



**STATISTICS**

# **Guidance Note: Carbon Pricing**

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# Background

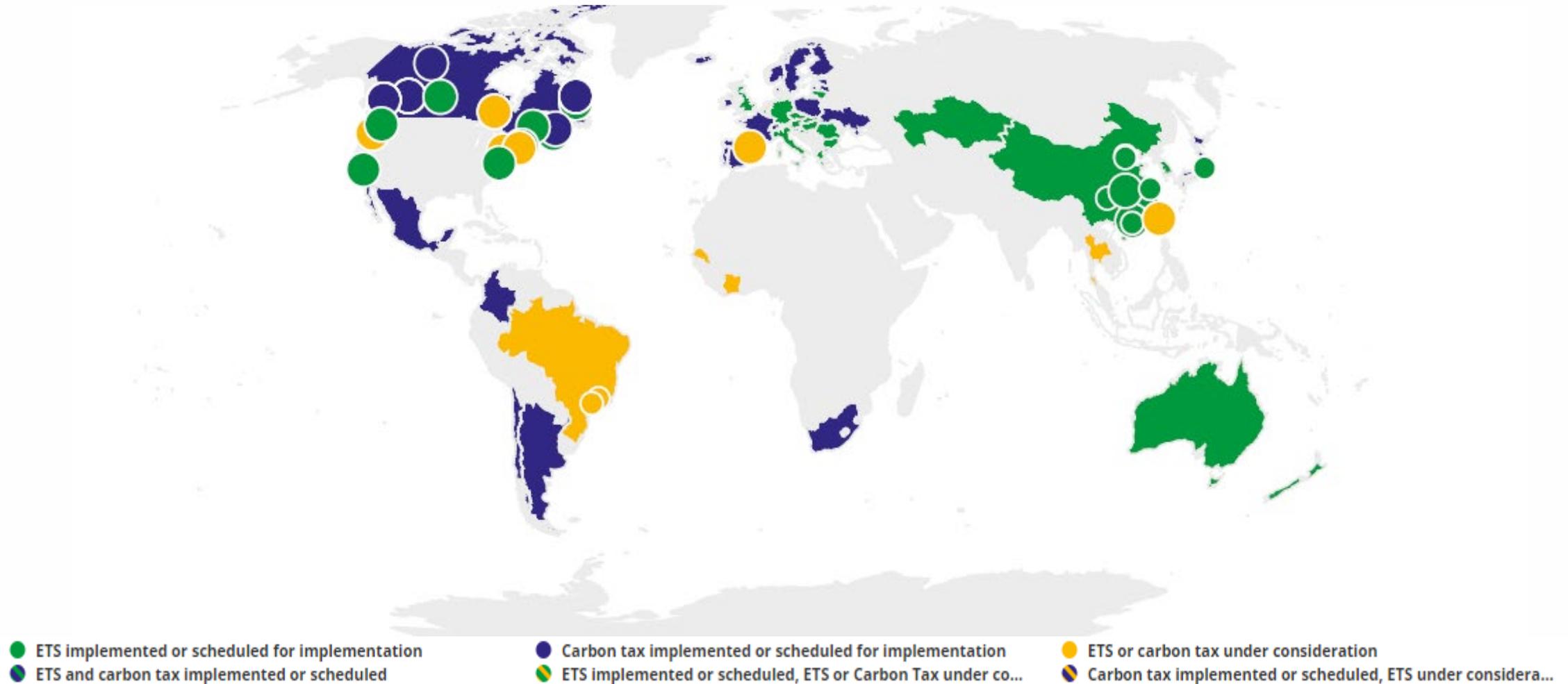
As part of the SNA update process, an *ISWGNA Subgroup on Well-being & Sustainability* was formed to lead the research on issues related to:

- **Environmental-Economic Accounting**
  - Defining a broader framework for capturing economic activities
  - Treatment & recording of carbon pricing scheme
  - Extending the asset boundary (including ecosystem assets)
- **Unpaid household work**
- **Distribution of household income, expenditure & wealth**
- **Education and human capital**
- **Health and social conditions**

