

## STEP 2 FRAMING CERTIFICATION SYSTEMS

### Outputs

- ⇒ Assessment the status of EPP development
- ⇒ Selection of Eco-point valuation approach
- ⇒ Selection of methods of carbon emission calculation
- ⇒ Selection of methods of carbon pricing
- ⇒ Economic value of eco-point
- ⇒ Selection of Eco-point Issuance Process

### Resources

needed for Step 2 include goals of EPP program either direct or indirect goal, the status of EPP development of country, goods and services sectors to be implemented, and carbon emission records for chosen goods and services.

### Activities

Step 2 consists of three main activities:

- ⇒ Setting Labelling System
- ⇒ Developing Eco-point valuation system which counts on the chosen goal
- ⇒ Designing Issuance of Certification process which will be depending on readiness of each APEC member economy.

### EPP Principles

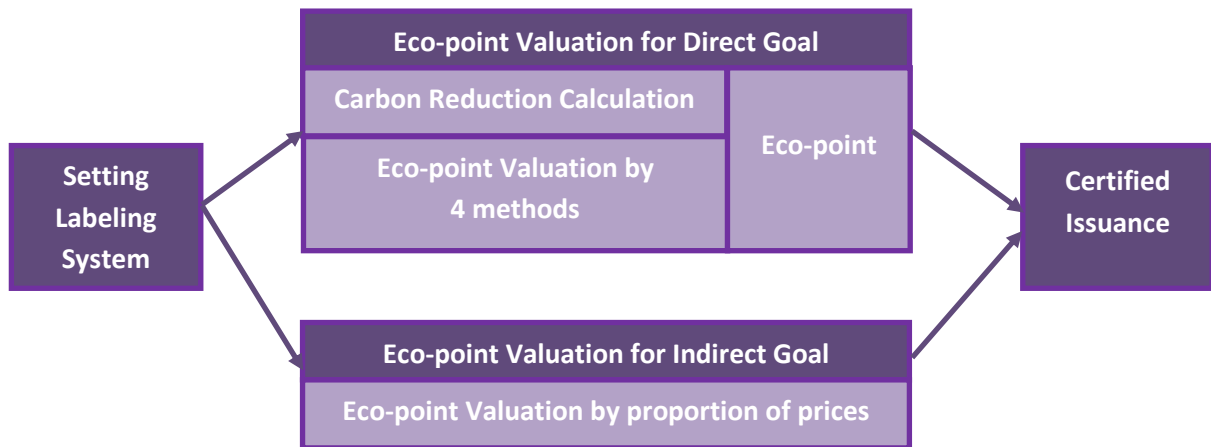
The EPP principles to be considered:

- **Applicability**
  - ⇒ Implementing EPP in reality should take applicability into account. The guideline provides a framework of labeling and an implementation process that can be easily adapted into a real practice by APEC member economies.
- **Validity**
  - ⇒ The calculation of carbon reduction and its pricing methods are based on scientific ground as much as possible.
- **Communicability**
  - ⇒ Communicability to consumers is a major concern when establishing eco-point.

To design the framing certification system of EPP, the EPP office should be already determined the goods and service sector to be implemented in EPP and goal of implementing EPP (**Section 1.1 Setting Goals and Section 1.2 Defining Scope and Boundaries in Step 1 Mapping**). For indirect goal which aims to promote the consumption of eco-goods and services, the implementation of EPP may not be complicated. But for direct goal, it requires further steps of calculating CO<sub>2</sub> reduction and valuing CO<sub>2</sub> price. Before starting this step, EPP office including EPP administrative committee and EPP technical committee, should be formed (**Section 1.4 Designing Organization Structure in Step 1 Mapping**). The EPP technical committee plays a major role in this framing certification system. Before setting the certification system, the EPP office should clearly define goals of EPP which should be in line with their country initial requirements for EPP implementation. Things that have to bear in mind are:

