss of competitiveness or a reduction in profit. There will also be on-going costs to provide emissions information to the government and demonstrate that the applicable regulations are being met. As noted above, polluting entities may be required to purchase permits in order to continue to operate.
29. Research shows that the level of costs depend on an emitters’ specific situation. For example, a new entrant energy producer that uses efficient, sustainable technology, may not need to change operations. By contrast an energy producer that relies on old, inefficient non-sustainable and highly polluting technology (for example, coal-burning power plants) may incur high costs to change its operations.

#### **Intervention—Funding**

30. Government funding could either provide a subsidy or “purchase” actions or projects that help to reduce emissions. Results-based financing, for example, uses a financing approach to support development objectives and policy goals. A variety of forms of results-based financing exist. In some cases, contributors of finance receive carbon credits or EAs in exchange. Such credits or allowances may be remitted to the administrator of an ETS to which the contributor is a participant, instead of credits or EAs issued by that ETS. Subsidies or project financing may be used to



support, for example, energy conservation, sustainable management of forests and enhancement of forest carbon stocks.

31. South Africa and Switzerland are two examples of national governments that use results-based projects to achieve emission reductions and earn tradeable EAs.

*Projects that Generate EAs, International—UNFCCC’s Clean Development Mechanisms*

32. The United Nations Framework Convention on Climate Change (UNFCCC) administrated “Clean Development Mechanism” (CDM) is what some describe as an “offset” program. This program allows countries to receive EAs in exchange for projects that reduce emissions. The CDM, defined in Article 12 of the Protocol, allows a country with an emission-reduction or emission-limitation commitment under the Kyoto Protocol (Annex B Party) to implement an emission-reduction project in developing countries. Such projects can earn saleable certified emission reduction (CER) credits, each equivalent to one tonne of CO<sub>2</sub>, which can be counted towards meeting Kyoto targets. The mechanism is the first global, environmental investment and credit scheme of its kind, providing a standardized emissions offset instrument, CERs.

*Projects that do not Generate EAs—Australian Example*

33. Results-based financing may also result in tradeable units that are not EAs, but could be mistaken for EAs. For example, the Australia’s Federal Government presently finances projects that reduce emissions<sup>4</sup>. Financing is done through reverse auctions and successful bidders will receive “Australian Carbon Credit Units” (ACCUs). These units do not allow entities to emit a certain amount of GHGs, which is what an EA does. Although these units can be traded their value ultimately depends on a repurchase price previously set by the government. Their value is fixed through the auction process, when the Australian government contracts to redeem the ACCUs at a set price. Successful bidders “earn” ACCUs by carrying out their project and achieving the expected GHG reductions. When ACCUs are returned to the government, the government has a contractual obligation to purchase them, if these conditions have been met.

*Economic Impact for Government*

34. As for other interventions the government incurs costs to develop and manage the intervention, as follows:
  - (a) One-off, initial costs to develop and implement the intervention; and
  - (b) On-going costs to manage the intervention, which will usually involve a monitoring and enforcement aspect.
35. If the project financing approach used is that of government purchase, as in the Australian example, then the government is paying the full cost of the emission reduction projects, which is likely to involve relatively high costs for the government compared to other interventions. If the project financing approach used is that of subsidized loans for projects, then costs to government are those of interest foregone. There is also the risk of default. In the South African case there appears to be scope to receive aid funding from other governments or international organizations, which would result in a low economic impact for the government.

<sup>4</sup> IETA (2015) *Australia: An Emissions Trading Case Study*, as of May 2015.



### *Economic Impact for Polluting Entities and Others*

36. This type of intervention appears to have the least costs for polluting entities since generally engagement in such projects is a matter of choice and, if an entity takes on a project then it expects to receive government funding (a grant or subsidized loan) to carry out the project.

### **Intervention—Taxation**

37. Taxation, in this context, means taxation that provides a disincentive to emission-producing actions by adding a tax to such activities. Carbon taxes, for example, place a price on carbon, using a metric based on carbon (e.g. price per metric ton of CO<sub>2</sub> or equivalent (tCO<sub>2</sub>e)). A carbon tax guarantees the carbon price in the economic system and, if the price is high enough, will provide an incentive for entities to reduce their emissions to reduce the tax cost.
38. Although the mechanism of carbon taxes involves the governments' sovereign power to tax, emission reductions are expected to result because of economic incentives. Businesses are expected to find ways to reduce emissions so that they can compete more effectively, where competition is on a price. If businesses simply transfer additional costs to customers, then customers are expected to reduce consumption, because the price of the product (e.g. electricity) has increased. In both cases lower emissions are expected to result, but cannot be guaranteed. Carbon taxes may simply increase costs without changing behavior sufficiently to either reduce emissions or slow their rate of increase.
39. Governments that have used (or plan to use) carbon taxes as a primary emissions reduction intervention include:
- (a) Provinces of Alberta, British Columbia and Manitoba;
  - (b) South Africa; and
  - (c) Switzerland.
40. Summaries of the South African and Swiss governments' interventions are available from Appendix A. When introducing a carbon tax governments are likely to consider whether it should be "revenue-neutral", whereby revenue collected is primarily used to reduce costs for the community in other areas. For example, the Swiss and British Colombian governments' carbon taxes both aim to be revenue-neutral.

### *Economic Impact for Government*

41. As for other interventions the government incurs costs to develop and manage the intervention.
42. A carbon tax provides positive cash flows for government. These are dependent on the level of emissions. Cash flows rise as emissions increase. However, an emission tax can also be designed with a level of emissions beneath which no tax applies.

### *Economic Impact for Polluting Entities*

43. Polluting entities will incur costs (the tax) as they emit. Costs increase directly proportional to emissions. Depending on the type of tax, there may be a threshold before which no taxes are paid and then taxes apply to emissions above that threshold. Alternatively, the carbon tax may apply to all emissions with no threshold. In practice, taxes may be applied either to actual emissions or



“emission surrogates” such as the fuel used by a polluting entity or even fuel imports or production, without consideration of the eventual user of the fuel, whether industrial, commercial or private individuals.

### **Intervention—Emissions Trading Schemes**

44. An ETS is a market-based way to control pollution by providing economic incentives for reductions in emissions. ETSs provide polluting entities with flexibility to reduce their emissions in a cost-effective manner, while stimulating technological innovation and avoiding unnecessary negative impacts on the economy. The main focus of ETSs has been GHGs.
45. As of February 2015 there were 17 active ETSs worldwide, with 14 further ETSs planned<sup>5</sup>. These ETSs include the European Union’s ETS, which covers 31 countries altogether (the 28 Member States and 3 European Economic Area (EEA) Economic Free Trade Association (EFTA) countries<sup>6</sup>). The 16 other ETSs relate to eight further countries, which have either a national ETS or involvement with an ETS either at a subnational level or through linkage to an international arrangement. The active ETSs are in:
- (a) Canada (Quebec, which is part of the Western Climate Initiative).
  - (b) China (Beijing, Guangdong, Hubei, Chongqing, Shanghai, Shenzhen and Tianjin).
  - (c) European Union (28 Member States and three EEA EFTA countries).
  - (d) Japan (Saitama and Tokyo).
  - (e) Kazakhstan<sup>7</sup>.
  - (f) New Zealand.
  - (g) South Korea.
  - (h) Switzerland.
  - (i) United States of America (California, which is part of the Western Climate Initiative, and Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island and Vermont, which are in the Regional Greenhouse Gas Initiative).
46. There are two main types of ETS; cap-and-trade schemes and baseline-and-credit. There are described in more detail below.
47. Schemes can also be divided into statutory or non-statutory schemes. Statutory schemes are government imposed and require mandatory participation of entities that emit greenhouse gases. Non-statutory schemes are voluntary in nature.

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<sup>5</sup> ICAP (2015) *Emissions Trading Worldwide International Carbon Action Partnership (ICAP) Status Report 2015*, February 2015

<sup>6</sup> Iceland, Lichtenstein and Norway.

<sup>7</sup> Kazakhstan implemented IPSASs in 2013. The World Bank has a project to review the implementation and provide support on any remaining financial reporting issues. The project is likely to start in 2015.



### *Cap-and-Trade Schemes*

48. The most common type of ETS is described as a cap-and-trade ETS. The administrator (usually a government) sets a legal limit or “cap” on the amount of pollutant that may be emitted. The overall cap divides into emission allowances (EAs) (also called units or permits). For example, the European Union (EU) ETS trades primarily in European Union Allowances (EUAs), the Californian scheme in California Carbon Allowances (CCAs), while the New Zealand scheme trades in New Zealand Units (NZUs).
49. The EAs are either allocated or sold to ETS participants providing them with rights to emit a specific volume of the specified pollutant. Firms are required to hold sufficient EAs to cover their emissions. An EA is described as “offsetting” a unit of emissions. The total number of EAs issued in an ETS region cannot exceed the overall cap. Firms that exceed their allowed volume (or tonnage) of emissions must buy EAs from those who have remained below their allowed volume (or tonnage) either from within the region or, where external EAs are accepted by the administrator, from outside of the region. In effect, the buyer is paying a charge for emissions, while the seller is being rewarded for having reduced emissions. Thus, in theory, those who can reduce emissions most cheaply will do so, achieving pollution reduction at the lowest cost to the economy and society.

### *Baseline-and-Credit Schemes*

50. In a baseline-and-credit scheme the administrator allocates the cap in the form of baselines. The baseline provides an entity with a right to emit up to a specified level. The baselines are assigned to a specific emitting source and, unlike allowances in cap and trade schemes, cannot be traded. The trading mechanism is introduced at the end of the reference period, when the administrator issues tradable ‘credits’ to entities that have emitted below their baseline. Conversely, the administrator requires entities that have emitted above their baseline to provide credits. This mechanism imparts scarcity and gives rise to a market.
51. The Government of New South Wales implemented a baseline-and-credit scheme which was then cancelled when the Australian Federal Government began to implement an ETS and required companies to purchase EAs to cover their emissions. Presently, based on information available, it appears that there are no active baseline-and-credit ETSS. However the term “baseline and credit scheme” can be used with a general meaning, as explained below.

### *Concept of “Baseline and Credit Schemes” versus an ETS*

52. The term “baseline and credit scheme” can also be applied to schemes that are not ETSS. For example, any situation where a baseline is defined and some sort of “credit” is received for a reduction below the baseline can be treated as falling within the general term “baseline and credit scheme”. But the credit could, for example, be a simple right to receive funds from the government, rather than a tradeable right to emit that can be used to cover an entity’s emissions. Where trading of emission rights is not available the scheme does not fall within the ETS group of interventions.

### *Different Pollutants Covered*

53. There are active trading programs in several air pollutants. For GHGs the largest is the EU-ETS. In the United States of America there was a national market to reduce acid rain, through restricting emissions of sulphur dioxide and nitrogen oxides. EAs can be traded directly or through financial instruments that are then exchanged for units at a later point in time.



54. Some regional ETSs allow the use of EAs from outside of the region. For example, participants in the EU-ETS can use emissions unit types defined under the Kyoto Protocol, although this is subject to quantitative and qualitative limits. Kyoto Units can be traded between national governments. EUAs can be traded within the EU ETS group of 31 nations.

*ETS Design, Issuance of EAs and Emergence of Obligations to Surrender EAs*

55. As previously noted, design of an ETS is likely to take into account many different factors, including factors specific to the particular jurisdiction. ETSs differ, for example, with respect to their:
- (a) Start date, length of compliance period, and ability to carry EAs forward to future periods;
  - (b) Industries or installations targeted by the ETS (e.g. power generation, transport, etc.);
  - (c) Geographic application (e.g. national, regional, or local);
  - (d) Target or cap on emissions (e.g. emissions set at 20% below 1990 levels);
  - (e) Type of penalty for non-compliance; and
  - (f) Mandatory or voluntary nature of the ETS.
56. ETSs can confer EAs on participants in different ways. For example, EAs may be:
- (a) Transferred to ETS participants at no cost or for a nominal fee or a subsidized charge;
  - (b) Sold either to participants only or to the general public using different sale mechanisms including auctions; or
  - (c) Provided to entities in exchange for projects that reduce emissions or otherwise reduce the amount of pollutants in the environment (e.g. a project that has developed and implemented emission reduction technology or a re-forestation project that removes GHGs from the environment).
57. ETS participants' obligations to submit EAs to the administrator may also be driven in different ways. The main driver is emissions. However, at least one ETS, the New Zealand ETS, requires entities that cut down forests to submit EAs, if certain conditions are met. In this case the target entities may start with zero EA holdings (i.e. the administrator does not provide them with EAs at the start of the compliance period) and then develop an obligation to submit EAs, because they have cut down forests.

*Economic Impacts for Government*

58. From the government's perspective an ETS can fulfil its role without having a major economic impact on the government as ETS administrator. There are costs to set up an ETS, and costs to administer the ETS going forward. However, the majority of ETS activity—the issuance of EAs to participants, their holding of EAs and eventual return of them to the administrator, and participants' emission activity—can occur almost without any cash outflows (positive or negative) for the government in its role as ETS administrator.
59. The EA administration costs should not be high, given the electronic and intangible nature of the EA instrument, although there are likely to be emission monitoring costs.



60. An ETS appears capable of achieving its policy objectives without generating any inwards cash flow for the government, however an ETS can be used to generate revenue. That possibility indicates that EAs could be resources for the government.
61. Charging ETS participants for EAs (or auctioning EAs) could generate cash flows that:
  - (a) Help achieve the ETS's primary public policy aim; or
  - (b) Generate revenue for the government to:
    - i. Cover the costs of the ETS;
    - ii. Cover the costs of emissions (health care costs, etc.); or
    - iii. For the general budget.
62. Where a government decides to auction or otherwise sell EAs and thereby generate cash flows, the sale decision is not necessarily about earning revenue. Auctions help create an EAs market and determine the current market price for EAs.

#### *Economic Impacts for Polluting Entities*

63. From the participants' perspective an ETS appears to impose costs proportional to an entity's emissions. If EAs are initially provided for free then an ETS participant will only incur costs once it exceeds the emissions limit set by its allocation of free EAs. Until that point it has "opportunity costs" when it emits, because an alternative use for its EAs is to sell them on the market, and thereby received cash flows. If EAs are issued for a charge then there are immediate costs, which can be defrayed if an entity sells some EAs on the basis that it can reduce emissions beneath the amount covered by the transferred EAs.

#### **Economic Impacts of Different Interventions—Overview and Further Discussion**

64. For all four interventions the government (as regulator or ETS administrator) incurs costs to develop and manage the intervention, as follows:
  - (a) One-off, initial costs to develop and implement; and
  - (b) On-going costs to administer, which will usually involve a monitoring and enforcement aspect.
65. However other economic impacts for a government and for polluting entities vary. Tables 2 and 3 below provide an overview of the economic impact of the four broad types of interventions described above.





**Table 2, Economic Impacts for Government as Administrator/Regulator**

<b>Intervention</b>	<b>Outwards cash flow</b>	<b>Inwards cash flow</b>	<b>Resources, rights and obligations</b>	<b>Other features</b>
<b>Regulation</b>	Costs to administer	Cash flow from fees (e.g. permits) and penalties for non-compliance	Rights to charge, fine, and enforce	Licenses to operate and/or proven history of compliance could be a resource
<b>Funding</b>	Costs to administer; funds for projects; and subsidies	None	Right to project work (service performance) by those funded.	May be possible to trade rights to receive payment for partially completed projects
<b>Taxation</b>	Costs to administer	Cash flow from taxation	Right to enforce.	Applies a price to emissions—tax per unit of emissions Internalizes externalities. Tax losses may be tradeable on secondary market <sup>8</sup>
<b>ETS</b>	Costs to administer	Cash flow from EA transfer fees and sales, may also be ETS participants able to trade EAs	Initial rights to EAs (resource). Rights to EAs as emissions occur. Power (or right to enforce. Obligation to make EAs available and to enforce.	EAs tradeable on primary market (auctions), secondary markets, over the counter transactions. Applies a price to emissions—transfer fee then market value due to supply/demand Internalizes externalities.

<sup>8</sup> The extent to which tax losses are tradeable worldwide is unclear, but appears fairly limited. There is a scheme to trade certain types of tax credits in the United States of America, where the concept of transferability within the tax system applies. By contrast, the Canadian tax system only allows transfer of tax credits in exceptional and limited situations. (For example, a young adult can transfer unused tuition tax credits, but only to immediate family.) The only secondary market for tax losses in Canada involves buying/selling businesses or subsidiaries with a history of accumulated business losses, which can then be used to absorb income in the acquirer's tax return.