# Overview

- Economic activity is having an increasingly negative impact on the environment.
- **To slow the increase in GHG emissions or eliminate them altogether, countries around the world have introduced or are introducing various policies aimed at reducing GHG emissions. Two of the more popular policy instruments include:**
  - Carbon taxes
  - Emission trading schemes (ETS) (e.g., Cap and trade)
- These policies apply a price to a broad set of emission sources that are aimed at encouraging businesses and individuals to innovate and change their behavior and therefore reduce the level of GHG emissions.
- **It is important that the associated transactions (non-financial and financial) across all sectors are properly accounted for and transparently presented in the System of National Accounts (SNA) and are harmonized and consistent with GFS, BOP and SEEA.**

# Emission Permits – Global Carbon Pricing Initiatives



Source: [https://carbonpricingdashboard.worldbank.org/map\\_data](https://carbonpricingdashboard.worldbank.org/map_data)

# Emissions Permits – Current State of Play

- While ETS schemes, and carbon pricing schemes generally exist, presently they are not very significant.
- That said, we know that over the next number of years there will be a large focus on climate change mitigation
- Perhaps other countries (such as, India) may introduce ETS schemes, and it is therefore important to re-examine our treatment.

Year	2018	2019
<b>Total Revenue ETS</b>	20,292	21,161
<b>Total Revenue Carbon Tax</b>	23,860	23,671

source: CPI database

Carbon Taxes					
Country or Region	Year Introduced	2019 Price (\$/Ton CO <sub>2</sub> )	Coverage of GHGs, 2018		
			Million Tons	Percent	
Chile	2017	5	47	39	
Colombia	2017	5	42	40	
Denmark	1992	26	22	40	
Finland	1990	65	25	38	
France	2014	50	176	37	
Ireland	2010	22	31	48	
Japan	2012	3	999	68	
Mexico	2014	1–3	307	47	
Norway	1991	59	40	63	
Portugal	2015	14	21	29	
South Africa	2019	10	360	10	
Sweden	1991	127	26	40	
Switzerland	2008	96	18	35	
Emissions Trading Systems					
California	2012	16	378	85	
China	2020	na	3,232		
European Union	2005	25	2,132	45	
Korea	2015	22	453	68	
New Zealand	2008	17	40	52	
Regional Greenhouse Gas Initiative <sup>1</sup>	2009	5	94	21	
Carbon Floor					
Canada	2016	15	na	70	
United Kingdom	2013	24	136	24	

Sources: Stavins 2019; World Bank 2019a; and IMF staff calculations. Note: CO<sub>2</sub> = carbon dioxide; GHG = greenhouse gas; na = not available. <sup>1</sup> The Regional Greenhouse Gas Initiative is a market-based program in 10 states in the eastern part of the United States.

# **Treatment of Emission Permits in the National Accounts**

# Emission Trading Schemes (Cap and Trade schemes)

- An emissions permit (cap-and-trade) system is a flexible market mechanism and establishes a maximum level of pollution - a cap.
- Companies must have a permit to cover each unit of pollution they produce. Each permit stipulates the amount of GHG emissions that can be emitted (quota). Companies must have a permit with a sufficient quota of units of pollution to cover their polluting needs (emissions).
- Government decides on a limit that is applied to the emission with a specific period and issues a quantity to reflect the limit. Issued in the primary market through auctions or are distributed free of charge.
- Auction processes are not restricting participants, permits can be purchased by any market participant - individuals, investors, governments, nonprofit institutes, financial and non-financial companies.
- It is presumed that only non-financial corporations will incur emissions liabilities and will need to offset these liabilities with emission permits. If companies exceed their quota for emissions, they can purchase unused permits from others, adjust their production or in the longer-term install technology that reduces emissions. Emission Permits have an active market, so prices fluctuate over time as demand/supply change.
- Firms must surrender the permits (corresponding to the emission used) after emissions made or expired.
- From CO2 emitting firms' perspective, an emission permit looks to be similar to a carbon tax at the point where the permit is surrendered to government to "pay for" carbon emissions. However, prior to this point emission permits are tradeable assets, whose value is not directly established by government but by market conditions.