- **Goal:** This information should be the results previously specified by the mapping step. Before selecting either **Direct Goal** or **Indirect Goal**, EPP office needs to explore the constraints of their own country in implementing EPP. These constraints are for instance, the types of eco-labels currently available for each good or service, previous records of CO<sub>2</sub> emission and etc.
- **Goods and services Sector:** The EPP office should decide which sector (consumer goods, households, transportation or tourist accommodation services) to implement EPP. In selecting sectors, the developer may either choose the sector that can reduce the highest amount of CO<sub>2</sub> emission or choose the sector that has abundance of goods or services qualified to join EPP or choose the sector which may be easy for EPP to carry out.
- **The current status of eco-labeling in the market:** The EPP office should explore the current status of eco-labeling of goods and services in their local market. This is to check the status of eco-label and the status of EPP development which can be classified into 3 statuses: A) no eco-label, B) have the eco-label without eco-point, and C) have the eco-label with eco-point.

Therefore, in this step (framing certification system) is divided into three sections; setting labeling system, developing eco-point valuation system and certified issuance. In the develop eco-points valuation system section, it will consist of two sub-sections that will provide concepts for calculation of carbon reduction and valuation which will only provide the theoretical principles. The EPP office might need to adjust their own certification system in order to practically suit their context. The structure of this section is shown as following.








**Figure 2.1:** the structure of framing certification system.

## 2.1. Setting Labelling System


Firstly, the goods and services sectors need to be considered in the scope of EPP implementation. As previously mentioned in **Step 1**, four sectors of goods and services; consumer goods, household, transport, and tourist accommodation, will be the initial targets of this EPP guideline.

To ensure that the EPP will achieve the goals regardless **Direct** or **Indirect Goal**, the eco-labeling is an essential part of the EPP system. The voluntary eco-label certifications are compulsory tools to judge whether goods or services are environmentally friendly. At present, there are many types of environmental labeling existing in each country. These labels can be more or less reliable, and more or less accurate. Different labels also mandate different levels of environmental performance. To navigate the complicated of these labeling issues, this EPP guideline recommends that all types of eco-labels according to ISO definition are able to participate in EPP. For the purposes of this EPP guideline, it will preliminary distinguish available eco-labels in APEC economy members to be conformed to either the **Direct Goal** or the **Indirect Goal**. Therefore, eco-labels will be distinguished by the environmental performance or carbon reduction performance. **Table 2.1** shows guideline of EPP implementation according to goal and status of EPP development.

**Table 2.1:** Guideline of EPP implementation according to status of EPP development

Status of EPP development	Types of Eco-label	Direct Goal	Indirect Goal
TYPE A (No label)	No-Eco-label	 Need to develop eco-label	 Need to develop eco-label
TYPE B (Eco-label without eco-point) TYPE C (Eco-label with Eco-point)	Type I (Environmental Labeling)	 Need to calculate CO <sub>2</sub> emission reduction (See <b>Section 2.1.1</b> )	
	Type II (Self-declaration claims)		
	Type III (Environmental declaration)		
	Type III with Carbon Footprint Label		
	Type III with Carbon Reduction Label	 Can be implemented immediately	

Remark:  means inapplicable
































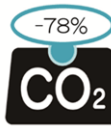







 means applicable

The above table matches the goal, current eco-labels and status of EPP development which can be classified into three statuses: A No eco-label, B Eco-labels without eco-point and C Eco-labels with eco-point system. For APEC member economies that do not have any eco-labels or status A, it is highly recommended to systematically develop eco-labels. This is because without eco-labels, there will be no tools to judge what goods and services are environmentally friendly. The aims of developing eco-label are dependent on direct or indirect goals. If indirect goal is chosen, any types of eco-labels are qualified, but the simple eco-label is suggested to be the first to set up. If the direct goal is chosen, the eco-label establishment should be aiming high at Carbon Reduction label. However, this guideline will not expose to the topic of how to set up eco-labelling because it depends on the level of preparedness of each individual country. The majority of the eco-labels used by many Asian products or services, are international eco-labels, thus international eco-labels can be a good source for unready APEC member economies to follow.