**Table 3, Economic Impacts for Entities as Polluters/ ETS Participants**

Intervention	Outwards cash flows	Inwards cash flows	Resources, rights and obligations	Other features
<b>Regulation</b>	Payments for permits, upgrades, etc.	None	None	
<b>Funding</b>	Cash spent on the project Cash provided to encourage change	Receive grant or payment for projects	Earn right to funding for/from projects, or earn EAs, or both Obligation to carry out project	
<b>Taxation</b>	Tax payments	None	Obligated to pay taxes	Internalize externalities (price for emissions). Possible scope to trade tax losses/gains
<b>ETS</b>	Any fees to receive/cost to purchase EAs, costs to change operations	Cash flow from EA sales	EAs that provide rights to emit Obligated to surrender EAs or pay fines	Internalize externalities (price for emissions). EA's price is transfer fee and subsequently market value (supply/demand for EAs)

*Economic Impacts—Government*

66. As indicated above a government may generate positive cash flows from an ETS, carbon tax or emission reduction regulations. Generally a government's policy approach focuses on the expected policy objective (emissions reduction) or behavioral change rather than achievement of economic gain. This is usually evident from the way that prices are set or cash flows, once received, are applied by a government. For example,
- (a) Fees received for command-and-control style operating licenses are likely to be set at a level that covers inspection and administration costs for the licensing arrangement, with no net benefit to the government.
  - (b) Fees received when EAs are initially transferred to ETS participants may be very low or zero, with the result that the government does not expect to generate significant cash flows from the ETS, while financial penalties are set high only as a disincentive to exceeding emission levels.
  - (c) Cash flow received from both ETSs and carbon taxes may be kept in a separate fund (ring-fenced) and dedicated to:
    - i. Other emission reduction initiatives such as cheaper public transport or creation of clean energy solutions; or



- ii. Reduced costs for taxpayers in other areas of government services, such as lower health insurance costs; or
- iii. Investments in infrastructure to cope with the impact of global warming, for example increased forest fire prevention or improvements in flood protection.

*Who Bears the Cost and Internalizes the Externality?*

- 67. Pollution taxes and ETSs aim to make entities internalize the pollution externality<sup>9</sup>. All of society incurs costs from pollution, but the actual polluting entities may treat their ability to pollute (or the environment into which they emit) as a free good. Similarly, customers of the services and products produced by polluting entities also treat pollution as an externality unless government or other intervention requires them to take account of the cost of pollution.
- 68. Pollution taxes and ETSs are likely to force both the producer of emissions and those that purchase products and services of that producer to internalize the cost of pollution. For example, a coal-powered power company may be able to charge a higher price for the energy that it produces in order to recover some or all of a carbon tax on its emissions. In that situation both the polluting entity and its customers internalize the externality. But there may be scope for customers to change to another, cheaper energy producer, a producer that is not affected by the carbon tax because it uses clean energy sources such as wind or solar. Similarly the energy company may be able to change its operations to cleaner sources of energy and thereby keep its costs down. These changed behaviors reflect the internalization of the externality. The carbon tax makes customers and producers consider the price of carbon emissions when making decisions about purchase and production respectively.

*Discussion of and Comparison of Economic Impacts—Participants*

- 69. For entities that emit pollutants, their emissions can be made costly by using either:
  - (a) A tax on emissions, so that the amount of taxes paid increases directly proportional to emissions. The tax could establish a threshold below which there is no tax for emitting entities or include a tax scale that rises as emission go further above a lower limit; or
  - (b) Restrictions on the volume of emissions, so that exceeding a set limit results in costs with higher emissions across the group of participants driving up the market price for any additional emissions through scarcity of EAs (an ETS's basic approach); or
  - (c) Fines or other penalties for exceeding a set limit.
- 70. There are risks to the viability of all polluting entities, when a government begins to make emissions costly. Pressure to change operations so as to reduce emissions can lead to costs for new investment, with the alternative being higher product costs and a loss of competitiveness or a reduction in profit.

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<sup>9</sup> An externality is a factor whose costs (or benefits) are not reflected in the market price of goods and services. Carbon pricing and an ETS both aim to price emissions so that their price reflects the fact that emissions impose costs on society. These pollutant pricing mechanisms are expected to also impact on market prices for goods and services that involve creation of emissions so that those also reflect the cost of emissions for society.



71. Funding from government, whether in the form of subsidies or results-based financing can have a positive impact for polluting entities, because it helps them to develop or implement changes that reduce emissions without necessarily costing them anything (government grant approach) or costing them less than would otherwise be the case (low interest loan approach).
72. From the participants' perspective both carbon taxes and an ETS appear to impose costs proportional to an entity's emissions. In the case of carbon taxes the relationship is simple; the more an entity emits the more taxes it pays. For an ETS the situation is more complex.
73. If EAs are initially provided for free then an ETS participant will only incur costs once it exceeds the emissions limit set by its allocation of free EAs. Until that point it has "opportunity costs" when it emits, because an alternative use for its EAs is to sell them on the market, and thereby earn cash flows. If EAs are issued for a charge then the ETS costs look more like a carbon tax. But the costs can still be reduced by holding emissions below the total covered by the EAs, which will then mean being able to sell surplus EAs. Depending on the sale price of surplus EAs an entity may be able to recoup some or all of its original EA transfer costs. An ETS provides a potential up-side for participants, because an entity may be able to sell any surplus EAs and thereby earn revenue from its ETS involvement. A carbon tax is purely another cost, which the participant must cover.

#### Participants' Scope to Control or Influence the Economic Impact of an ETS

74. The economic impact for an ETS participant depends on various factors. Some of the factors are within the participant's control or influence:
  - (a) Incurrence of costs for initial receipt of EAs depends on whether the administrator decides to charge a price and/or auction EAs. The participant may also decide, if EAs are auctioned, to purchase fewer EAs, on the basis that there is scope to reduce emissions below the level that the government has set.
  - (b) Whether a participant incurs further costs to purchase additional EAs during the compliance period depends on whether the entity keeps its emissions below the limit set by the original EAs received.
  - (c) Costs to change operations (e.g. new technology) and thereby reduce emissions is managed by entity.
  - (d) The participant also chooses whether to trade in EAs, which could result in gains (losses) from trading activities, with risks arising that could impact on the statement of financial performance.



## Comparison between ETSS and Tax on Emissions

*Is an ETS a different category of government intervention or similar, in substance to carbon taxes?*

75. Some argue that an ETS is a type of tax on emissions, for example a particular type of carbon tax. This question is important for ETS accounting. If these two interventions are, in substance, the same, then they should be accounted for in the same way. There appear to be some obvious differences. For example, an ETS:
- (a) Allows trading of EAs, while taxes generally cannot be traded;
  - (b) Consists primarily in exchanging EAs rather than cash, while taxes involve cash in/outflows only;
  - (c) Establishes a limit (the cap) on emissions, for each participant and for all participants in the scheme as a whole; thus, creating scarcity. Conversely, taxes allow polluting entities to emit without any upper limit, with higher emissions generating higher costs/revenue through taxation.
76. While these are important differences for participants, it is not clear that they represent significant differences for ETS administrators.

*How do these two intervention differ and how are they similar?*

77. From the administrator's perspective both interventions (an ETS and a carbon tax) are relatively costless with both having potential to generate positive cash flows. Both have the same primary aim which is to reduce emissions. They both have the effect of making emissions costly to participants. However, because EAs are commonly transferred to participants at zero or a nominal fee, the administrator can be expected to generate less cash flow from an ETS compared to a tax on emissions.
78. An ETS is different from a carbon tax because the major driver for behavioral change is the cap on emissions. An ETS can work effectively even where the administrator does not charge anything for EAs, so that no cash flows are received by the ETS administrator. The cap creates scarcity where previously polluting entities could treat the environment as a free, limitless good. Once scarcity has been established, the laws of supply and demand apply to set the market price for EAs. That is the main mechanism by which polluting entities experience a cost to emissions and, indirectly, internalize the externality (i.e. pollution and its negative consequences), although fees on transfer of EAs also have some effect. By contrast a carbon tax is effective through the extra costs that it imposes on emissions (or emission related activity). The absence of an upper limit being set could be seen as a weakness of the mechanism compared with an ETS.



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## APPENDIX A: EMISSION REDUCTION INTERVENTIONS—CASE STUDIES

This section provides links to case studies that illustrate types of emission reduction interventions.

### *International interventions:*

[The Kyoto Protocol](#) has implications for all national developments

[The EU-ETS](#), which is the largest ETS, the longest-running ETS, and applies to 31 countries (the 28 EU member states, Iceland, Lichtenstein and Norway)

North America's [Western Alliance Initiative](#) ETS (California and [Quebec](#))

### *National and subnational interventions:*

[Australia](#)'s results-based financing

[Brazil](#)'s use of incentives to protect forests and reduce deforestation

Canada—Provinces of [Alberta](#) and [Quebec](#)

[New Zealand's ETS](#)

[South Africa's carbon tax](#)

[Switzerland's carbon tax and ETS](#)

[United States of America—Clean Air Act](#) example of command and control and the [Regional Greenhouse Gas Initiative](#) (Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island and Vermont)



## **APPENDIX B: GFSM 2014 AND RIGHTS OVER NATURAL RESOURCE USAGE**

- B1. Appendix A of the Government Finance Statistics Manual (GFSM) 2014 discusses classification of different ways in which a government could issue rights to use a natural resource (permits, licenses or allowance). A government's choices when creating licenses and permits for natural resources are:
- (a) Allow use of the natural resource to extinction (i.e. open-ended right to use);
  - (b) Allow use for an extended period with little or no intervention; or
  - (c) Extend or withhold continued use of the right (to use the resource) from one year to another (i.e. a resource lease).
- B2. Government control over a resource can happen:
- (a) Without payment to the affected entities (or payment by the entity);
  - (b) With payments that constitute:
    - (i) A tax;
    - (ii) A rental (lease) payment;
    - (iii) Purchase of an asset that is then included in the GFS equivalent to an entity's statement of financial position.
- B3. Each of these options have different classification and reporting consequences for GFS.
- B4. A government may issue licenses or permits to use natural resources that are either:
- (a) Claimed by the government on behalf of the community; or
  - (b) Privately owned.
- B5. GFSM 2014 discusses application of the principles to governments' issuance of permits or licenses for a range of different natural resources, including the radio spectrum, land, timber, fish, water, and mineral and energy resources.

### **Relevance to Emission Allowances**

- B6. EAs are similar to rights to use the atmosphere. Arguably they are better described as rights to use a government created resource. A government creates the total capacity for emissions (i.e. the cap or overall limit available for emissions) and makes that resource valuable by restricting entities' ability to operate without having the resource. There are financial consequences for an entity that does not hold sufficient EAs to cover their emissions. Although this resource (the total capacity for emissions) has similarities to a "natural resource", it is a government creation, a "man-made resource" that is not physical. It depends for its existence on legislation, and is a type of socially constructed, intangible reality. The government issues rights to use a fraction of the resource. Those rights are EAs, and each EA provides a certain capacity to emit, which is a fraction of the total resource, i.e. the total capacity to emit, set by the overall cap on emissions.



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## **CASE STUDIES—FOR EMISSIONS TRADING SCHEMES BACKGROUND PAPER**

### **KYOTO PROTOCOL 1997—2012**

1. The Kyoto Protocol is an international agreement to address global warming and delay climate change. The Protocol aims to reduce the total greenhouse gas emissions of developed countries (and countries with economies in transition) to 5 per cent below the level they were in 1990. The Kyoto Protocol is named after the Japanese city where it was concluded in 1997.
2. The Kyoto Protocol entered into force in 2005, after it had been signed and ratified by 55 countries—the minimum number needed for the Protocol to become international law. Only countries that ratify the Protocol are bound by it. The Protocol set targets for GHG emissions for the period 2008 to 2012 (the first commitment period). Different countries have different targets. For the first commitment period country targets ranged from eight per cent below, to ten per cent above 1990 levels.
3. Parties to the Protocol are allocated an assigned amount of emissions units equal to their target multiplied by the number of years in the commitment period. For example, in the first commitment period New Zealand was allocated Assigned Amount Units (AAUs) equal to five times its 1990 emissions levels.
4. Parties may implement domestic policies and measures to limit or reduce emissions to a level equivalent to or less than their assigned amount, or take responsibility for any excess emissions through the flexibility mechanisms provided for in the Kyoto Protocol. The flexibility mechanisms are:
  - (a) International Emissions Trading;
  - (b) Joint Implementation; and
  - (c) The Clean Development Mechanism.

#### **International Emissions Trading**

5. Parties with commitments under the Kyoto Protocol (Annex B Parties) have accepted targets for limiting or reducing emissions. These targets are expressed as levels of allowed emissions, or “assigned amounts,” over the 2008-2012 commitment period. The allowed emissions are divided into “assigned amount units” (AAUs). Emissions trading, as set out in Article 17 of the Kyoto Protocol, allows countries that have emission units to spare - emissions permitted them but not “used” - to sell this excess capacity to countries that are over their targets.

#### **Clean Development Mechanisms**

6. The Clean Development Mechanisms (CDM), defined in Article 12 of the Protocol, allows a country with an emission-reduction or emission-limitation commitment under the Kyoto Protocol (Annex B Party) to implement an emission-reduction project in developing countries. Such projects can earn saleable certified emission reduction (CER) credits, each equivalent to one tonne of CO<sub>2</sub>, which can be counted towards meeting Kyoto targets.
7. The mechanism is the first global, environmental investment and credit scheme of its kind, providing a standardized emissions offset instrument, CERs.

8. The mechanism stimulates sustainable development and emission reductions, while giving industrialized countries some flexibility in how they meet their emission reduction or limitation targets.

#### Joint Implementation

9. The mechanism known as “joint implementation,” defined in Article 6 of the Kyoto Protocol, allows a country with an emission reduction or limitation commitment under the Kyoto Protocol (Annex B Party) to earn emission reduction units (ERUs) from an emission-reduction or emission removal project in another Annex B Party, each equivalent to one tonne of CO<sub>2</sub>, which can be counted towards meeting its Kyoto target.
10. Joint implementation offers Parties a flexible and cost-efficient means of fulfilling a part of their Kyoto commitments, while the host Party benefits from foreign investment and technology transfer.
11. A joint implementation project must provide a reduction in emissions by sources, or an enhancement of removals by sinks, that is additional to what would otherwise have occurred. Projects must have approval of the host Party and participants have to be authorized to participate by a Party involved in the project. Projects starting as from the year 2000 may be eligible as joint implementation projects if they meet the relevant requirements, but ERUs may only be issued for a crediting period starting after the beginning of 2008.
12. If a host Party meets all of the eligibility requirements to transfer and/or acquire ERUs, it may verify emission reductions or enhancements of removals from a joint implementation project as being additional to any that would otherwise occur. Upon such verification, the host Party may issue the appropriate quantity of ERUs. This procedure is commonly referred to as the “Track 1” procedure.” If a host Party does not meet all, but only a limited set of eligibility requirements, verification of emission reductions or enhancements of removals as being additional has to be done through the verification procedure under the Joint Implementation Supervisory Committee (JISC). Under this so-called “Track 2” procedure, an independent entity accredited by the JISC has to determine whether the relevant requirements have been met before the host Party can issue and transfer ERUs. A host Party which meets all the eligibility requirements may at any time choose to use the verification procedure under the JISC (Track 2 procedure).

#### New Market-based Mechanism<sup>1</sup>

13. The “new market-based mechanism” aims to enhance the cost-effectiveness of, and to promote, mitigation actions, bearing in mind different circumstances of developed and developing countries.

#### Framework for Various Approaches<sup>2</sup>

14. The Framework for Various Approaches (FVA) is a set of components and rules that will ensure that all approaches used for mitigation will meet certain standards, especially from an environmental integrity point of view. The FVA aims to ensure that all mitigation approaches are integrated, and receive recognition, for UNFCCC compliance. These mechanisms allow developed countries to purchase emissions units from other developed countries or from

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<sup>1</sup> [http://unfccc.int/cooperation\\_support/market\\_and\\_non-market\\_mechanisms/items/7710.php](http://unfccc.int/cooperation_support/market_and_non-market_mechanisms/items/7710.php)

<sup>2</sup> [http://unfccc.int/cooperation\\_support/market\\_and\\_non-market\\_mechanisms/items/7709.php](http://unfccc.int/cooperation_support/market_and_non-market_mechanisms/items/7709.php)

emissions reduction projects implemented in other countries and use these for compliance with their Kyoto Protocol obligations.

15. The flexibility mechanisms thus allow a country to comply with its target even though its domestic emissions may exceed its assigned amount. The Kyoto Protocol recognises that reducing global GHG concentrations in the atmosphere can be achieved by reducing the quantity of GHGs emitted or removing carbon dioxide presently in the atmosphere by increasing and maintaining carbon sinks (for example, managing forests).

*Negotiations for Future International Agreement*

16. In December 2007, the United Nations Climate Change Conference in Bali culminated in the adoption of the Bali Road Map, which set the direction for securing a post-2012 agreement in Copenhagen in December 2009.
17. The Bali Road Map divides the negotiations into two tracks: the Ad-hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG-KP), and the Ad Hoc Working Group on Long-Term Cooperative Action under the Convention (AWG-LCA). The AWG-KP works on future commitments of Parties listed in Annex B to the Kyoto Protocol, while the AWG-LCA works on a broad negotiation under the UNFCCC involving all countries (developed and developing) on matters relating to the Bali Action Plan. The Bali Action Plan includes developing a shared vision, including a long-term global goal and looks at ways to enhance mitigation, adaptation, technology and finance in the context of addressing climate change.
18. These two Ad-hoc Working Groups closed at the 18th Conference of the Parties (COP 18) in Doha in December 2012. Parties are now focussed on negotiating a new comprehensive global agreement applicable to all Parties by December 2015, to come into force in 2020. These negotiations are taking place under the Ad-hoc Working Group on the Durban Platform for Enhanced Action (ADP).