# Treatment & Recording

## Current Treatment in 2008 SNA

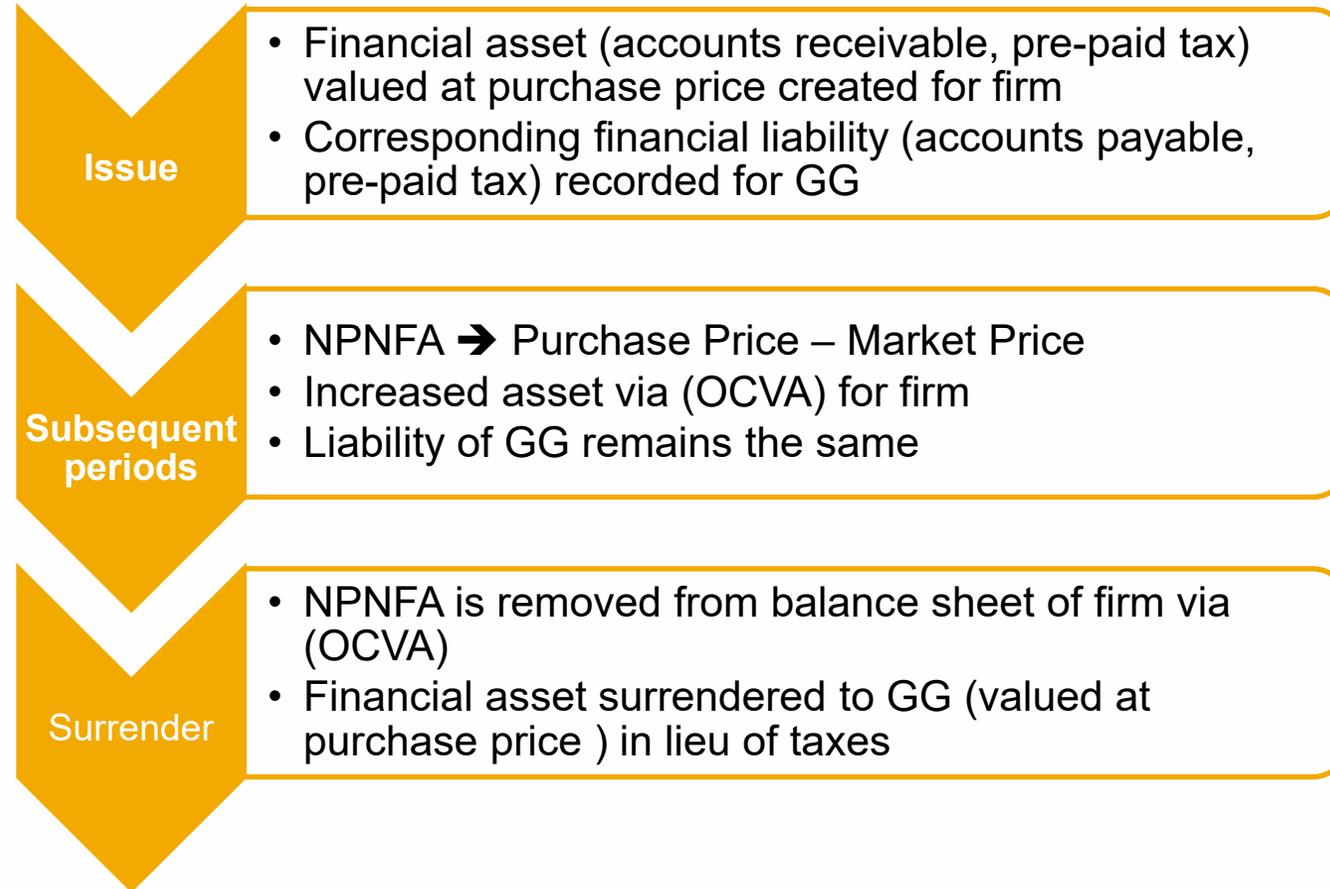
- Considered as “ D29 other taxes on production” since emission permits (EP) do not involve the use of a natural “asset”.
  - Tax revenue = Sales of EP at time of surrender.
- Recognizing that the proposed treatment in the 2008 SNA does not fully articulate all the dimensions of tradeable emission permits, further guidance was requested by the ISWGNA.
- The TF reviewed how emission permits could be recorded in the national accounts; considered and provided numerical examples of various options ranging from non-produced non-financial assets, financial assets, split assets which embody two distinct assets - a non-produced non-financial asset and a financial asset. The TF even explored the possibility of a super national body where a distinction between national type programs and international ones were discussed.

## ISWGNA Recommendation

- In following the consideration of the Task Force the ISWGNA chose to recommend the split asset approach. A recommendation which was described in SNA News and Notes numbers 30/31 and 32/33.

# Recognition – Split Asset Approach

Payments for EP → taxes on production, recorded on an accrual basis (at time of emission)



- GG debt is unaffected by change in value of permits.
- GG accounts is unaffected by secondary market trading.
- Tax revenue is determined by value of permit surrendered at issuance.
- Variability in GG Net Lending/ Debt can arise from indifference of firms to surrendered permit.
- NPNFA – may have a negative value.