For the purpose of indirect goal which at least aims at stimulating the consumption of eco-goods and services, any types of eco-label are eligible for EPP. However it will require further steps to calculate the amount of CO<sub>2</sub> reduction for all types of eco-label joining EPP, except for carbon reduction labels. Carbon reduction calculation is provided in the **Section** For APEC member economies that already have carbon reduction label, direct goal EPP can

be immediately implemented with uncomplicated carbon reduction calculation. This guideline provides some examples of eco-labels for consumer goods found in APEC economy members as shown in **Table 2.2**.

**Table 2.2:** Examples of eco-label found in APEC economy members

Categories	Eco-labels
Eco-label Type I (Resource Scarcity)	  
Eco-label Type I (Environmental Degradation)	              
Eco-Label Type II (Self-Declared Environmental Claims)	      
Eco-label Type III Climate Change (Carbon Footprint label)	     
Eco-label Type III Climate Change (Carbon Reduction Label)	    
Eco-label Type III Climate Change (Single Product line of Criteria)	  

Remarks: The Eco-label classified followed by ISO 14024 (Type I), ISO 14021 (Type II) and ISO 14025 (Type III). The description of each is explained in **Table 1.4 Step 1 Mapping**

### **2.1.1 Direct Goal**

For APEC member economies who wish to implement EPP for direct goal of achieving CO<sub>2</sub> emission reduction, any type of eco-labels can participate in the EPP if these eco-labels can be related to the amount of CO<sub>2</sub> emission.

1) Consumer Goods Sector: Since there might be abundant eco-labels existing in one country, EPP technical committee might choose the labels that can directly relate to CO<sub>2</sub> emission calculation to participate in the EPP. Further details of CO<sub>2</sub> emission calculation are briefly provided in **Section 2.1.1**, and examples of calculation are also provided in the appendix.

2) Households: Unlike consumer goods sector, for household sector, EPP will trace back the reduction of consumption of utility usage such as electricity, water and gas. Eco-labels in this case might have been given to service providers, not the service itself. Thus eco-label for this sector may not be necessary. The reduction of utility consumption such as electricity can directly relate to the amount of CO<sub>2</sub> emission. See further details of CO<sub>2</sub> emission and calculation in **Section 2.1.1** and **Appendix B**.

3) Transportation: Nowadays, there are many eco-cars with low CO<sub>2</sub> emission and electric vehicles available for consumers to choose, but this may be the further extended aims of EPP in transport sector. The primary aim of EPP in transport is to encourage users to switch modes of traveling from private cars to public transport, because public transport is a more environmentally friendly way of travelling. See further details and calculation of CO<sub>2</sub> reduction calculation in **Section 2.1.1** and **Appendix B**.

4) Tourist Accommodation Services: The aim is to promote travelers to choose eco-friendly accommodation. At present, the numbers of eco-label concerning CO<sub>2</sub> emission for tourist accommodation might still be minimal. A well-recognized Eco-label for tourist accommodation is the EU Eco-label. However, there are other types of certified tourist accommodation services concerning different aspects of environmental performances. It is the role of EPP technical committee to decide the environmental labels that will be able to join the EPP; it will be so if they can relate to calculation of CO<sub>2</sub> emission.

### **2.1.2 Indirect Goal**

Any types of eco-labels can participate in the EPP for indirect goal of stimulating eco-goods and services consumption. Since there might be a limitation of CO<sub>2</sub> emission records, the calculation of CO<sub>2</sub> emission reduction may not be required to be measured for indirect goal. The increase of eco-goods and services consumption will indirectly affect the reduction of CO<sub>2</sub> emission.

1) Consumer Goods: To apply indirect goal EPP, at least simple eco-label concerning any environmental performance is a must. Eco-label is the minimum criterion that will be used to classify which goods and services are qualified for EPP. Eco-labels may not necessarily reach the carbon footprint or carbon reduction label.