## EUROPEAN UNION EMISSIONS TRADING SCHEME<sup>3</sup>

### Background to the EU ETS

19. The European Union ETS (EU ETS) is the largest multi-country scheme in the world. It covers all 28 EU member states and Iceland, Norway and Liechtenstein. The Swiss ETS now links with the EU ETS. It is a statutory (i.e. mandatory) scheme that applies to the volume of greenhouse gases emitted by more than 11,000 power plants, factories and other fixed installations ('covered installations'), and aviation operators<sup>4</sup>. These installations are collectively responsible for around 50% of the EU's CO<sub>2</sub> emissions.
20. The EU ETS was designed to be compatible with the Kyoto Protocol and the emissions limits in that. The first commitment period of the Kyoto Protocol expired, on 31 December 2012 and the EU ETS therefore operates outside any wider multinational framework, pending the entry into force of the second commitment period. However, momentum behind implementation of such systems is growing in a broad range of countries. This includes national or sub-national systems in Canada, China, Japan, Kazakhstan, Korea, New Zealand, Switzerland and the United States.
21. The EU ETS applies to:
  - (a) CO<sub>2</sub> emissions from:
    - Power and heat generation;
    - Energy-intensive industry sectors, including oil refineries, steel works and production of iron, aluminium and other metals, cement, lime, glass, ceramics, pulp, paper, cardboard, acids and bulk organic chemicals; and
    - Civil aviation.
  - (b) Nitrous oxide (NO<sub>2</sub>) from production of nitric, adipic, glycolal and glyoxalic acids; and
  - (c) Perfluorocarbons (PFCs) from aluminium production.
22. Emissions are measured in tonnes of CO<sub>2</sub> or equivalent, based on greenhouse impact. Participation in the EU ETS is mandatory for companies operating in this sector, but in some sectors only certain, larger, installations are covered.
23. The cap is on all emissions of greenhouse gases from covered installations based on emissions over a set period. Each of these periods is called a 'phase' or 'trading period', and emissions are therefore capped over the entirety of that phase. The first phase was from 2005-2007, the second phase from 2008-2012, the current third phase started in 2013 and will last until 2020, and the next will start in 2021. As of the current phase this cap reduces annually up to 2020 and beyond. Allowances within a scheme period are fungible (that is they are perfectly substitutable). Furthermore, allowances still in circulation from the previous period are banked to the current period (see paragraphs 42-39).
24. Scheme participants are required to measure their output of greenhouse gases from covered installations on an annual basis, using calendar years. In the April following the end of each

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<sup>3</sup> The description here relies on an EFRAG briefing paper. While very detailed the relative importance of the EU ETS arguably justifies this level of detailed coverage. The source of information supports its validity as of the date of the compilation of the briefing paper and there has been subsequent review by European Commission staff.

<sup>4</sup> There are some specific requirements relating to aviation, which are outside the scope of this summary.

calendar year scheme participants are required to surrender allowances equal to the volume of greenhouse gases emitted in the previous calendar year.

25. The EU ETS has the following elements:
- (a) Holding and recording of emissions allowances;
  - (b) Allocation and auctioning of emissions allowances;
  - (c) Trading of emissions allowances;
  - (d) Monitoring of emissions;
  - (e) Surrender of emissions allowances;
  - (f) 'Banking' of emissions allowances;
  - (g) Linkages with other emissions trading schemes.

#### **Holding and recording of emissions allowances**

26. Rights to emissions allowances are fully dematerialised (they exist only in the form of electronic records) and are recorded on a single EU registry. The EU registry records the holding of emissions allowances and transactions concerning these allowances. The main types of transactions defined are:
- (a) Creation of allowances;
  - (b) Free allocation of allowances;
  - (c) Auctioning of allowances;
  - (d) Trading of allowances;
  - (e) Surrendering of allowances; and
  - (f) Deletion of allowances.
27. Any EU company or legal individual may open an account at the EU registry and participation is not limited to these entities that operate covered installations. Accounts are therefore held by both operators (who have a holding account per covered installation and may also have additional trading accounts offering more flexibility) and traders (including banks).
28. The accounts on the registry are accessed online, in a manner similar to online-banking or a securities custodian.
29. There are two main types of accounts held by companies or physical persons on the registry: 'holding' accounts and 'trading' accounts. Entities frequently have both types of accounts, and the main difference between them is in relation to the security rules applicable to trading transactions, including initiation of transfers.
30. Holding accounts can only make transfers to accounts specified in a trusted account list, and the process takes 26 hours to complete<sup>5</sup>.
31. Trading accounts can make transfers to any other accounts. For transfers to accounts specified in a trusted account list, delivery is immediate. For transfers to accounts not specific in a trusted account list, dual authorisation is required and delivery takes place 26 hours later.

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<sup>5</sup> When the 26-hour delay applies, the transfer is initiated 26 hours after its validation and is normally completed immediately after initiation, unless unforeseen circumstances (e.g. technical downtime of the system).

### **Allocation and auctioning of emissions allowances**

32. The emission rights are distributed amongst scheme participants either through direct grant ('allocation' for free) to covered installations or through an auction process.

#### *Allocation of emissions allowances*

##### Existing installations

33. For the 2005-2007 and 2008-2012 periods, allowances were allocated to covered installations by national governments in line with what were known as National Allocation Plans. Participating states drew up National Allocation Plans and had relative freedom to allocate allowance (subject to not unduly favouring any specific undertakings or companies). In the 2005-2007 and 2008-2012 schemes the vast majority of emissions allowances under the scheme were allocated in this manner.
34. For the 2013-2020 period and beyond the allocation of allowances is done on the same basis across the participating countries, using both a 'bottom-up' and 'top-down' approach.
35. The bottom-up allocation of emissions allowances to covered installations is in line with a 2011 European Commission 'Benchmarking Decision'. The number of allowances allocated to each installation is based on a number of factors, including historical levels of production<sup>6</sup>, the product being produced, benchmarking in comparison to leading producers and the cross-sectoral correction factor, decreasing annually in line with the overall emissions cap. There is also a split between manufacturing and electricity production, with electricity production not, in general, being entitled to any free allocation of emissions allowances.
36. For installations from sectors and sub-sectors included in a list of sectors deemed to be exposed to a risk of 'carbon leakage' (when, for reasons of costs related to climate policies, production is at risk of being transferred to countries without constraints on greenhouse gas emissions) the allocation deriving from the benchmarking formula is multiplied by 100% to calculate the number of emissions allowances to be received. For manufacturing covered installations not deemed to be at risk of carbon leakage, the number of emissions allowances to be received each year is calculated by taking the number generated from the benchmarking formula and multiplying by a predetermined percentage that progressively reduces the number of free allowances allocated (it reduces from 80% in 2013 to 30% in 2020).
37. There is also a 'top-down' cap on the total amount of allowances that can be allocated for free, based on the overall number of allowances to be allocated. If the bottom-up calculation results in a total number of emissions allowances to be allocated in excess of the "free allocation cap", the number of emissions allowances for each covered installation is reduced by a pre-determined formula known as the Cross-Sectoral Correction Factor. This ensures that the total number of allocated allowances does not exceed the free allocation cap in each year.
38. In each period, the actual number to be received will not be known until both the bottom-up and top-down processes are complete and approved across the whole EU ETS. But once the processes are complete, the number of allowances to be allocated for each year in a period is known in advance, except for significant capacity changes.
39. The actual allocation of emissions allowances is done by crediting the covered installation's account at the EU registry. This generally takes place by 28 February each calendar year, in

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<sup>6</sup> There is a specific methodology for free allocation for process emissions (estimated to cover less than 1% of eligible emissions), which is based on historical levels of emissions.

relation to the allocated emissions rights for that year. Changes in allocation for installations that have partially ceased to operate, significantly changed their capacity or closed in that year, will only take place in the subsequent calendar year.

#### New and expanding installations

40. New installations that are covered by the EU ETS and installations that increase capacity significantly are eligible for the allocation of additional free allowances from what is known as the 'New Entrants' Reserve'. The number of allowances received is calculated on the same basis as an existing installation, but uses estimated capacity (increase) and standard capacity utilisation factors rather than historic figures.

#### Cessations and significant capacity reductions

41. In the case of covered installations that close, reduce capacity significantly or partially cease operations there are implications for the number of emissions allowances allocated. In all instances the change in the number of emissions allowances allocated takes place in the calendar year following the closure, reduction of capacity or partial cessation.
42. Entities have no obligation to return previously allocated allowances if they close, reduce capacity or partially cease operations at a covered installation.

#### *Auctioning of emissions allowances*

43. The remaining emissions rights (around half of all emissions rights in the 2013-2020 period) are auctioned. Emission allowances are distributed across the countries participating in the scheme. Eight-eight percent of the allowances are distributed based on the national share of EU ETS emissions in 2005. Ten percent are distributed to the least wealthy EU states as a form of fiscal transfer. The remaining 2% is given as a 'bonus' to countries that had, by 2005, reduced their greenhouse gas emissions by more than 20% from their 'base year' as defined in the Kyoto Protocol<sup>7</sup>.
44. Auctions are held on behalf of each national government, but are open to buyers from any country participating in the EU ETS.
45. There are no legal restrictions on how governments use the money raised by auctioning allowances, but the Directive governing the EU ETS states revenues generated 'should be used to tackle climate change in the EU and third countries' without legally requiring it. However, as of 2014, Member States have to report on the use of auctioning revenue.

#### **Trading of emissions allowances**

46. In principle, the trading of emissions allowances is open to anyone. At present, the main categories of traders are:
  - (a) Energy and industrial companies that have obligations under the ETS; and
  - (b) Financial intermediaries such as banks who operate both for speculation (proprietary trading), and on behalf of smaller companies and emitters (market making).
47. Most transactions in emissions allowances takes place in the form of derivatives. These derivatives are both over the counter and exchange traded. Settlement of the derivatives is

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<sup>7</sup> Base year is 1990 for all countries apart from Bulgaria (1988), Hungary (average of 1985-1987), Poland (1988), Romania (1989) and Slovenia (1986).

either net cash, or through physical delivery (by transfer of an emissions allowance on the EU registry).

48. All transactions, in both derivatives and the emissions allowances themselves, will be regulated under the new Markets in Financial Instruments Directive ('MiFID'), applicable as of January 2017. Transactions in derivatives are already regulated under the currently applicable MiFID. Transactions in emissions rights are therefore subject to regulations regarding insider trading, market manipulation, transaction reporting and Anti-Money Laundering safeguards.
49. The most liquid European platform for trading of emissions allowances is via ICE Futures Europe, which has daily and monthly physically-settled futures that reference emissions allowances. As this is the most liquid market, most purchases and sales of emissions rights take place through the ICE futures market.

### **Monitoring and verifying of emissions**

50. As part of the approval permit for joining the EU ETS (which is mandatory for covered installations) an approved monitoring plan is required. This sets out how the covered installation will monitor and report their emissions during the year. Covered installations are therefore required to monitor their emissions throughout a year.
51. Reports of emissions are required to be verified by an external verifier. The external verifier's report is similar to the audit of financial statements. The report is based upon the systems included in the monitoring plan, and verifier is required to assess (and come to a 'reasonable assurance' conclusion) whether:
  - (a) The report is complete and meets the requirements of the applicable European Regulation;
  - (b) The operator has acted in compliance with the monitoring plan;
  - (c) The data in the report are free from material misstatements; and
  - (d) Information can be provided in support of the operator's data flow activities, control systems and associated procedures to improve the performance of monitoring and reporting.
52. Verifiers are also required to include in the verification report any identified areas for improvement in relation to the operator's:
  - (a) Risk assessments;
  - (b) Development, documentation, implementation and maintenance of data flow and control activities and evaluation of the control system;
  - (c) Development, documentation, implementation and maintenance of procedures for data flow and control activities; and
  - (d) Monitoring and reporting of emissions.
53. A verified report of emissions during a calendar year is required to be submitted to the relevant national authority and the corresponding emission date entered in the EU registry by 31 March of the following calendar year. This verified emissions report identifies the amount of greenhouse gas emissions (in tonnes of CO<sub>2</sub> equivalent), and therefore the number of allowances that must be surrendered.
54. Each country is responsible for establishing measures to ensure that a verified monitoring report is submitted by operators for each covered installation. Submission is required for every



year and any penalties for failure to submit (on time or at all) do not do not remove this obligation. If a covered installation fails to submit a verified monitoring report, the relevant national authority may 'assess' the number of emissions allowances required to be surrendered.

### **Surrender of emissions allowances**

55. For each covered installation the number of allowances specified in the verified report must be surrendered by 30 April of the calendar year following that in which the emissions took place.
56. If an entity does not surrender sufficient emissions allowances by 30 April, there is a fine of €100<sup>8</sup> per emissions allowance. The obligation to surrender emissions allowances is not extinguished, so the entity is also required to obtain sufficient rights to meet its obligation and surrender these.
57. Following surrender, the emissions rights are cancelled.

### **Banking of emissions allowances**

58. Although emissions allowances are allocated and auctioned on an annual basis<sup>9</sup> all emissions rights for the 2013-2020 scheme period are fungible and may be surrendered to fulfil the obligations for any year of the period.
59. Emission rights from the 2008-2012 period may not be used to settle obligations arising in 2013-2020. However, in a process known as 'banking' emissions allowances remaining at the end of the 2008-2012 period were deleted and an equal amount of additional 2013-2020 rights were created and credited to the accounts of those who held 2008-2012 rights.
60. This banking process took place as part of a deliberate policy decision. For the 2005-2007 scheme period, banking (and therefore conversion of 2005-2007 emissions allowances into 2008-2012 emissions allowances) did not take place. This caused a collapse in the price of 2005-2007 emissions allowances, meaning the desired economic effect of disincentivizing carbon emissions did not happen.

### **Linkage with other emissions trading schemes**

61. The EU ETS currently stands alone, but the European Union is attempting to link the EU ETS to other cap-and-trade schemes. This would allow emissions allowances for one scheme to be used to satisfy liabilities created in other schemes.
62. It is not yet clear whether this would be through direct surrendering of EU ETS emissions allowances for other schemes (and vice versa) or whether the emissions allowances would be 'swapped' first.

### **Key features in relation to financial reporting**

#### *Linkage between covered installations and legal entities*

63. The Directive governing the EU ETS refers to both 'Operators' and 'installation':
  - (a) 'Installation means a stationary technical unit where one or more activities listed in Annex I are carried out and any other directly associated activities which have a technical connection with the activities carried out on that site and which could have an effect on emissions and pollution' ; and

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<sup>8</sup> 2013 equivalent, rising in line with Eurozone inflation.

<sup>9</sup> The auction calendar is determined on annual basis, but the auctioning itself takes place almost on a daily basis.

- (b) 'Operator' means any [natural or legal] person who operates or controls an installation or, where this is provided for in national legislation, to whom decisive economic power over the technical functioning of the installation has been delegated.
64. Obligations for submitting a verified emissions report and surrendering emissions allowances fall on the operator of a covered installation on particular dates (see timeline).
65. An entity can therefore avoid any applicable obligation by not being the operator of a particular covered installation on the specified date.

*Emissions allowances allocated for free*

66. Allocated emissions allowances are intended to partially compensate operators for the costs of obtaining emissions allowances. The allocation is explicitly linked to a particular year.
67. However, operators which receive allocated emissions allowances are free to do with them as they wish. There is no requirement to continue to trade or to emit. However, an entity which substantially reduces its activities will receive a reduced allocation the next year. An entity that closes will receive no allocation the next year.

**Annual timetable of key EU ETS dates for scheme participants**

1 January	Start of annual emissions monitoring period.
28 February	Receipt of allocated free allowances in EU registry account.
31 March	Deadline for submission of verified annual emissions report for previous year.
30 April	Deadline for surrender of allowances equal to the verified annual emissions from previous year.
30 June	Deadline for submission of improvement report.
31 December	Deadline for notification to national regulator of changes to monitoring plan, capacity, activity level or operations. End of annual emissions period.

## AUSTRALIA<sup>10</sup>—RESULTS BASED FINANCING

68. Presently the Australian government does not have an ETS and does not issue EAs. The government does issue “Australian Carbon Credit Units” (ACCUs). These represent a right to receive funds from the government, in exchange for emission reductions.
69. In 2012 the Australian government introduced “carbon pricing”, as a first step towards creation of an ETS. The fixed carbon price was initially set at AUS\$23 per tonne of CO<sub>2e</sub>, to increase at a rate of 2.5% per year. This intervention was replaced, in 2015, with financial incentives for projects that reduce emissions. Entities receive ACCUs in exchange for carrying out projects that reduce emissions. The government agrees to purchase back the ACCUs for an agreed price, once the projects have achieved the promised emission reductions.

### *Intervention (1) “Carbon Pricing Mechanism”—Carbon Pricing and ETS*

70. Australia’s Carbon Pricing Mechanism (CPM) established a fixed carbon price at which emission allowances (also called “permits”) could be bought from the government. This was the foundation for an Australian ETS, to be established in 2015. The fixed carbon price was set at AUS\$23 per tonne of CO<sub>2e</sub> and would have increased at a rate of 2.5% per year. Once the CPM transitioned to an ETS, it was intended to link to the EU ETS. The CPM was one part of a package of laws that included the Carbon Farming Initiative (CFI) framework, which evolved to become the Emission Reduction Fund, described below.