# Treatment & Recording

- There are several practical challenges that countries have experienced when trying to implement the split-asset approach. Key amongst these are:
  - ▣ Is the classification of a prepaid tax consistent with permit holders other than non-financial corporations?
  - ▣ How to deal with cross-border trading of permits and the resultant discrepancy between government revenue from auctions and the subsequent surrender of permits?
  - ▣ How to treat permits which are freely given away by governments?
  - ▣ What is the value (tax) of the EP – at original issuance or surrender value?

# Treatment & Recording

“**Taxes are compulsory unrequited payments**, in cash or in kind made by institutional units to the general government exercising its sovereign powers. Taxes are described as unrequited because, in most cases, the government provides nothing commensurate in exchange to the individual unit making the payment.” (Paragraph 22.88).

- Emission permits are required by firms whose production processes generate pollution; the emission permit will not determine the optimum output the firm would like to achieve. A firm will consider the current market price that exists for emission permits and decide the optimal production function that will minimize costs, maximize profits and comply with the pollution regulations.
- In the case where emission permits are auctioned, the purchaser acquires an asset which can be used to either minimize GHG costs, or as an investment or for humanitarian reasons.
  - ▶ For example, a non-profit institute may acquire as many permits as possible they can afford and not ever redeem them in the hope to force entities to adopt greener production processes sooner. **Are EP unrequited payments?**
- **Is the classification of a prepaid tax consistent with permit holders other than non-financial corporations? How could we interpret a negative valuation for the NPNFA in the event where the market price falls below the issuance price? How to treat permits that are given by government freely, capital transfers or as subsidies?**

# Split Asset Approach – Cross Broder Transactions

- There are international emission trading schemes where corporations may purchase emission permits from one country and surrender them to another country. These cross-border transactions may imply that a country will be receiving tax revenue from production activities that occurred in another jurisdiction and consequently there will be a misalignment in both countries institutional sector accounts.
- International schemes pose additional data requirements, in addition to information regarding the number of emissions issued, outstanding, tax revenue received, compilers need to be able to identify the debtor and/or creditor and their respective jurisdictions.
- The split-asset approach cannot accommodate the complexities and interpretability of international schemes.