2) Household: For the APEC member economies that may not have eco-label systems yet, it is suggested the EPP program to be implemented in household sectors. For example, EPP policy maker can immediately implement “household energy saving EPP” which is aiming firstly to reduce energy consumption in household’s sector and also to reduce CO<sub>2</sub> emission as a secondary objective. To implement this it requires only previous records of water and electricity bills as well as the cooperation of water and electricity service providers.

3) Transportation: The aim of indirect goal is also to switch modes of traveling from private car to public transportation. So, if the percentage of travelers using public transport is increasing in comparison to before implementing EPP, then this goal is achieved. Other modes of transportation such as bicycling, using electric vehicles and using bio-diesel may be a second stage of EPP implementation.

4) Tourist Accommodation Services: To apply EPP in tourist accommodation sector, eco-label or any environmental-friendly claim is a minimal requirement to select accommodation services into EPP program.

## 2.2. Developing Eco-points Valuation System

After selecting goods and services sectors to be implemented by the EPP, EPP technical committee is required to contemplate technical issues of eco-point. Next step is to determine appropriate economic value of eco-point. This section suggests current methods of quantifying the amount of CO<sub>2</sub> reduction and monetary value of CO<sub>2</sub>. These suggested methods are depending on the selected EPP goal, which can be either **Direct** or **Indirect Goal**.

Two main questions should be taken into consideration;

- 1) What are the requirements for awarding an eco-point?
- 2) How much should an eco-point be?

Due to the fact that EPP will be implemented widely to the public, the concept of eco-point should be easy to communicate and understandable by consumers. This EPP guideline suggests that the easiest way is by setting an eco-point equal to one small but appropriate monetary unit of each country.

1 eco-point = 1 appropriate monetary unit of each country

By considering the eco-points given to each good or service purchased by consumer, this guideline proposes two methods in accordance with the selection of either **Direct Goal** (Carbon emission reduction) or **Indirect Goal** (Carbon emission reduction by stimulation of low carbon consumption). Brief concepts of these two methods are as following:

- **Direct Goal:** There are many methods to determine the eco-point of goods or services in relation to the amount of carbon reduction. An initial step of this method is to calculate the amount of carbon reduction of the specified goods or services, and then convert the amount of reduction into an eco-point.
- **Indirect Goal:** The proposed method of awarding eco-point will determine the eco-point of goods or services as a proportion of their sale prices (this method has been used in both Japan and Korea). The proportion of eco-point awarding can vary from 1-10% of goods or services price, however extra eco-points can be voluntarily given by business owners.

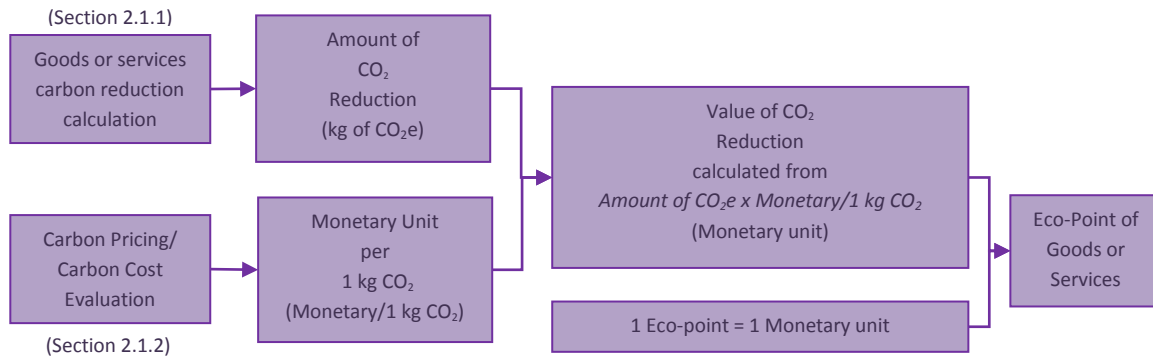
### 2.2.1 Valuating Eco-points for Direct Goal