### *Intervention (2) “Direct Action Plan” Financial Incentives for Emissions Reduction Projects*

71. The CPM was replaced with the Direct Action Plan, where the government’s main tool to reduce emissions is the Emission Reduction Fund (the Fund). The Fund provides financial incentives for investments in technologies that reduce emissions. (Budgeted cost AUD\$2.55 billion over four years, starting in 2015.) The Fund purchases emissions reductions offered by entities via reverse auctions. It covers projects from a wide range of sectors: agriculture, building, electricity, fuel combustion, forestry, industry, transport, and waste. These projects can generate abatement by reducing or avoiding emissions of methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), or by converting CH<sub>4</sub> into carbon dioxide (CO<sub>2</sub>).
72. The Fund has three main elements:
- (a) *Crediting emission reduction*: An entity registers their emissions reduction project with the Clean Energy Regulator. If the Regulator approves the project, it can be issued with Australian Carbon Credit Units (ACCUs). After project approval, entities must submit a bid to sell emissions reductions on the basis of price per tCO<sub>2e</sub>. Only bids less than a maximum amount (benchmark price), set by the Regulator, will be considered. The Regulator credits projects for a single defined “crediting period”, which is the period of time over which a project can generate ACCUs. Emission reduction projects have a seven years period while sequestration projects have a 25 years crediting period.
  - (b) *Purchasing emissions reductions*: Successful bids are entered into a carbon abatement contract with the Regulator, which agrees to purchase emissions reductions from the project at the bid price. The project proponent is obliged to deliver the bid quantity of emission reductions. Carbon abatement contracts apply a five year time span. The

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<sup>10</sup> EDC-IETA case study updated as of May 2015. Available from  
[https://ieta.memberclicks.net/assets/CaseStudy2015/australia\\_case\\_study\\_may2015.pdf](https://ieta.memberclicks.net/assets/CaseStudy2015/australia_case_study_may2015.pdf)

project proponent can either deliver emission reductions from its own project, or buy ACCUs from another registered project. Once verified the Regulator will pay the agreed price. (ACCUs generate income, because they can be sold to the government through a carbon abatement contract, or sold in the secondary market. The government is the ultimate purchaser of ACCUs.)

- (c) *The safeguard mechanism:* To ensure that emissions reductions acquired by the Fund are not offset by emissions increases elsewhere a “safeguard mechanism” will encourage businesses to keep emissions below historical levels. Regulations for this were expected to be drafted in July 2015, released in October 2015 and enter into force on 1 July, 2016.

#### *Complementary Measures*

73. The government also implemented three complementary measures:

- (a) *Renewable energy:* A mandatory target that at least 20% of Australia’s electricity supply will come from renewable sources of energy by 2020, with yearly targets for renewable generation. A second initiative that supports renewable energy projects by streamlining and coordinating administration, funding, research and development.
- (b) *Energy efficiency:* A 10-year strategy to accelerate energy efficiency improvements across Australia, which includes actions to be undertaken by the Commonwealth, State and Territory governments.
- (c) *Voluntary carbon markets:* The National Carbon Offset Standard serves the voluntary market, ensuring the integrity of the offset available to consumers and businesses. The programme also offers information to businesses and consumers to help them determine their carbon footprint, and provides information on carbon neutral products. The Carbon Neutral Program provides a mechanism based on the NCOS to gain carbon neutral certification.

74. These measures do not involve issuance or creation of emission allowances.

## NEW ZEALAND—ETS

### *New Zealand Government and Kyoto*

75. The government has an obligation to the United Nations to keep emissions within the prescribed cap or to provide Kyoto credits for the difference for the first commitment period (2008-2012). There are no current obligations beyond this period, although to make progress toward the policy goal of managing climate change negotiations are underway to extend the Kyoto agreement to further commitment periods.
76. The government was allocated 309.5 Assigned Amount Units (AAUs) by the UNFCCC and is expected to generate approximately 80m forest sink credits. These are international units and represent the NZ emission levels in 1990. These credits are internationally tradable. However, under Kyoto the government must hold a quantity of international units equal to 90% of its AAU allocation. This mitigates the risk that countries sell their units and then default on their Kyoto obligation. The government can use these units to settle its Kyoto obligation to the UNFCCC. Current forecasts show that NZ's emissions will exceed the prescribed cap, so it will need to purchase further international units to fully settle its obligation if these forecasts eventuate.

### *The New Zealand (NZ) ETS*

77. Certain entities (points of obligation entities) must provide units (not cash) to the Government to meet their total emissions for each year. It is their total emissions, not just those above 1990 levels that must be covered by the credits. These 'points of obligation' entities (e.g. petrol companies, energy producers) are typically upstream of the final consumer/polluter. Units acceptable by the government are NZ units and international units. There is no hard domestic emission cap, as international credits can be used to cover excess emissions. The ETS does, however, operate within the global Kyoto cap.
78. To meet the cost of providing units, the 'point of obligation' entities can be expected to pass the cost on to their customers (and so on to the final polluter). To help some industry meet these increased costs, the Government will allocate units free to sector participants (but not 'point of obligation' entities). In turn, they can sell these units and so help meet cost rises. Free allocations are typically a % of the sector's 2005 emissions. The Government also has the option of auctioning NZ units. A registry will record holdings and trades of NZ units.
79. NZ units represent one metric tonne of emission. Each NZ unit is identical in design – they can be traded within and across sectors. NZ units can only be traded within NZ, but they will be backed by AAUs. That is, for every NZ unit the government stands ready to swap it into an AAU (or equivalent international unit) by the end of the 'true-up' period (approx 2014). The backing of NZ units by AAUs is government policy. Otherwise there is nothing preventing the government from issuing more NZ units, although this would have implications for pricing of units and adverse consequences for encouraging polluters to manage emission levels.
80. Having AAU backing provides liquidity and acts as a safety valve on price, as differences between NZ unit prices and international prices will result in trades between the two markets. The decision to create a NZ unit instead of trading AAUs directly was made because there are some restrictions on AAU trading in the first commitment period and the future of AAUs beyond the first commitment period is uncertain. Having NZ units and associated rules/markets better ensures an enduring ETS.
81. The ETS will progressively be introduced across sectors. Some sectors, notably agriculture, will be not captured in the first Kyoto commitment period (2008-2012).

82. Emissions will be measured and invoiced annually, with payment due shortly after invoicing and penalties attracting to non-compliance. This approach follows the tax collection model and will be rolled-out to sectors over the Kyoto commitment period. More detail on the framework for a New Zealand Emissions Trading Scheme publication can be found at <http://www.climatechange.govt.nz/>

## **SOUTH AFRICA<sup>11</sup>**

### *South Africa—Key Points*

83. The South African Government has a target to reduce emissions by 34% by 2020, which was submitted to the UNFCCC in 2010. It does not have an ETS. A carbon tax will be implemented in 2016. The government has introduced taxes and incentives that encourage greater sustainability. South Africa is active in developing “Clean Development Mechanism” projects as per the UNFCCC.

### *Emission Reduction Policy and Interventions*

84. South Africa signed the Kyoto Protocol in 2002 as a non-annex I party, which means there are no specific targets ascribed under the protocol. In 2009, South Africa pledged to reduce emissions 34% by 2020, and 42% by 2025, below the business as usual trajectory. This voluntary pledge is subject to the provision of adequate financial, technological and capacity building support from developed countries.
85. The South African government interventions involve taxes and other measures to move the country toward a greener economy, including:
- (a) Taxes: a fuel levy on petrol and diesel, an electricity generation levy; and
  - (b) Incentives: an energy efficiency tax incentive, a renewable energy depreciation allowance, a depreciation allowance for biofuels production, and a research and development tax incentive, among others.
86. The electricity generation levy was implemented in 2009. It applies to production of electricity from non- renewables, including coal, petroleum-based fuels, natural gas, and nuclear.

### *Clean Development Mechanism (CDM) Projects*

87. South Africa's main experience with carbon markets has been through the Clean Development Mechanism (CDM). Projects have covered bio-fuels, energy efficiency, fuel switching and hydro-power. Revenue from these projects is exempt from taxation. To date, there have been 360 CDM projects submitted for consideration; 222 Project Idea Notes (PINs) and 138 Project Design Documents (PDDs). Of the 138 PDDs, 90 projects have been registered, including 35 Programs of Activities (PoAs). 12 have reached CER issuance, and 48 are at different stages of the project cycle; approval, validation stage, and/or request for review.

### *Government Decision to Choose Carbon Tax*

88. A 2010 discussion paper by the South African National Treasury examined the implementation of a carbon tax and the advantages and disadvantages of a carbon tax versus an ETS. The paper was updated in May 2013 and includes a final argument supporting implementation of a carbon tax.

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<sup>11</sup> Source: The ETS case study for South Africa, prepared by the Environmental Defence Fund (EDF) and the International Emissions Trading Association (IETA), updated as of May 2015. Available at: <https://www.edf.org/sites/default/files/south-africa-case-study-may2015.pdf>.

### *Carbon Tax Scope and Coverage*

89. The carbon tax will cover emissions that result directly from fuel combustion and gasification, and from non-energy industrial processes. Due to complicating factors affecting the implementation of a tax directly on actual emissions, a fuel input tax was the best agreed upon option by the South African government as a proxy for a direct tax on emissions. Instead of measuring and taxing emissions directly, CO<sub>2e</sub> emissions will be quantified based on the carbon content of fuels at the point at which they enter the economy. The tax rate will start at 120R (South African Rand)/ton CO<sub>2e</sub> (US\$10/€8.96)/tCO<sub>2e</sub> from 2016 and increase by 10% per year until 2019.

### *Compensation and Flexibility Provisions*

#### *Tax Free Threshold*

90. The proposed carbon tax policy will include a percentage-based tax-free threshold, for which companies will not have to pay for a fixed percentage of their emissions. From 2016-20, the tax-free threshold will be fixed at 60%. Additional relief will be given to trade-intensive sectors and sectors where the potential to reduce emissions is limited, such as process emissions the cement, iron, steel, aluminum and glass sectors. The basic threshold of 60% for emissions from fuel combustion and 70% for process emissions will effectively reduce the tax rate to R48/tCO<sub>2e</sub> and R36/tCO<sub>2e</sub> respectively (trade exposure also merits exemption from the tax) during the first phase. A tax free threshold of 60% implies that 40% of emissions will be taxable. If offsetting is taken into account the tax free threshold can increase to 90% meaning that 10% of emissions will be taxable. Proposals for recycling revenue derived from the carbon tax are currently under discussion and will likely focus on providing incentives to facilitate the transition to a low carbon economy. The maximum tax-free threshold for those sectors included in the first five-year period is 80% (including offsets).

#### *Offsetting emissions*

91. Offsets may also be used to reduce a firm's carbon tax liability up to a sector specific limit determined by the mitigation potential of that sector. The specifics of the offset mechanism and design features, including carbon offset standards, project types and methodologies, and origins of offset projects have yet to be finalised and published. Entities liable for the carbon tax can implement a carbon offset purchasing strategy which could help to reduce their carbon tax duty payable by 25%. Offsets are currently trading at low prices, but could increase to between R80/t and R100/t.

### *Market Regulation and Oversight*

92. Mandatory reporting requirements are currently under development.

### *Complementary Measures and Supplementary Measures*

93. Measures to ease the transition into the carbon tax regime and ensure that there is no increase to the total tax burden include tax shifting through rebates or other assistance measures for households. For coal combustion and gasification processes, there will be a specific tax rebate for carbon capture and storage. The government has identified programs to reduce emissions or manage the impact of climate change.



## SWITZERLAND<sup>12</sup>

### *Switzerland—Key points*

94. Switzerland introduced its emissions trading scheme (ETS) in 2008 in order to protect companies, especially those industries with substantial CO<sub>2</sub> emissions, from the competitive distortion imposed by the unilateral CO<sub>2</sub> levy. The CO<sub>2</sub> levy, also introduced in 2008, is imposed on all fossil fuels used for heating purposes. Since 2016 it amounts to CHF 84 per tonne CO<sub>2</sub>. The ETS is based on the cap and trade principle. For the period 2013-2020, Switzerland's ETS has been aligned with the EU ETS with the purpose to link both systems. Some companies must join the ETS, while others can choose to join. EAs are partly allocated free of charge. EAs which are not allocated free of charge are auctioned off (one tonne of CO<sub>2</sub> is priced at CHF 12, as of February 2015.). ETS companies must pay a fine of CHF125/tCO<sub>2</sub>e for emissions that are neither covered by EAs nor by emission reduction certificates. The missing EAs or emission reduction certificates must be surrendered to the Confederation in the following year.

### *Swiss Emission Reduction Policy and Interventions*

95. The principles and instruments of Switzerland's environmental policy are stipulated in the Federal Act on the Protection of the Environment, in force since 1985 and revised several times since. Fiscal incentives are recognized as an essential instrument for promoting the efficient use of natural resources. The Federal Act on the Reduction of CO<sub>2</sub> Emissions (first and revised CO<sub>2</sub> Act) supplements the Environmental Protection Act and provides the basis for Switzerland's national policy on climate change. The first CO<sub>2</sub> Act came into force in May 2000. It formed the legal framework for implementing Switzerland's emissions reduction commitment under the Kyoto Protocol by limiting CO<sub>2</sub> emissions from fossil fuel use for heating and transport to 10% below 1990 levels over the period 2008–2012. The fully revised CO<sub>2</sub> Act is the current centerpiece of Swiss climate policy, in force since 2013 and covers the period from 2013–2020. The national reduction target contained in the revised CO<sub>2</sub> Act stipulates the reduction of domestic greenhouse gas emissions by at least 20% by 2020 compared to the 1990 level. In contrast to the first CO<sub>2</sub> Act, all gases covered by the Kyoto Protocol are included.

### *Choice between Carbon Tax or Participant in ETS—Restricted*

96. For the period 2008-12, firms covered by the levy had two choices: (1) pay the CO<sub>2</sub> levy, or (2) voluntarily set a verified absolute emissions target and associated allowance allocation and participate in the Swiss ETS, which exempted them from the levy. In essence, the CO<sub>2</sub> levy functioned as a hard price ceiling for covered entities, and the option for ETS participation allowed firms to potentially pay a lower rate for emissions reductions than this ceiling price.
97. For the period 2013-2020, Switzerland's ETS has been aligned with the EU ETS with the purpose to link both systems. Notable changes include the mandatory nature of the emissions trading scheme for large, greenhouse gas-intensive companies, the introduction of a fixed cap and partial auctioning of EAs. For those EAs still allocated freely, harmonized allocation rules

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<sup>12</sup> This summary is based on the ETS case study for Switzerland prepared by the Environmental Defence Fund (EDF) and the International Emissions Trading Association (IETA), updated as of May 2015. (The IETA case study is available at: <https://www.edf.org/sites/default/files/switzerland-case-study-may2015.pdf>.) This summary was then reviewed for accuracy by representatives of the Swiss government agency responsible for emission reduction interventions, and revised to bring up-to-date as of February 2016.

apply, which are based on the same benchmarks of emissions performance as in the EU.ETS  
*Scope and Coverage (period 2013-2020)*

98. The Swiss ETS involves a total of 55 companies from the cement, chemicals and pharmaceuticals, refineries, steel, paper, district heating, steel, and other sectors. In general the threshold for mandatory participation in the ETS is a total rated thermal input of 20 MW. The sum of the rated thermal input of each of a company's plants is the total rated thermal input. Additional specific thresholds apply to certain sectors based on production capacity (e.g., manufacture of paper and cardboard with a production capacity of over 20 tonnes per day) as a criteria for mandatory participation in the ETS. In some sectors, which typically have large installations, no entry threshold is set (e.g., refining of mineral oil). Companies in these categories are included in the ETS regardless of production capacity. If an ETS company exceeds the specific threshold but has total emissions of less than 25,000 tonnes of CO<sub>2</sub>eq in each of the previous three years, the company can apply for an exemption from the ETS obligation (opt-out). Medium-sized companies from greenhouse gas-intensive business sectors, which release a high amount in relationship to their value creation, can participate voluntarily in the ETS (opt-in). The threshold is 10 MW installed total rated thermal input, which is deemed the sum of the rated thermal input the sum of the rated thermal input of each of the company's plants.

*Allowance Distribution and Auction Overview (period 2013-2020)*

99. The ETS companies are allocated a quantity of EAs free of charge. For 2013 this was a total of 5.35 million EAs (95% of the 2013 cap). The free allocation of EAs is basically carried out on the basis of product benchmarks. They define the maximum quantity of EAs to be allocated per produced unit. They correspond to the average emissions of the 10% most efficient plants in the European Union. Thus, the benchmarks in the Swiss ETS correspond to those in the EU. The benchmark values are multiplied by the activity rate based on the respective benchmark (quantity of products produced / heat generated or consumed / used input energy) in a specified reference period. The ETS companies can choose between the reference periods 2005- 2008 and 2009- 2010, whereby the median value (annual value) is used in each case. The number of free EAs is adjusted to account for the risk of carbon leakage.
100. EAs in the amount 5% of the cap are reserved for companies newly participating in emissions trading and the capacity expansion of existing ETS companies. The free allocation for new market entrants is basically calculated according to the same system (benchmark and any correction factor) as for existing ETS companies.
101. EAs that have not been allocated free of charge are auctioned by the Federal Office for the Environment (FOEN) on the Swiss emission trading registry.

*Flexibility Provisions (period 2013-2020)*

102. Only certificates issued according to the international procedures of the UN Framework Convention on Climate can be counted towards fulfilling the commitments of the ETS companies. These include CERs and ERUs. These certificates must also meet additional quality requirements. The maximum quantity of certificates that an ETS company may surrender amounts to 11% of the EAs that were allocated in the first commitment period (2008-2012). The number of certificates already used in the first 2008-2012 commitment period is deducted. ETS companies with installations and greenhouse gas emissions that were not included in the emissions trading scheme in the first commitment period can use certificates in the amount of 4.5% of the actual emissions in the second commitment period (2013-2020).