# Emission Permits – Right to Use Assets

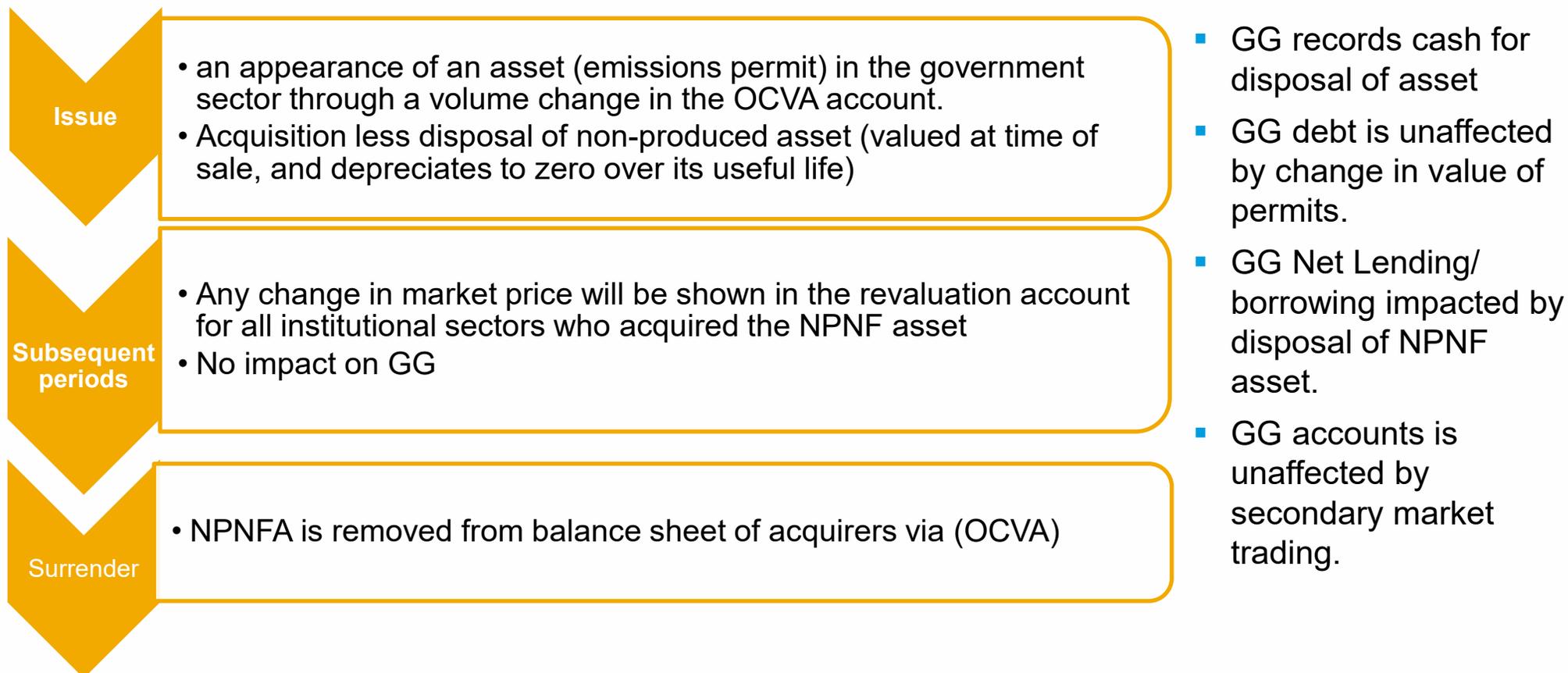
- According to the SNA (paragraph 17.3630) “These permits do not involve the use of a natural asset (there is no value placed on the atmosphere so it cannot be an economic asset).
- The atmosphere is not owned or controlled by any economic unit and therefore should not be part of the SNA asset boundary.
- What is being **proposed**, is the creation of an asset that reflects the right to use the climate regulating services of the atmosphere as part of specific production activities.
  - ▶ Governments issue EP implying that they are exercising ownership rights over the atmosphere and restricting/regulating its use.
  - ▶ The right to use the asset, as embodied in the EP provides a benefit to the economic owner, either in terms of being able to continue to operate or as a potential financial investment.
  - ▶ EP are marketable, can be readily sold and for which market prices can be established. They are designed to have a finite time period but will exist for longer than a year, the holder of the permit bears all the risks and rewards and they are transferable.
- **What type of macroeconomic assets are EP?**

# Emission Permits – Right to Use Assets

- Emissions permits differ from some other types of permits issued by Government such as casino permits or taxi permits.
  - These permits are issued in order to limit supply and in effect provide monopoly profits to the approved operators.
  - The primary purpose of emissions permits is not to limit the supply of goods or services, nor provide monopoly profits to the permit holder. EPs are intended to limit emissions and alter the behavior of firms to adopt environmental technologies and processes.
- According to the SNA (p 10.158), “the category other natural resources currently includes radio spectra. Given the increasing move to carry out environmental policy by means of market instruments, it may be that other natural resources will come to be recognized as economic assets. If so, this is the category to which they should be allocated.”
- One of the key differences in the case of the electromagnetic spectrum, fishing and other quotas is that in these cases, a natural resource is being used by an institutional unit to derive economic benefit (supply cell phone services, or catch fish), whereas in the case of emission permits the natural resource is not being directly exploited to provide economic benefit, but rather is being degraded by the activities being undertaken to provide economic benefit.

# Emission Permits – Right to Use Assets

- A new sub-category could be created to accommodate assets that involve the use of nature/ecosystems such as wetlands, forest etc. Contract, Licenses, Permits and Right to Use Natural Assets.