103. The CO<sub>2</sub> Ordinance governs who may carry over certificates and how many. It permits the Confederation and certain entities the counting of certificates to meet their statutory obligations. No right to carry over to other participants and of other unit types (AAUs, RMUs, ICERs, tCERs) are provided.

*Emissions Trading Registry and non-compliance (period 2013-2020)*

104. Electronic register: Swiss EAs exist electronically and are listed on the “Swiss Emissions Trading Registry” (the Registry), which is an online accounting system that, ensures that the issuance, holding, transfer, acquisition, cancellation and surrender of emission credits are all accurately recorded. The Registry is used to conduct the auctioning of EAs and to control whether companies have complied with their statutory obligations. The Registry also connects Swiss ETS participants to Kyoto flexibility mechanisms, and transactions involving these units are subsequently approved by the UN.
105. Penalties for exceeding emissions limit: ETS companies must pay the Confederation CHF125/tCO<sub>2</sub>e for emissions that are neither covered by EAs nor by emission reduction certificates. The missing EAs or emission reduction certificates must be surrendered to the Confederation in the following year.

*Complementary Measure (CO<sub>2</sub> Levy) and Supplementary Measures*

106. By increasing the price of fossil heating and process fuels, the CO<sub>2</sub> levy sets an incentive to use fossil fuels more efficiently, to invest in low carbon technologies, and to switch to low-carbon or carbon-free energy sources. The CO<sub>2</sub> levy was introduced in January 2008 at an initial rate of CHF 12 per tonne of CO<sub>2</sub>. As intermediary targets set out in the CO<sub>2</sub> Act were not met, the rate gradually increased to reach CHF 36 per tonne of CO<sub>2</sub> by 1 January 2010, CHF 60 per tonne of CO<sub>2</sub> by 1 January 2014 and CHF 84 per tonne of CO<sub>2</sub> by 1 January 2016. The CO<sub>2</sub> Act foresees a maximum increase to CHF 120 per tonne of CO<sub>2</sub> by 2018 if greenhouse gas emissions from heating fuels do not correspond to trends in line with legal requirements. As a basic principle, proceeds from the CO<sub>2</sub> levy are refunded to the Swiss population (on a per capita basis) and to the business community (in proportion to wages paid). Up to a third (CHF 300 million per year) of the revenues from the CO<sub>2</sub> levy is earmarked to finance the national buildings refurbishment programmer. Greenhouse gas-intensive companies can be exempted from the CO<sub>2</sub> levy if they commit to a reduction in their greenhouse gas emissions in return. Large greenhouse gas-intensive companies that participate in the emissions trading scheme (mandatory ETS and opt-in) are also exempted from the CO<sub>2</sub> levy.
107. Supplementary measures include:
- (a) A binding target for average CO<sub>2</sub> emissions from new cars;
  - (b) Partial compensation of CO<sub>2</sub> emissions from transport fuel use (Transport fuel producers and importers must compensate for part of the CO<sub>2</sub> emissions attributable to the use of fossil motor fuels by financing domestic emission reduction projects. The proportion of emissions to be compensated will gradually be increased from 2 to 10% between 2014 and 2020. The required funding comes from a surcharge on the price of motor fuels imported into Switzerland.); and
  - (c) Enhanced climate change adaptation activity.

## **UNITED STATES OF AMERICA—CLEAN AIR ACT 1990**

### **Clean Air Act—Example of Command-and-Control Regulation<sup>13</sup>**

108. The 1970 version of the Clean Air Act (the Act) empowers the Environmental Protection Agency (EPA), a federal agency, to set limits on air pollutants and limit emissions of such pollutants from specified sources such as chemical plants, utilities and steel mills.

#### *Enforcement*

109. The Act gives EPA important enforcement powers. There are civil and criminal sanctions available. In general, when EPA finds that a violation has occurred, the agency can issue an order requiring the violator to comply, issue an administrative penalty order (use EPA administrative authority to force payment of a penalty), or bring a civil judicial action (sue the violator in court).

#### *Provides Scope for Many Interventions—Description Focuses on Command-and-Control*

110. The Clean Air Act (the Act) is described in order to illustrate different types of command-and-control interventions, so those interventions are the main focus of this description. The Act is not limited to command-and-control interventions. The Act requires states and tribal territories in the United States of America (the United States) to achieve limits on air pollution. States, tribes and local governments are able to choose the specific interventions that they consider will best achieve those pollution limits.

#### *Approval of Plans and Power to Intervene*

111. The EPA approves state, tribal and local agency plans for reducing air pollution. State Implementation Plans (SIPs) outline how each state will control air pollution, using regulations, programs and policies. If a plan does not meet its requirements, EPA can issue sanctions against the state and, if necessary, take over enforcing the Clean Air Act in that area.

### **Command-and-Control Interventions**

112. The list of command-and-control interventions provided below is illustrative rather than exhaustive. Acting under the Clean Air Act, the EPA has taken the following command-and-control style actions:
- (a) Established state and local area limits on air-borne pollutants, which must be achieved, with penalties for non-achievement.
  - (b) Requires industrial sources to install controls or change production processes in order to reduce polluting emissions. The EPA publishes regulations that cover a range of industrial categories, including chemical plants, incinerators, dry cleaners, and manufacturers of wood furniture. The regulations do not generally prescribe a specific control technology, but set a performance level based on a technology or other practices already used by the better-controlled and lower emitting sources in an industry. Companies must meet the emissions levels required in the regulations.

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<sup>13</sup> Sources: Environmental Protection Agency (2007) The Plain English Guide to the Clean Air Act, available at [http://www3.epa.gov/airquality/peg\\_caa/pdfs/peg.pdf](http://www3.epa.gov/airquality/peg_caa/pdfs/peg.pdf) and EPA website on laws and regulations at <http://www2.epa.gov/laws-regulations>, and last part of the Acid Rain Program description (market and trading) is from [https://en.wikipedia.org/wiki/Acid\\_Rain\\_Program](https://en.wikipedia.org/wiki/Acid_Rain_Program).

- (c) Requires factories and other businesses to develop plans to prevent accidental releases of highly toxic chemicals.
- (d) Established limits on emissions from vehicles, which affect manufactured and imported vehicles, and requirements to restrict fuels used to very low Sulphur gasoline and diesel fuel.
- (e) A ban on lead in gasoline, implemented in 1996, which followed earlier requirements to limit lead in gasoline.
- (f) Requirements to:
  - (i) Use reformulated gasoline in vehicles.
  - (ii) Install vapor recovery nozzles at gas stations. (These reduce the release of gasoline vapor into the air when people put gas in their cars.)
  - (iii) Carry out regular car maintenance through mandated inspection and maintenance programs.
  - (iv) Equip passenger vehicles with on board emission diagnostics.
- (g) A 1998 rule limiting volatile organic compounds (VOC) emissions from consumer products. It requires many United States manufacturers, importers, and distributors to limit the VOC content of their products. EPA also issued a rule limiting emissions from architectural coatings (exterior and interior house paints, wood and roof coatings).

#### *Use of Permits at the State Level*

- 113. One of the major initiatives Congress added to the Clean Air Act in 1990 is an operating permit program for larger industrial and commercial sources that release pollutants into the air. Operating permits include information on which pollutants are being released, how much may be released, and what kinds of steps the source's owner or operator is required to take to reduce the pollution. Permits must include plans to measure and report the air pollution emitted. States and tribes issue operating permits. If those governments do not do a satisfactory job of carrying out the Clean Air Act permitting requirements, EPA can take over issuing permits.
- 114. Operating permits are especially useful for businesses covered by more than one part of the Clean Air Act and additional state or local requirements, since information about all of a source's air pollution is in one place. The permit program simplifies and clarifies businesses' obligations for cleaning up air pollution and can reduce paperwork. For instance, an electric power plant may be covered by the acid rain, toxic air pollutant, and smog (ground-level ozone) sections of the Clean Air Act. The detailed information required by those separate sections is consolidated into one place in an operating permit.
- 115. Businesses seeking permits have to pay permit fees, much like car owners paying for car registrations. These fees pay for the air pollution control activities related to operating permits.

#### *Other EPA Actions to Reduce Air Pollutants*

- 116. The EPA also:
  - (a) Provides funding for projects and actions with the potential to reduce air pollution, (e.g. research and development, funding for school bus engine adjustments that reduce emissions).

- (b) Places conditions on funding that was previously unrelated to pollution. Any state level transportation project (e.g. construction of highways) must be consistent with air quality goals before it can receive Federal funding.
- (c) Educates the public and businesses on ways to reduce their use of energy and their carrying out of activities that contribute to air pollution such as high-pollution wood-burning stoves and high-pollution transportation choices.

### **The Clean Air Act and Emission Trading Schemes**

117. The EPA's is not restricted to the use of command-and-control interventions, although it provides many different examples of that type of intervention. The EPA has historically supported the use of ETs. It does this through advice to states, tribes and local agencies which explains the benefits of an ETS. In 1990 the EPA, under the Clean Air Act, introduced a national "cap-and-trade" ETS to reduce acid rain.

#### *EPA's Acid Rain Program*

- 118. The Acid Rain Program is a nation-wide law designed to reduce acid rain through reductions in emissions of sulfur dioxide (SO<sub>2</sub>) and oxides of nitrogen (NO<sub>x</sub>). Using a market-based cap and trade approach, the program sets a permanent cap on the total amount of SO<sub>2</sub> that may be emitted by electric power plants.
- 119. The initial phase of the Acid Rain Program went into effect in 1995. The law required the highest emitting units at 110 power plants in 21 Midwest, Appalachian, and Northeastern states to reduce emissions of SO<sub>2</sub>. The second phase of the program went into effect in 2000, further reducing SO<sub>2</sub> emissions from big coal-burning power plants. Some smaller plants were also included in the second phase of the program. Total SO<sub>2</sub> releases for the nation's power plants are permanently limited to the level set by the 1990 Clean Air Act—about 50 percent of the levels emitted in 1980.
- 120. Each EA is worth one ton of SO<sub>2</sub> emissions released from the plant's smokestack. Plants may only release the amount of SO<sub>2</sub> equal to the allowances they have been issued. If a plant expects to release more SO<sub>2</sub> than it has allowances, it has to purchase more allowances or use technology and other methods to control emissions. A plant can buy allowances from another power plant that has more allowances than it needs to cover its emissions.
- 121. There is an EA market that operates like the stock market, in which brokers or anyone who wants to take part in buying or selling allowances can participate. Allowances are traded and sold nationwide.
- 122. Bonus allowances are provided to power plants for installing clean coal technology that reduces SO<sub>2</sub> releases, using renewable energy sources (solar, wind, etc.), or encouraging energy conservation by customers so that less power needs to be produced. EPA has also awarded allowances to industrial sources voluntarily entering the Acid Rain Program.
- 123. The 1990 Clean Air Act has stiff monetary penalties for plants that release more pollutants than are covered by their allowances. All power plants covered by the Acid Rain Program have to install continuous emission monitoring systems, and instruments that keep track of how much SO<sub>2</sub> and NO<sub>x</sub> the plant's individual units are releasing. Power plant operators keep track of this information hourly and report it electronically to EPA four times each year. EPA uses this information to make sure that the plant is not releasing quantities of pollutants exceeding the plant's allowances. A power plant's program for meeting its SO<sub>2</sub> and NO<sub>x</sub> limits will appear on the plant's permit, which is filed with the state and EPA and is available for public review.

*Market Prices, Trading and Effectiveness*

124. In 1991 the retrofit cost per ton of SO<sub>2</sub> pollution control equipment (scrubbers) on existing units was estimated to be \$665– \$736/ton range. 2005 was the first year the price of an SO<sub>2</sub> allowance reached this level, when a few trades were registered at slightly over \$1,600/ton. At those rates, it was less expensive to install scrubbers and reduce air pollution than to purchase SO<sub>2</sub> emissions allowances and continue polluting. Subsequently, the market price of SO<sub>2</sub> allowances decreased to around \$88/ton in August 2009.
125. Citizens and groups can purchase sulfur dioxide EAs alongside electric utilities and other producers of air pollution in annual auctions conducted by the EPA and on the Chicago Board of Trade. Each year the EPA auctions off about 250,000 EAs that enable their owners to emit one ton of sulfur dioxide.
126. A small number of local groups have participated for many years, on the theory that reducing the supply of EAs may drive up the price of acquiring them. For example, the Acid Rain Retirement Fund (A.R.R.F.), a non-profit, all-volunteer, community educational group, bid alongside polluters since 1995 for as many EAs as their funds can buy. The A.R.R.F. then retires the EAs permanently, taking allowances off the market and keeping sulfur dioxide out of the air. As of 2013 A.R.R.F. owned the right to emit 2,826,000 pounds (1,413 tons) of sulfur dioxide per year, plus whatever amount it did not emit under EAs purchased in previous years. Because it did not exercise its right to emit any pollution during 1996–2013, "banking" its emissions allowances for the future, A.R.R.F. holds the legal right to emit a total of 4,644,000 pounds—or 2,322 tons—of sulfur dioxide in 2013. That amount will increase by another 100 tons in 2018, when allowances A.R.R.F. purchased in the 7-year advance auction of 2011 are eligible for use.
127. Examination of EPA Auction results 1993–2013 indicates groups or individuals like A.R.R.F. who purchased emissions allowances for purposes other than releasing air pollution now own the right to emit 3,188 tons per year. Although most have purchased only one or a few tons, this adds up to considerably more than the 760 tons/year allocated by law to the Miami Fort #5 coal-fired generating unit in Ohio.
128. A general issue with cap and trade programs has been over-allocation, whereby the cap is high enough that sources of emissions do not need to reduce their emissions. This program had early over allocation during Phase I, and this allowed emission sources to "bank" their allowances for future years. In Phase II, emission sources drew down their banked allowances. In 2006, emissions were again below the cap, leading to further banking.

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## **ACCOUNTING OPTIONS: ADMINISTRATOR'S INVOLVEMENT IN AN EMISSIONS TRADING SCHEMES**

### **Introduction**

1. This paper discusses different accounting approaches for an Emissions Trading Scheme (ETS) administrator's involvement with an ETS. The first section provides a general discussion of the significance of emission allowances (EAs) and emissions (or rights and obligations arising from emissions). It considers whether EAs are assets and whether emissions by ETS participants could result in revenue for an administrator.
2. The four subsequent sections describe and then evaluate four accounting options for an administrator's involvement with an ETS, focusing on the recognition of elements. The four accounting options are:
 

Approach 1, *Emission Notes (Financial Liability)*;

Approach 2, *Emission Licenses (Intangible Asset)*;

Approach 3, *Pollutant Pricing Mechanisms—Rights and Obligations*; and

Approach 4, *Emission Limits (Taxes and Contingencies, formerly Approach 3, Revenue)*.
3. Each evaluation applies the Conceptual Framework's criteria for element definition and recognition. The implications of each approach for ETS participants are considered, deriving the equivalent participants' accounting approach through the application of symmetry. Further considerations are raised where appropriate. Measurement of elements is mentioned on occasion, although recognition is the main focus.

### **Significance of Emission Allowances and Emissions**

4. Agenda item 9.2 describes a government's public policy objectives for an ETS. The primary objective of an ETS administrator is to reduce emissions. An ETS places a cap on the overall level of emissions, then allocates rights to emit (EAs) to ETS participants. The application of an ETS has the effect of making emissions a scarce resource to participants. Before introduction of an ETS, producers of emissions have no limit on the amount of emissions they can produce. The environment, as a sink into which emissions can be dumped, is treated as a free good. So an ETS creates costs for the participants, but what does this mean for the administrator?
5. As explained in agenda item 9.2, from an administrator's perspective the costs involved in an ETS are those of creation followed by the relatively low costs to keep it going (administration and enforcement). The creation, issuance and receipt back of EAs (sufficient to cover emissions) do not necessarily involve cash flows for the administrator. An administrator may choose to charge a fee for EAs when they are issued. When received back from participants the EAs are usually cancelled. Emissions are both a "necessary evil", given their relationship to economic productivity and something to control then reduce.

#### *Are Emission Allowances, before Issuance, Assets for the Administrator?*

6. The Conceptual Framework defines an asset as "[a] resource presently controlled by the entity as a result of a past event." When the ETS administrator establishes an ETS and creates EAs it seems fairly straightforward to decide that EAs are controlled by the administrator as a result of a past event.

7. The Conceptual Framework describes a resource as "...an item with service potential or the ability to generate economic benefits". The Conceptual Framework further notes that economic benefits can arise from "the direct exchange of an asset for cash or other resources". It appears that EAs have this characteristics of a "resource". Although an administrator may decide to transfer EAs free of charge, the ability to charge for EAs exists.
8. As will be seen below, for three of the four approaches described EAs are viewed as resources. Under Approach 1, *Emission Notes (Financial Liability)* the recognized asset (for EAs created) is viewed as inventory, similar to banknotes or other currency, measured at cost of production. Under Approach 2, *Emission Licenses (Intangible Asset)* an intangible asset has been created, with measurement at either cost or current market value. Approach 3, *Pollutant Pricing Mechanisms—Rights and Obligations* assumes that EAs are assets, without being conclusive about the type of asset. Only Approach 4, *Taxes and Contingencies (formerly Approach 3, Revenue)* takes the position that EAs are not assets.

Are Emission Allowances Assets for the Participant?

9. The view that EAs are assets to the administrator, before their transfer to ETS participants, is consistent with the IASB's view which, generally, has been to view EAs as assets when they are controlled by ETS participants. An IASB June 2015 agenda paper explained that:

The staff think that there is general acceptance that emissions allowances meet the definition of an asset in the IASB's Conceptual Framework. This is because:

- (a) they are economic resources;
- (b) they are controlled by the entity, and
- (c) they are expected to result in the economic benefits flowing to the entity because they can either be sold or be used to settle the entity's obligation to submit a determinable number of allowances to the scheme administrator at the end of the compliance period.

[Paragraph 18, Agenda paper 6A, IASB June 2015 meeting]

10. However, IASB staff also note that the nature of the asset is open to debate. The same June 2015 IASB paper noted that:

Although there seems to be general acceptance that the emissions allowances are assets, questions arise over the nature of the asset. This is partly because of the different ways in which the entity can use them to obtain economic benefits. This has resulted in different parties suggesting that the allowances have characteristics of different types of assets. Consequently, different accounting treatments that are used in practice tend to reflect different views about the nature of the allowances, based on how the allowances are expected to be used. This has also led to some 'mixed model' approaches in which an entity's allowances are accounted for in different ways, depending on which use they are expected to be put, despite the allowances being homogeneous in nature and fully interchangeable.

[Paragraph 19, Agenda paper 6A, IASB June 2015 meeting]

11. The special nature of EAs was further discussed in paragraphs 25 to 29 of the same paper:

25. This difficulty in classifying allowances in the same way as other intangible assets was highlighted in a case heard in the High Court in England and Wales in 2012. In that case, the judge, Mr. Stephen Morris QC, considered the nature of European Union Allowance (EUAs) in law as property<sup>1</sup>. There was no dispute between the parties that

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<sup>1</sup> Armstrong DLW GmbH v Winnington Networks Ltd [2012] EWHC 10 (Ch) (11 January 2012)

EUAs constitute property as a matter of law. What was at issue, however, was their precise nature and characterisation as property, because the classification could have an effect on the nature of the legal remedies available.

26. Mr Morris noted that ‘At the heart of the legal difficulties to which this case gives, or may give, rise is the somewhat novel nature of a European Union Allowance (EUA). This novelty arises from two particular features: the first is that an EUA is a creature of European legislation and the second is that an EUA exists only in electronic form’.

27. Consequently, the case does not conclude on the precise category of asset to which EUAs should be classified, but Mr Morris observed;

‘As a matter of substance, [an EUA] does not give the holder a "right" to emit CO<sub>2</sub> in this sense. Rather it represents at most a permission (. . .) or an exemption from a prohibition or fine. But for the entitlement to the EUA, the holder would either be prohibited from emitting CO<sub>2</sub> beyond a certain level or at least would be required to pay a fine if he did so. In this way, the holding of the EUA exempts the holder from the payment of that fine.

An EUA is a creature of the ETS. As a matter of form an EUA exists only in electronic form. It is transferable automatically by electronic means within the registry system. Under the ETS legislation it is transferable under the terms of the ETS Directive. It has economic value, first because it can be used to avoid a fine, and secondly, because there is an active market for trade in EUAs.’

28. Although the judgement in *Armstrong DLW GmbH v Winnington Networks Ltd* [2012] concluded that EUAs could be considered to be intangible assets, it highlighted that they do not have the typical characteristics normally associated with other intangible assets<sup>2</sup>. As noted by Mr Morris QC, the EUAs do not give the entity a right to emit greenhouse gases (GHGs).

29. This difficulty in determining the precise nature of the EUA and how to classify it as an asset is reflected in the different accounting treatments that are seen in commonly used accounting treatments. The most common classification is as an intangible asset, but others classify them as inventory.

12. More recently IASB staff have considered whether EAs are loaned to participants, so that both an asset and a liability would be recognized by them, when received at the start of a compliance period. This approach still views EAs as resources, however production of emissions no longer results in an expense. Instead emissions merely confirm the participant’s original obligation to repay the loan, which was established when the EAs were transferred<sup>3</sup>. The significance of emissions is discussed below.
13. After EA issuance the ETS administrator expects to receive EAs back, but does not appear to control EAs that have been transferred to participants.

*During the Compliance Period: Do Emissions Result in an Asset for the Administrator?*

14. As participants emit pollutants during the compliance period, an administrator has the right to receive EAs that cover the volume (or weight) of emissions. The first three approaches described in the second section of this paper have the administrator “better off” financially when emissions are produced. The administrator reports revenue when ETS participants emit GHGs. On the one hand this is consistent with the idea that an ETS makes it expensive for participants

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<sup>2</sup> IAS 38 *Intangible Assets* defines an intangible asset as ‘an identifiable non-monetary asset without physical substance’.

<sup>3</sup> This approach is described in an Accounting Standards Advisory Forum (ASAF) October 2015 agenda paper; ASAF Agenda Ref. 5, *Cap-and-Trade Emissions Trading Scheme Liabilities*.

to emit. Under an ETS there is a cost to emissions, which participants must pay. Since ETS participants are paying for their pollution, it follows logically that another entity receives benefits (payments) from their pollution. An alternative view is to ask what benefits (economic benefits or service potential) the administrator receives when ETS participants emit pollutants. Given that the administrator's purpose in setting up an ETS is to reduce polluting emissions, the reporting of revenue as a consequence of emissions seems counter-intuitive. Perhaps the surrender of EAs by participants benefits the administrator because it shows that participants are complying with the ETS requirements, which is "less bad" so a positive result.

15. Applying the Conceptual Framework's definition of an asset it is fairly straightforward to conclude that the administrator will control something (the right to receive EAs) as a result of a past event. The past event is participants' emissions, while present control is conferred through ETS legislation, which obliges participants to submit EAs at the end of the period. Submission of EAs does not happen immediately, but there is no way for participants to avoid it, other than non-compliance and consequential fines and other penalties.
16. Is a "right to receive EAs" a resource for the administrator? Once returned, EAs do not appear to have either service potential or the ability to generate economic benefits. However, if the administrator does not recognize an asset while the participant recognizes a liability, there will be a lack of symmetry between participant and administrator when accounting for the same event i.e. production of emissions.
17. Administrators are able to extend the life of an EA. This has happened in the context of the European Union (EU) ETS where, for one compliance period, emissions were much lower than expected and, as a result, a significant surplus of EAs resulted. Holders of surplus EAs viewed them as worthless as the end of the period drew closer, because the EAs were not needed to cover emissions and their market value had dropped close to zero. Governments chose to adjust the terms of the EAs and allow them to be used to cover emissions in the following compliance period, which increased their market value and restored their value as a resource to be used in production during the following period. The adjustment arguably indicates that EAs continue to have service potential, even after the end of the compliance period, so that they are resources after surrender to the administrator. Alternatively, the extension of the EAs application could be seen as only, in substance, benefiting holders of the EAs (participants or traders) rather than the administrator. There is no economic impact for the administrator from re-configuring the EAs, so that they last longer. By contrast, if EAs were licenses that lasted for a set period and that period was doubled without any additional charge, the administrator would receive less revenue from the sale of licenses than originally expected.

#### Administrator's Ability to Use Surplus EAs to Generate Economic Benefits

18. There are situations where a government is able to use "surplus EAs" to generate economic benefits in the form of cash flows. This situation arises when a government is part of a larger ETS, and effectively acts as both an administrator for the national scheme and an ETS participant (at least with respect to some aspects of that role) for the larger, international scheme. For example, during the first Kyoto compliance period the New Zealand administrator received Kyoto EAs (international EAs) from New Zealand ETS participants. The participants had purchased the Kyoto EAs internationally, and then used them to cover their emissions. The New Zealand Government ended the period with a surplus of Kyoto EAs, which could be sold onto the international market for cash. National governments in the EU-ETS can be in the same situation of having a surplus of EU-ETS EAs, which can be sold to generate cash flows. Kyoto Units are traded between national governments. A government that has excess Kyoto

Units can sell these to a government that has a deficit because it has exceeded the emission limit covered by the Kyoto Units that it holds. This situation also raises the possibility that a government may need to purchase EAs from the international market, in order to cover a nation-wide deficit.

19. Based on the discussion above it can be seen that there are arguments for and against the idea that EAs are a resource to an ETS administrator not only at the point of issuance, when they could generate cash flows for the administrator, but also subsequently.

*Is there a performance obligation when EAs are transferred at less than fair value?*

20. This paper aims to address element recognition rather than measurement. However, the issue of EAs transferred at less than fair value raises inter-related recognition and measurement issues. The IPSASB's two current projects on non-exchange revenue and non-exchange expenses could have implications for accounting for ETS involvement. The administrator's "granting" (transfer) of EAs to participants without charge or for below market value involves a non-exchange expense for the administrator. There is no IPSAS that addresses non-exchange expenses. The surrender of EAs back to the administrator could, arguably, also be viewed as a non-exchange transaction, since the ETS requirements force participants to surrender EAs without recompense, and this would be revenue from the administrator's perspective if the EAs are viewed as resources. IPSAS 23, *Revenue from Non-Exchange Transactions (Taxes and Transfers)*, would apply.
21. IPSAS 23 presently has strict criteria for recognition of a liability on transfer. EA transfers would not, applying IPSAS 23, provide a basis for deferral of revenue recognition because there is no "condition on the transferred asset" (i.e. no condition on the EAs). Without such a condition there is no performance obligation. (This issue impacts particularly on Approach 4, discussed in more detail below, and on the other IASB approaches that involve an ETS participant recognizing a "government grant liability" on receipt of transferred EAs.)

*Is the "market for EAs" really a market?*

22. IPSAS 23 has a general rule to measure transferred assets at fair value. The market is viewed as providing the most relevant and reliable (or objective) information about the value of a transferred asset. The donor's views on the worth of a donation, for example, are not applied. Nor are the recipient's views accepted.
23. EAs are transferred (and then traded) in a very heavily regulated situation, where governments directly control the supply of EAs and, for a national jurisdiction, the national government may be the monopoly supplier of EAs. Market values reflect scarcity created by the administrator's approach to issuing EAs, the majority of which go directly to ETS participants, and the administrator's fixed transfer "price" also applied to the majority of EAs issued. Can a "fair value" be said to exist in such circumstances? And if a fair value cannot be determined then on what basis can it be concluded that (a) the EAs transfer "price" is less than fair value, and (consequently) (b) the transfer is a non-exchange transaction?
24. Arguably, at the beginning of the compliance period when EAs are first transferred to ETS participants, the extent to which there is an active market for EAs, from which to derive reliable market values is questionable. IASB members and industry members generally (as indicated by ASAF participant comments) have indicated skepticism about the information quality of EAs' fair value as an indicator of their initial value when first transferred for free or at a nominal amount. The administrator is concerned to ensure that participants can cope with the requirements of the ETS. This includes not charging either anything or the "market value" of the EAs when they

are transferred. But what is really known about the EA market value at the beginning of a compliance period? The only significant information could, arguably, relate to market values for EAs at the end of the *previous* compliance period, and those EAs reference a different set of expectations about the scarcity or abundance of EAs.

#### EAs at Start of Compliance Period—Transfer or Taxation?

25. If the quality of the transaction between administrator and participant on initial transfer of EAs is closer to taxation than transfer then the questions arises of whether fair value measurement is appropriate.
26. The ETS as a whole is usually a product of an administrator's sovereign power, and the absolute necessity for ETS participants to hold EAs in order to continue their business indicates that the initial transaction is coercive. The government entity (the administrator) is not kindly donating EAs to participants at less than their market value. It is forcing participants to pay for (if there is a charge) or accept (if EAs are provided for free) something that they have previously been able to enjoy for nothing, i.e. the capacity to emit a certain volume (or tonnage) of GHGs. The transfer of EAs both identifies capacity (to emit) and restricts it, signaling that any additional capacity (beyond the capacity covered by the EAs received initially) will have to be purchased by each individual participant. The EA transfer situation is not that of a normal donation.

#### **Approach 1, *Emission Notes (Financial Liability)***

27. Approach 1, *Emission Notes (Financial Liability)*, is an approach used by the New Zealand (NZ) government which views EAs as similar to legal tender, because the government accepts both NZ units and Kyoto units as payment for obligations arising from emissions. EAs are similar in concept to currency. Arguably they operate as a medium-of-exchange. An ETS administrator must accept EAs as payment when an ETS participant submits them to settle its emission obligations.

#### *Description of Approach 1*

28. In Approach 1 EAs are viewed as similar to currency issued and in circulation<sup>4</sup>. The EAs are initially treated as a type of inventory, with their value being very low, because inventory is measured at cost of production and those costs are very low. When the administrator issues EAs the administrator recognizes a liability, on the basis that the legislative framework of the ETS requires the administrator to repatriate (or redeem) EAs for their emissions value. The EAs can be used by participants to meet their emission obligation to the ETS administrator. Those obligations are denominated in EAs.
29. During the compliance period the administrator accrues emissions levy revenue and recognizes a receivable from the participant through its sovereign power. The receivable reflects the administrator's right to be reimbursed for actual emissions. The timing of revenue recognition will be based on when the activity giving rise to the emissions—and therefore the participant's liability—occurs. The emissions activity is similar to a taxable event. If it is not possible to reliably estimate emissions at the 'taxable event' moment, then revenue recognition will be delayed until an emissions return is received and the administrator has assessed the obligation

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<sup>4</sup> This approach treats EAs as similar to currency, but does not argue that EAs are currency, or that they would meet the IPSAS definition of a financial instrument. During development of IFRIC 3, *Emission Rights*, the IASB considered whether EAs meet the IFRS definition of a financial instruments and concluded that they do not. Applying the IPSAS definition, IPSAS staff reached the same conclusion.

to surrender EAs. The actual surrender of EAs to the administrator may occur later than the administrator's recognition of revenue.

30. When EAs are surrendered to the administrator, the outstanding sovereign receivable is settled. The EAs operate as an acceptable medium of exchange for settlement of participants' emission obligations. Also, as a result of the EAs being surrendered, the administrator's EA financial liability is extinguished. The extinguishment of the financial liability on surrender of EAs is similar to when a bank surrenders currency to a Central Bank in exchange for other consideration. However, in the case of EAs, the settling of the participant's emission obligation is the consideration received by the participant in exchange for surrendering the EAs.

#### Accounting Entries for Approach 1

31. Accounting entries for Approach 1 are provided in Appendix A. Note that, at the end of the compliance period when participants' EAs have been surrendered, the administrator does not show any residual amounts on its statement of financial position; no liability and no asset.

#### *Evaluation of Approach 1, Emission Notes (Financial Liability)*

##### Application of the Conceptual Framework—Are EAs a Liability for the Administrator?

32. The particular conceptual issue raised by Approach 1 is whether the transfer of EAs to participants means that the administrator should recognize a liability equivalent to the value of EAs transferred. One argument in favor of recognizing a liability is by analogy with the issuance of currency (notes) where a liability is recognized on issuance. The administrator is required to repatriate (or redeem) EAs for their emissions value. The EAs can be used by participants to meet their emission obligation (payments denominated in EAs) to the administrator. On this basis EAs held by participants are similar to currency held by the public.
33. The Conceptual Framework defines a liability as “[a] present obligation of the entity for an outflow of resources that results from a past event.” A present obligation is “a legally binding obligation (legal obligation) or non-legally binding obligation, which an entity has little or no realistic alternative to avoid.” The question arises of whether the obligation to accept EAs indicates an “outflow of resources” from the administrator's perspective. If an administrator could otherwise insist that a participant submit cash, then the use of EAs instead could be viewed as causing an outflow of resources, because the administrator has foregone the cash flows that it could otherwise receive. Issued currency appears to raise similar conceptual issues. (This perspective could also indicate existence of a tax expenditure, where EAs viewed from the participants' perspective as a way to avoid a carbon tax.)
34. As discussed in the first section above, this approach (like Approaches 2 and 3 below) also raises an issue with respect to the administrator reporting revenue when ETS participants emit GHGs. Should the administrator's financial report show that it is “better off” because GHGs have been emitted, when the policy objective of an ETS is to reduce emissions?

##### Comparison with Currency

35. Like currency, no interest is paid on this liability. However, unlike currency, EAs are likely to be repatriated (or redeemed) in full at some stage, although EAs may remain in circulation among participants for long periods of time. With currency, it is highly unlikely that the issuer will ever be paid out the financial liability in full, because there is always going to be a minimum amount of cash required in the financial system.

36. When a government issues currency, there is usually an exchange of value through consideration, so the currency analogy fits better to situations where an administrator issues EAs for consideration. The issuance of EAs free of charge (or for minimal cost) mitigates the economic consequences for participants of introducing an ETS. From this perspective the economic impact of EAs transferred is similar to that of a subsidy or grant and the accounting treatment (arguably) should be similar.
37. A government chooses how much currency to issue and adjusts supply either up or down, depending on the needs of the economy. By contrast the supply of EAs is set to reduce over time. The amount and timing of emission cap reductions are planned to force the group of entities (ETS participants) to reduce emissions, while allowing sufficient time for industries to adjust so that entities should not (theoretically) be forced to relocate or go out of business, and the economy will not be negatively affected by the ETS. International agreements such as Kyoto or national commitments are also important factors in setting the speed/amount of emissions reduction for a jurisdiction.
38. Another difference between currency and EAs is that EAs are time-bound and usually expire at the end of an applicable compliance period while currency is not.