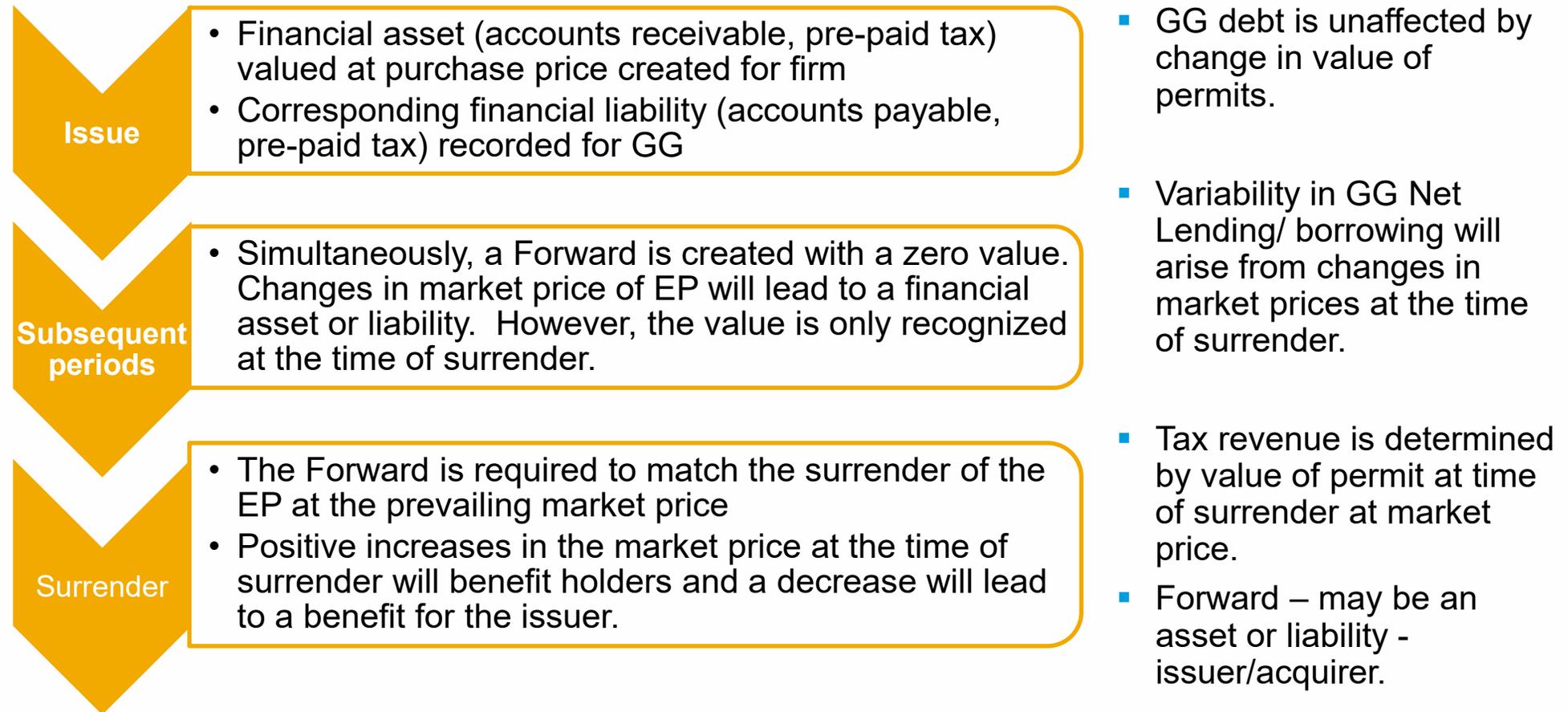


# Emission Permits – Resource Lease

- The notion of a right to use assets as mentioned above presupposes that the use of the atmosphere (as a CO<sub>2</sub> sink) is restricted to a one-off application and does not take into consideration two key elements - time or quantity.
- The issuance of permits could be considered as a pre-paid resource rent, where the payment grants the acquirer with the right to emit a pre-specified quantity of CO<sub>2</sub> sometime in the future.
- To bridge the difference between the issue price with the price at the time the permit is surrendered, one way to account for the change in price of EP is through the introduction of a Forward.

# Recognition – Resource Rent – Prepaid rent approach

Payments for EP → taxes on production, recorded on an accrual basis (at time of emission)



# Options for Way Forward

- Continue with Split Approach endorsed by ISWGNA but modify to:
  - Ensure that NPNFA do not go negative.
  - Alternative treatment for permits purchased for other than emission objectives and by non-residents.
- Recognize the atmosphere as an asset that reflects the right to use the climate regulating services of the atmosphere as part of specific production activities – new category.
- Extend the asset boundary to include the atmosphere and treat permits as a resource lease – rent approach.

# “Testing” Guidance

**As part of the SNA update process, we would like to test the proposed recommendation to see if it can be consistently implemented across countries. Notably we are interested in determining”**

- Data required for compilation: issue price of permits, market price of permits, issue countries, purchasers, sectors.
- International comparability in the treatment.
- Consistency with other sections of the SNA, BPM and the GFSM.

**Thank You!**

**Questions/Comments/Suggestions?**