#### Participants' Accounting—Symmetry applied to Approach 1

39. Applying symmetry to Approach 1 under this approach the participant would initially recognize an asset equivalent to the value of the EAs received, where those EAs could either be received as a government grant (transfer at nil or subsidized price) or purchased from the administrator. The participant are assumed to recognize revenue (a "day 1 gain"), if EAs are granted, because they would be measured initially at fair value and the day 1 gain is the excess of fair value over the nil transfer fee<sup>5</sup>. Alternatively, if EAs are purchased there is no recognition of revenue.
40. As actual emissions occur, a participant will recognize a liability (and expense) to submit EAs. The liability is discharged when the participant returns EAs to the administrator.
41. With respect to the day 1 gain the question arises of whether an ETS participant is better off economically when it receives a grant of EAs. The Conceptual Framework defines revenue to be increases in the net financial position of the entity, other than increases arising from ownership contributions. Net financial position is the difference between assets and liabilities after adding other resources and deducting other obligations recognized in the statement of financial position. For participants to report revenue means, in effect, that the EAs received are assets and, at the point of receipt, there is (a) no equivalent liability created in connection with their receipt and (b) no equivalent reduction in other asset balances.
42. Bases not to recognize of revenue (the day 1 gain) are that either the EAs are not assets, or an equivalent liability was created, or an equivalent and related reduction in another asset balance occurred at the same time. Participants' skepticism about whether receipt of EAs means, in substance, that they are better off, suggests the following arguments related to each basis:
  - (a) "EAs are not assets" could be argued in terms of their role as a regulatory instrument that aims to change behavior and acts more as a method of counting rather than a resource for either the entity or the administrator;

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<sup>5</sup> The size of this day 1 gain will depend on the measurement approach used. If the participant uses market value to measure EAs transferred (granted) for nil value, then the day 1 gain would be significant. If a cost measurement approach is used, then no gain would be recognized. In June the IASB tentatively rejected an approach that applied this pattern of recognition and used fair value measurement for transferred EAs.



- (b) “An equivalent liability was created” could be argued in terms of the obligation to return sufficient EAs to cover emissions and a view that the EAs are only loaned to participants until the end of the compliance period when they must be returned; and
- (c) “An equivalent reduction in another asset balance occurred” could be argued in terms of the government’s removal of participants’ right to use the environment as a dump for emissions, whereby the issuance of EAs provides a basis to recognize that right, even as it also, simultaneously impairs that right to zero while providing EAs in compensation.

### **Approach 2, Emission Licenses (Intangible Asset)**

43. Approach 2, *Emission Licenses (Intangible Asset)*, was identified as a possible option by the New Zealand Government through application of IPSAS—similar financial reporting concepts and standards, although not used in practice.

#### *Description of Approach 2*

44. In Approach 2, *Emission Licenses (Intangible Asset)*, EAs are viewed as similar to government created intangible assets such as permits or licenses<sup>6</sup>. EAs embody rights to undertake economic activity, where a target group (the ETS participants) could potentially benefit from possessing those rights<sup>7</sup>. This accounting in this approach is modelled on governments’ accounting for the issuance of rights such as licenses (e.g. radio frequency rights), permits to operate (e.g. rights to operate a power station), or quotas (e.g. fishing quotas).
45. As for Approach 1, the initial value of the EAs would be close to zero if the cost measurement approach for internally generated intangible assets is applied, because EA production costs are very low. After creating the EAs the administrator either transfers or sells them to ETS participants. Depending on the measurement basis used and the payment received (which could be somewhere between zero and the market value of the EA), the administrator reports either an expense (loss on transfer), revenue (gain on sale) or no change (transferred at value). Once the EAs have been transferred the administrator has no asset on its statement of financial position.
46. As participants emit pollutants, they owe EAs to the administrator. The administrator recognizes revenue and assets (EAs to which the administrator has rights). At the end of the compliance period, participants submit (or redeem) the necessary number of EAs, which then are held by the administrator. At this point the value of EAs is extinguished, as though the end of the compliance period acts as an immediate impairment equivalent to their total value.

#### **Accounting Entries for Approach 2**

47. Accounting entries for Approach 2 are provided in Appendix A.

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<sup>6</sup> IPSAS 31, *Intangible Assets*, establishes requirements for recognition of internally generated assets. The CP could discuss whether IPSAS 31’s recognition criteria and also its measurement approach should be applied to EAs created by the administrator. Staff have not taken that approach here, because EAs are being treated, at this stage of the project, as a phenomenon that warrants consideration on its own merits, even though reference can be made to argument by analogy. IASB staff and the IASB have eschewed application of existing IFRSs to this phenomenon.

<sup>7</sup> Note the GFS reporting guidelines which reject the idea that EAs are a type of license or permit, because entities can engage in the activity (emissions) without first receiving EAs, whereas they must have a license or permit before they are allowed to engage in their target activity.

*Evaluation of Approach 2, Emission Licenses (Intangible Asset)*

48. This approach appears to reflect the economic substance of providing a resource in the form of a valuable right. Prior to establishment of an ETS there are no limits on entities' ability to emit GHGs and an EA would have been without value. After ETS establishment EAs become valuable because they are essential to an entity that emits GHGs as part of its operations. Similar situations arise with other government actions that restrict operations unless a necessary permit, license or quota has been received. For example, until a government establishes (monitors and enforces) limits on the quantity of fish that can be taken, the fish themselves are treated as "free goods", while costs incurred relate only to the activity of fishing. After establishment of a fishing quota system, such quota are valuable resources and assets in the hands of recipients because without a quota the entity cannot continue to fish legally.

*Application of the Conceptual Framework's Element Definition and Recognition Criteria*

49. Approach 2's accounting for the creation and transfer of EAs appears consistent with the Conceptual Framework's element definition and recognition criteria. EAs are controlled by the administrator, following a past event related to government (or other administration entity) decisions on timing and volume of EAs available for issue. They are resources, because they are able to be sold, which means that they can generate future economic benefits. With respect to the recognition criteria of ability to reliably measure and probable resource, EAs can be reliably measured either at their historical cost or market value and, once the administrative entity has decided to charge for transfer of EAs, the resource (economic benefits of future cash flows in this case) is very probable.
50. Approach 2 is problematic when EAs are received back from participants. Once received back the EAs are worthless to the administrator. That eventual lack of value (the EAs are cancelled) has implications for the administrator's reporting of revenue during the compliance period, as participants emit pollutants and incur EA obligations. Why should the administrator report an asset (the right to receive EAs) at an earlier point in time—before EA return—when ultimately there will be no "service potential or the ability to generate economic benefits" for the administrator, when the EAs are returned?
51. As discussed in the first section above, this approach (like Approaches 1 and 3) raises an issue with respect to the administrator reporting revenue when ETS participants emit GHGs. Should the administrator's financial report show that it is "better off" because GHGs have been emitted, when the policy objective of an ETS is to reduce emissions?

*Participants' Accounting—Symmetry applied to Approach 2*

52. Applying symmetry to Approach 2 results in the same recognition pattern for participants as that described under Approach 1. From the participant's perspective these two approaches are indistinguishable. As for Approach 1 the participant would initially recognize an asset equivalent to the value of the EAs received, where those EAs could either be received as a government grant (transfer at nil or subsidized price) or purchased from the administrator. The participant will recognize revenue (a "day 1 gain") equivalent to any excess of EA book value (in the participant's books) over actual purchase price<sup>8</sup>. As actual emissions occur, a participant will recognize a liability (and expense) to submit EAs. The liability is discharged when the participant returns EAs to the administrator.

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<sup>8</sup> As noted for Approach 1 the size of this day 1 gain will depend on the measurement approach used.

### **Approach 3, Pollutant Pricing Mechanisms—Rights and Obligations**

53. Approach 3, *Pollutant Pricing Mechanisms—Rights and Obligations*, (Approach 3) is based on what was the IASB's main approach to participants' ETS accounting at its June 2015 meeting discussion. The IASB discussed four approaches at its June meeting. The first two approaches (Approach 1, *Gross-Liability (A)* and Approach 1, *Gross-Liability (B)*) were the same with respect to recognition, but slightly different with respect to measurement. This paper's Approach 3 takes the same recognition approach as those two IASB approaches, but describes what this would mean for the administrator. (The IASB's discussion paper appears likely to include one or both of those two approaches.) This approach has been developed by applying symmetry to the participant's accounting to derive accounting by the administrator. The IASB approach applies fair value measurement for EAs and for obligations arising from emissions. To maintain symmetry the same measurement base has been applied.
54. The administrator creates EAs and recognizes these as assets. On transfer of EAs to participants the administrator shows a loss on transfer, assuming the EAs have been transferred at less than their market value, while recognizing a new asset equivalent to the participant's "government grant" liability. The asset is measured at fair value of EAs transferred, so the net effect for the administrator's statement of financial position will be zero.
55. The administrator recognizes an expense during the compliance period as its government grant asset reduces, as though the asset depreciates or is amortized. (This is symmetrical with the participant's recognition of government grant revenue during the compliance period. The participant's "government grant liability" decreases until it is zero by the end of the compliance period, which indicates that the participant's performance obligation has been discharged.)
56. During the compliance period the administrator also recognizes a right to receive EAs and related revenue. This right arises because participants are emitting GHGs. The value of the asset increases as participants emit more. (Meanwhile participants recognize their increasing obligations to submit EAs to the administrator and equivalent expenses.)

#### Accounting Entries for Approach 3

57. Accounting entries for Approach 3 are provided in Appendix A.

### *Evaluation of Approach 3, Pollutant Pricing Mechanisms—Rights and Obligations*

#### Application of the Conceptual Framework's Element Definition and Recognition Criteria

58. Conceptually the significance of the "government grant" asset for the administrator is unclear. One explanation is that it represents the administrator's right to receive performance from the participant. The performance received is the participant's acceptance of the ETS requirements. By accepting the EAs, in effect, the participant promises to abide by the ETS's terms and work towards the administrator's overall emission reduction objective.
59. The Conceptual Framework does not support existence of a "government grant" asset for the administrator. There does not appear to be any resource presently controlled by the entity, after transfer of the EAs. There is no service potential or ability to generate future economic benefits. Therefore, Approach 3 involves recognition of an administrator's asset—the government grant asset—that does not appear to meet the Conceptual Framework's definition of an asset.
60. It may be possible to treat this amount as an "other resource", applying paragraph 5.4 and 5.27 of the Conceptual Framework, which allows recognition of items that do not meet the definition and recognition criteria for assets or liabilities. This would impact on "net financial position" and

also have an effect on revenue (expenses).) Another perspective is that the administrator continues to recognize an asset for the EAs, as though control had not been transferred to the participants. But the IASB approach has the participant recognizing, for the government grant liability, only the *difference* between actual transfer costs and the EAs' market value. The participant recognizes the EAs separately on the basis that it does control the EAs.

61. As discussed in the first section above, this approach (like Approaches 1 and 2) raises an issue with respect to the administrator reporting revenue when ETS participants emit GHGs. Should the administrator's financial report show that it is "better off" because GHGs have been emitted, when the policy objective of an ETS is to reduce emissions?

#### Participants' Accounting—Approach 3

62. An ETS participant recognizes an asset when EAs are received. If the EAs are donated then they are measured at fair value, and the participant recognizes an equivalent liability with the result that no revenue is recognized. During the compliance period this liability reduces at the same time as the participant also recognizes an obligation to submit EAs back to the administrator. Revenue recognized with respect to liability reduction is similar to expenses recognized due to the obligation to submit EAs with the result that there is little impact on the net operating result. The liability to submit EAs is discharged when the participant returns EAs to the administrator.
63. If a participant emits in excess of the amount of EAs it receives then it will need to purchase more EAs to cover the EA deficit that it has incurred. The additional emissions increase the expenses reported and the EA liability balance. If a participant emits less than the amount covered by received EAs then it will be able to sell its excess EAs. The liability (obligation to submit EAs) balance will be less than the asset (EAs) balance. In the first case (excess emissions) the participant is worse off and the economic impact is negative. In the second case (less emissions than amount covered by EAs) the participant is better off and the economic impact for the participant is positive.

#### **Approach 4, *Emission Limits (Taxes and Contingencies)*, formerly Approach 3, Revenue**

64. Approach 4, *Emission Limits (Taxes and Contingencies)*, formerly Approach 3, Revenue (Approach 4) has the administrator recognizing revenue to the extent that the transfer of EAs generates cash flows for the administrator. If revenue recognition is deferred until the end of the compliance period then a "revenue received in advance" credit will also be recognized initially by the administrator.) This approach does not involve recognition of assets arising from an administrator's holding of EAs or rights to receive EAs from participants. The disclosure of contingencies depends on a net approach that subtracts EAs from expected emissions to calculate the likelihood of needing to cover a deficit or be able to sell a surplus of EAs.
65. Although individual participants will disclose contingencies (see below), arguably there will be no need for the administrator to do so because, when considering the ETS as a whole, the probability that the emissions cap overall will be exceeded (i.e. total emissions for all participants is higher than the total number of EAs available to submit) appears fairly low. If an individual ETS participant is unable to submit sufficient EAs at the end of a compliance period to cover emissions, then the administrator will recognize revenue and a right to receive the penalty established by the administrator (e.g. a fine), rather than disclose a contingent asset. The probability that there will be a surplus of EAs overall, while not only possible but also something that has actually occurred during recent years, does not appear to result in a contingent liability

for the administrator. The excess EAs are either cancelled or renewed to apply to the next compliance period

66. Approach 4 focuses on the administrator's use of an ETS to achieve public policy aims. The only value of EAs is their role as part of the ETS apparatus. Any economic benefits (cash flows) generated from issuing EAs are peripheral to the ETS's public policy aims to:
- (a) Reduce emission of GHGs to protect the environment and prevent global warming.
  - (b) Create a situation whereby emissions are costly to participant entities and they have economic incentives to reduce their GHG emissions.
67. Benefits to the administrator arise from the whole public policy initiative; policy development, legislation, initiation, monitoring, enforcement, etc. of which EAs are one small part. The administrator requires participants to submit EAs to cover their emissions. The number of EAs available is restricted, so that EAs are expected to be valuable items to participants. But the primary value of EAs to the administrator is as a public policy instrument. When the EA is issued, the administrator is not worse off and has no liability. An EA submitted to the administrator does not hold future economic benefits or service potential.
68. For the administrator, a well-functioning market for EAs could achieve public policy aims without generating cash flows. However, increasingly administrators are using EA issuance to generate revenue. The revenue received may then be used on other emission reduction interventions.

#### Accounting Entries for Approach 4 and Note Disclosures

69. The accounting entries for Approach 4 are provided in Appendix A.
70. Note disclosures are an important part of Approach 4. Note disclosures would be as follows:
- (a) Administrator discloses contingencies—two options
    - (i) Option A: No contingency (Recommended)
    - (ii) Option B: *Symmetry*: Either contingent asset or contingent liability depending on position of whole group of participants (expect to exceed emissions cap or expect to stay beneath cap)
  - (b) Participants disclose contingent asset or contingent liability:
    - (i) Contingent asset if expect to emit *less* than EAs received
    - (ii) Contingent asset if expect to emit *more* than EAs received

#### *Evaluation of Approach 4, Emission Limits (Taxes and Contingencies, formerly Approach 3, Revenue)*

#### Application of the Conceptual Framework's Element Definition and Recognition Criteria

71. Approach 4 takes a very narrow view with respect to recognition of assets and liabilities. By recognizing assets and revenue only to the extent that cash is generated on transfer (or sale), the Conceptual Framework requirements for recognition of these elements are definitely met. Cash received (or the right to receive such cash if the transaction initially generates an accounts receivable) represents a resource which is controlled by the administrator, after a past event (the transfer) has occurred and the value can be measured reliably.
72. The question that arises for this approach is whether it is too narrow, and fails to recognize other elements (for example, those arising from related obligations) or fails to fully recognize the full value of the transaction. If the Conceptual Framework arguments in favor of wider

recognition of elements—which are described above for the first three approaches—are accepted, then Approach 4’s very limited recognition of elements will be viewed as inadequate.

73. The main difficulty with Approach 4 is the “asset-like nature” of EAs. From the participants’ perspective EAs appear to be assets which should be measured appropriately and recognized. EAs can be traded, they can be used to generate cash flows if necessary. There appears to be scope for the administrator to at least recognize the EAs that it holds initially, before transfer or sale.
74. An argument in favor of this approach is, as previously discussed in the June 2015 IPSASB paper, that it is better aligned with the public policy aims of an ETS. An ETS aims to change the environment within which emissions occur. An ETS does not introduce costly emissions per se. (By contrast, a tax on emissions makes all emissions costly.) An ETS introduces a cap on emissions, so that emissions become limited or “scarce”. However, it is also possible to take a broader view of costs imposed by an ETS, such that the costs could apply to emissions in similar fashion to costs arising from a carbon tax or the economic costs of the right to emit, as indicated by the market value of such rights (the EAs).

#### GFS Split Asset Approach to Revenue Recognition

75. The statistical community’s “split asset” approach<sup>9</sup> could be considered a sub-option of this approach because, from the administrator’s perspective, it focuses on revenue narrowly defined as equivalent to cash received when EAs are transferred or sold to participants. Under the split asset approach, cash received by the administrator is treated as a prepayment of tax revenue, and a prepayment liability is recognized. Tax revenues are booked later when the EAs are surrendered.

#### Participants’ Accounting—Symmetry applied to Approach 4

76. Under Approach 4 each individual participant assesses the probability that their total emissions could exceed the EAs they hold. Depending on that assessment the participant discloses either a contingent liability (an obligation to use cash flows to purchase EAs, as a result of a probable excess of emissions over EAs) or a contingent asset (the ability to generate cash flows from selling EAs, as a result of a probable excess of EAs over emissions).
77. From the participant’s perspective:
- Step 1: Receipt of EAs
- (i) Recognize an expense for any payment for allowances (if EAs are purchased initially) and treat the expense as a government charge (a type of tax). (The timing of expense recognition could be either immediately on payment or spread over the compliance period as the participant emits. The second approach would be consistent with the idea the “tax” relates to the production of emissions.)

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<sup>9</sup> The approach is called “split asset,” because EAs are conceived as consisting of two types of asset: (a) a financial asset for the cash auction proceeds (prepayment of tax), for which the value is offset by a liability; and (b) a non-financial (intangible) asset for the changes in market value of permits after issue, for which the value disappears on surrender.

- (ii) Disclose either a contingent asset or a contingent liability based on assessment of which is more likely. Provide note disclosures on the participant entity's assessment of its likely emissions and its holding of allowances to explain this contingency<sup>10</sup>.

Step 2: During the compliance period

- (iii) Reassess the disclosure based on the impact of actual emissions on likelihood of cash outflows or cash inflows.
- (iv) No liability arising from emissions is recognized, unless an entity's emissions appear likely to result in a need either to purchase more EAs or pay a fine. (Similarly, no asset is recognized unless it becomes probable that, at the end of the period, EAs will be in excess of emissions.)

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<sup>10</sup> Measurement of the contingency could, for example, be in terms of the market value of the expected deficit or surplus of emissions (measured with respect to EAs' market value) over actual holdings of EAs.

## APPENDIX A: ACCOUNTING ENTRIES FOR EACH APPROACH

### Approach 1, *Emission Notes (Financial Liability)*

Approach 1, *Emission Notes (Financial Liability)*, treats emission allowances (EAs) as similar to currency that the ETS administrator issues. The journal entries below are based on those for “currency in circulation—notes”, which were included in Appendix A of agenda item 3.2 (Public Sector Specific Financial Instruments meeting paper) submitted to the IPSASB’s December 2015 meeting.

Step	Accounting Entries	Comments
<b>Creation and Issuance of EAs</b>		
<b>Step 1</b> Initial creation of EA	Dr Inventory (EAs) Cr Cash  <i>Issue: Any costs to create? Costs could be nil in which case initial value zero.</i>	1. Timing of recognition: What event indicates “production”? e.g. Electronic list of EA serial numbers? 2. Initial measurement EAs: <ul style="list-style-type: none"> <li>• Apply IPSAS 12, <i>Inventories</i></li> <li>• At cost of EAs, which is likely to be nil</li> </ul> 3. This step equivalent to currency steps “purchase materials” and “production of notes”.
<b>Step 2 (a)</b> EA issuance by transfer at zero cost to recipient (grant)	Dr Cash (zero) Cr Liability for notes (EAs) issued  Dr Cost of notes (EAs) issued (zero) Cr Inventory (EAs)	1. This step equivalent to currency step “Distribution of Notes”, which covers “recognize financial asset received for notes distribution” and “recognize cost of notes issue” 2. Should an expense be recognized at this point, since EAs transferred at less than market value? (But that seems to imply a revaluation occurred between Step 1 and step 2, however the currency entries do not include entries for a revaluation. Or would an expense be treated as a balancing entry on the basis that the liability is measured at market value?) Dr Expense Cr Liability for notes (EAs) issued
<b>Step 2 (b)</b> EA issuance by transfer at non-zero cost to recipient	Dr Cash Cr Liability for notes (EAs) issued  Dr Cost of notes (EAs) issued (zero) Cr Inventory (EAs)	1. As for Step 2(a) except that the liability for notes issued has a non-zero value. 2. Note same issue as for point 3 under Step 2(a) Dr Cash Dr Expense Cr Liability for notes (EAs) issued
<b>Step 2 (c)</b> EA issuance by sale	Dr Cash Cr Liability for notes (EAs) issued  Dr Cost of notes (EAs) issued (zero) Cr Inventory (EAs)	1. As for Step 2(a) except that the liability for notes issued has a non-zero value. 2. Note no possibility of an expense since EAs issued at market value, by comparison to notes for Step 2(a) and Step 2(b) above.



Step	Accounting Entries	Comments
<b>Emissions occur during period</b>		
<b>Step 4</b> Emissions occur	Dr Right to receive notes (EAs) Cr Revenue	<p>1. These entries reflect participants' obligations to submit EAs to the ETS administrator.</p> <p>2. Measurement: Should measurement be at EAs' market value?</p> <p>3. There is no "currency in circulation" equivalent to this step. Arguably it is similar to a separate obligation by which the participant entities owe payment to the ETS administrator (Reserve Bank equivalent) an account receivable denominated in currency.</p>
<b>Administrator receives EAs from participants at end of compliance period</b>		
<b>Step 5</b> ETS participants submit EAs to administrator at end of compliance period	Dr Liability for notes (EAs) issued Cr Right to receive notes (EAs)	<p>1. This step has been modelled on the "Removal of Notes from Circulation" step for "currency in circulation" applying the "Decrease currency in circulation" accounting entries.</p> <p>2. The credit entry removes the previous "right to receive notes" balance from Step 4.</p> <p>3. In the "currency in circulation" entries the credit entry is described as a "financial asset other than cash".</p>

## Approach 2, *Emission Licenses (Intangible Asset)*

Approach 2, *Emission Licenses (Intangible Asset)* treats emission allowances (EAs) as intangible assets that the ETS administrator develops internally and then issues to ETS participants. The ETS administrator may also choose to sell (through auction or other mechanism) the EAs to both participants and others. There may also be scope to transfer EAs in exchange for emission reducing activities and projects, for example in exchange for successful completion of a reforestation project.

Step	Accounting Entries	Comments
<b>Creation and Issuance of EAs</b>		
<b>Step 1</b> Initial recognition of EA (intangible asset)	Dr EAs Cr Cash <i>Issue: Any costs to create? Costs could be nil in which case initial value zero.</i>	1. No entries if creating an asset that has nil value? 2. Timing of EA recognition: When EAs <ul style="list-style-type: none"> <li>Created e.g. serial number listed; or,</li> <li>Become available for transfer or sale, e.g. defined period prior to start of compliance period;</li> <li>Transferred or sold (in which case any EAs that are not allocated at start of compliance will not be recognized).</li> </ul> 3. Initial measurement EAs: <ul style="list-style-type: none"> <li>Apply IPSAS 31, <i>Intangible Assets</i></li> <li>At cost of EAs, which is likely to be nil</li> </ul>
<b>Step 2</b> Subsequent measurement while EAs held by administrator	Option 1: At cost (no change and no accounting entries) Option 2: Revalue to market value: Dr EAs Cr Revenue	1. Should subsequent measurement be at cost or revalued to a market value? 2. If trading is thin and/or dominated by the administrator's controlled "sale" of EAs to participants and a limited group of others, then IPSAS 31's "active market" test for revaluation is unlikely to be met.
<b>Step 3 (a)</b> EA issuance by transfer at zero cost to recipient (grant)	Option 1: If EAs value is "zero": Dr Expense (zero) Cr EAs Option 2: If EAs at market value: Dr Expense Cr EAs	1. No entries if transferring an asset that has nil value? 2. Entries appear to depend on measurement at steps 1 and 2. If EAs have been revalued to market value prior to transfer, then recognize expense.
<b>Step 3 (b)</b> EA issuance by transfer at non-zero cost to recipient	Option 1: If EAs value is "zero": Dr Cash Cr EAs Cr Revenue Option 2: If EAs at "market value": Dr Cash Dr Expense Cr EAs	Option 1. Transfer fee is recognized as revenue, if carrying value of EAs was at cost (carrying value at zero or close to zero). Option 2. Expense recognized because EAs transferred at less than their carrying value, assuming that their market value is higher than the fee charged on transfer.
<b>Step 3 (c)</b> EA issuance by sale	Option 1: If EAs value is "zero": Dr Cash Cr EAs Cr Revenue Option 2: If EAs at "market value": Dr Cash Cr EAs	Option 1. Sale price is recognized as revenue, if EAs were at cost (i.e. zero or close to zero). Option 2. No revenue recognized because assume that there is no difference between the EAs carrying value, which is market value, and their selling price.

Step	Accounting Entries	Comments
<b>Emissions occur during period</b>		
<b>Step 4</b> Emissions occur	Dr Right to receive EAs Cr Revenue	1. These entries reflect participants' obligations submit EAs to the ETS administrator. 2. Measurement: Should measurement be at market value?
<b>Administrator receives EAs from participants at end of compliance period</b>		
<b>Step 5</b> ETS participants submit EAs to administrator at end of compliance period	Dr EAs Cr Right to receive EAs	1. Measurement: What is the value of EAs to the administrator, once they are received back from participants? How should they be measured?
<b>Step 6</b> Impairment (or revaluation) of EAs after end of compliance period	Dr Impairment (right off) expense Cr EAs	1. This step is included to indicate a treatment that removes the EAs from the administrator's statement of financial position through impairment to zero. 2. An administrator may choose to extend the useful life of EAs beyond the end of the originally set compliance period, but generally the EAs will be cancelled at the end of that period, and this has been represented by impairment down to zero. 3. This set of accounting entries does not address the situation where a national government accepts international EAs that it can then use either to meet its own <i>participant</i> obligations arising from the international scheme or sell to participants.

### Approach 3, Pollutant Pricing Mechanisms—Rights and Obligations

Approach 3, *Pollutant Pricing Mechanisms—Rights and Obligations*, is derived from symmetry with an approach to participants' accounting. The participants' approach has participants recognizing a liability when EAs are granted to them, which avoids what would otherwise be a Day 1 Gain equivalent to the fair value of the government grant. Participants then recognize revenue during the compliance period as they discharge their liability to the administrator. Applying symmetry, when EAs are transferred the administrator recognizes an asset—described as a “right to receive performance” asset—and an expense as participants recognize revenue during the period. Participants initially measure the EAs at fair value when they are granted. If symmetry is restricted to recognition then the administrator can choose to use a different measurement basis.

Step	Accounting Entries	Comments
<b>Creation and Issuance of EAs</b>		
<b>Step 1</b> Initial recognition of EA (intangible asset)	Dr EAs  Cr Cash  <i>Issue: Any costs to create? Costs could be nil in which case initial value zero.</i>	<p>1. No entries if creating an asset for which cost of creation are nil?</p> <p>2. Timing of EA recognition: When EAs</p> <ul style="list-style-type: none"> <li>Created e.g. serial number listed; or,</li> <li>Become available for transfer or sale, e.g. defined period prior to start of compliance period;</li> <li>Transferred or sold (in which case any EAs that are not allocated at start of compliance will not be recognized).</li> </ul> <p>3. Initial measurement EAs:</p> <ul style="list-style-type: none"> <li>Apply IPSAS 31, <i>Intangible Assets</i></li> <li>At cost of EAs, which is likely to be nil</li> </ul>
<b>Step 2</b> Subsequent measurement while EAs held by administrator	<p>Option 1: At cost (no change and no accounting entries)</p> <p>Option 2: Revalue to market value:</p> <p>Dr EAs</p> <p>Cr Revenue (Gain on revaluation)</p>	<p>1. Should subsequent measurement be at cost or revalued to a market value?</p> <p>2. If trading is thin and/or dominated by the administrator's controlled “sale” of EAs to participants and a limited group of others, then IPSAS 31's “active market” test for revaluation is unlikely to be met.</p>
<b>Step 3 (a)</b> EA issuance by transfer at zero cost to recipient (grant)	<p><b>Option 1:</b> If EAs carrying value is zero (i.e. carried at cost):</p> <p>Dr Expense (zero)</p> <p>Cr EAs</p> <p>Dr Right to performance</p> <p>Cr Performance owed</p> <p><b>Option 2:</b> If EAs at market value:</p> <p>Dr Expense</p> <p>Cr EAs</p> <p>Dr Right to performance</p> <p>Cr Performance owed</p>	<p>1. No entries if transferring an asset that has nil value?</p> <p>2. Entries appear to depend on measurement at steps 1 and 2. If EAs have been revalued to market value prior to transfer, then recognize expense.</p> <p>3. Asset recognition reflects participants' recognition of a liability.</p>

Step	Accounting Entries	Comments
<b>Step 3 (b)</b> EA issuance by transfer at non-zero cost to recipient	Option 1: If EAs value is “zero”: Dr Cash Cr EAs Cr Revenue Option 2: If EAs at “market value”: Dr Cash Dr Expense Cr EAs	<p>Whether or not the administrator recognizes an asset—a right to receive performance, called here a “performance asset”—at this step depends on symmetry with the participant’s accounting. The situation is not clear from IASB discussions, which so far have only considered EAs transferred for no fee. These entries assume that no “performance asset” needs to be recognized to reflect the difference between the transfer fee and EA market value. That assumes any cost, even a subsidized transfer fee, provides a reasonable indication of the EAs “purchase price”. An alternative view is that the transfer should still be valued by the participant at market value (fair value), which would arguably mean that, applying symmetry, the administrator should recognize a performance asset.</p> <p>Option 1. Transfer fee is recognized as revenue, if carrying value of EAs was at cost (carrying value at zero or close to zero).</p> <p>Option 2. Expense recognized because EAs transferred at less than their carrying value, assuming that their market value is higher than the fee charged on transfer.</p>
<b>Step 3 (c)</b> EA issuance by sale	Option 1: If EAs value is “zero”: Dr Cash Cr EAs Cr Revenue Option 2: If EAs at “market value”: Dr Cash Cr EAs	<p>These entries assume that no “performance asset” needs to be recognized to reflect the difference between the transfer fee and EA market value.</p> <p>Option 1. Sale price is recognized as revenue, if EAs were at cost (i.e. zero or close to zero).</p> <p>Option 2. No revenue recognized because assume that there is no difference between the EAs carrying value, which is market value, and their selling price.</p>
<b>Emissions occur during period</b>		
<b>Step 4</b> Emissions occur	Dr Right to receive EAs Cr Revenue <i>If EAs granted (see Step 3(a)):</i> Dr Expense Cr Performance Asset	<p>1. These entries reflect the administrator’s right to receive EAs from the participants.</p> <p>2. Measurement: Should measurement be at market value?</p> <p>3. The performance asset reduces (the credit) and a balancing debit is required. There is no receipt of cash or other asset which means that the debit must be represented as an expense. (BY end of compliance period the performance asset will have reduced to zero.)</p>
<b>Administrator receives EAs from participants at end of compliance period</b>		
<b>Step 5</b> ETS participants submit EAs to administrator at end of compliance period	Dr EAs Cr Right to receive EAs	Measurement: What is the value of EAs to the administrator, once they are received back from participants? How should they be measured?

Step	Accounting Entries	Comments
<b>Step 6</b> Impairment (or revaluation) of EAs after end of compliance period	Dr Impairment (right off) expense Cr EAs	<p>1. This step is included to indicate a treatment that removes the EAs from the administrator's statement of financial position through impairment to zero.</p> <p>2. An administrator may choose to extend the useful life of EAs beyond the end of the originally set compliance period, but generally the EAs will be cancelled at the end of that period, and this has been represented by impairment down to zero.</p> <p>3. This set of accounting entries does not address the situation where a national government accepts international EAs that it can then use either to meet its own <i>participant</i> obligations arising from the international scheme or sell to participants.</p>

**Approach 4, *Emission Limits (Taxes and Contingencies)*, formerly Approach 3, *Revenue***

Approach 4, *Emission Limits (Taxes and Contingencies)* treats emission allowances (EAs) as taxation instruments rather than assets. Cash is recognized when received from transfer or sale of EAs. Either tax revenue or tax payable is recognized at the same time, depending on what is viewed as the taxable event. If the taxable event is occurrence of emissions then tax payable is recognized initially and then revenue is recognized throughout the period as emissions occur.

Step	Accounting Entries	Comments
<b>Creation and Issuance of EAs</b>		
<b>Step 1</b> Initial creation of EAs	No entries	No accounting entries because the EAs are treated as taxation instruments rather than assets under this approach.
<b>Step 2 (a)</b> EA issuance by transfer at zero cost to recipient (grant)	No entries	No cash to record, so no corresponding credit such as a tax payable or tax revenue.
<b>Step 2 (b)</b> EA issuance by transfer at non-zero cost to recipient	<b>Option 1</b> Dr Cash Cr Revenue (tax)  <b>Option 2:</b> Dr Cash Cr Tax payable	Option 1. Transfer fee is recognized as revenue immediately on the basis that the “taxable event” is the moment of transfer Option 2. Tax payable is recognized. Revenue recognition would occur throughout the compliance period as emissions occur, on the basis that emissions are the taxable event.
<b>Step 2 (c)</b> EA issuance by sale	Dr Cash Cr Revenue	There appears to be little basis to defer revenue when EAs are sold rather than transferred. Only consistency with Option 2 at step 2(b) appears to support revenue recognition deferral.
<b>Emissions occur during period</b>		
<b>Step 3</b> Emissions occur	<b>Option 1</b> No entries  <b>Option 2</b> Dr Tax payable Cr Revenue (tax)	For the ETS administrator there is no asset or revenue arising from the right to receive EAs, because EAs are not treated as assets under this approach. Option 2 reflects the recognition of tax revenue during the period, applying the view that emissions are the taxable event that give rise to revenue.
<b>Administrator receives EAs from participants at end of compliance period</b>		
<b>Step 4</b> ETS participants submit EAs to administrator at end of compliance period	No entries	No accounting entries because the EAs are not assets under this approach. There is no impact on the administrator's financial statements.