The ambitious goal of EPP mechanism is reducing carbon emission. It is suitable for the APEC member economies that have well-established eco-labels or plan to develop carbon reduction labels. Beside the short-term goal of increasing the consumption of eco-goods or services, the amount of CO<sub>2</sub> reduction can be assessed. This method will give the eco-point of goods or services in relation to the amount of carbon reduction from each good or service. The initial step is to calculate the amount of carbon reduction of the specified goods or services and then convert this reduction amount into the eco-point. Therefore, two components should be taken into account;

- 1) The amount of carbon reduction for specified goods or services, and
- 2) The carbon pricing (monetary value per 1 kg CO<sub>2</sub>e).

After calculating these two components, the EPP office can then evaluate the eco-point by calculating the value of CO<sub>2</sub> reduction (*component 1* multiply by *component 2*). The value of CO<sub>2</sub> reduction will be equivalent to an eco-point (1 monetary unit = 1 eco-point). The calculation steps of valuing eco-point are shown in **Figure 2.2**.





**Figure 2.2:** Steps of eco-point calculation with carbon reduction related method

All goods and services sectors that are qualified for EPP must have passed at least product standards and must have some kinds of eco-labels that can relate to carbon reduction calculation. The difficulties in this step are the calculation of the amount of CO<sub>2</sub> reduction for each good or service. The general concept is that the EPP office should create the label or linkage to the current eco-label with carbon emission calculation. The following provides roughly suggestion methods for valuation of eco-points in each sector.

1) Consumer goods: Generally, the consumer goods can be classified according to the type of eco-label into 5 types: (1) no eco-label, (2) have type I (environmental labeling). (3) Type II (Self-declaration claims), (4) Type III (Environmental declaration), (5) Type III with carbon footprint label and (6) Type III with carbon reduction label. The recommendation for linking each category with carbon reduction is as following:

- The consumer goods that have no eco-label. It is recommended that the business owners of these goods should have their products certified by recognized third party. The goals for these goods should be at best achieving Carbon Reduction label type.
- The consumer goods that only have eco-label Type I or Type II such as efficiency of using renewable, non-renewable resources, reduction of pollution in life cycle, and efficiency of reuse and recycle waste, but do not yet have carbon reduction label. It is the responsibility of EPP technical committee to set scenarios for comparing between conventional and green label goods. The benchmark method is recommended for this case to help calculate carbon reduction.
- The consumer goods that have carbon footprint label which only shows the current amount of carbon emission, the EPP technical committee should set the baseline (benchmark or base year) for the specified products and calculate the amount of carbon reduction.
- The consumer goods attached with carbon reduction label. This carbon reduction label shows the amount of carbon that can be reduced. The amount of reduction

can be directly calculated to the total volume of CO<sub>2</sub> reduction without any complication. In case that there aren't any numbers of carbon reduction shown on the label, to calculate carbon reduction, it will require further information from carbon reduction label certifiers or product owners.

2) Household Utility Services: This sector will focus on the reduction of households' energy or resources usage (water, electricity and gas) by measuring the average 6 months differences from accumulated previous 2-year usage and converting them to the amount of carbon emission reduction.

3) Transportation Services: This sector aims at switching mode of people' transportation from private car to public transport modes that produce less carbon emission. The calculation should compare the amount of carbon reduction by using mass transit system in comparison with using private car.

4) Tourist Accommodation Services: This sector is similar to the consumer goods. The recommendation is to find the linkage of eco-label or the other accommodation certified to the carbon reduction emission.

**Table 2.3** is the summary of concepts of eco-point valuation for Direct Goal. The technique of carbon reduction and valuation is provided in section 2.1.1 and 2.1.2 respectively.

**Table 2.3:** Summary of concept of eco-point valuation for Direct Goal

Sector	Concept	Eco-point Valuation	
Consumers Goods	- Link all existing eco-label to carbon emission reduction	1. No eco-labels	<ul style="list-style-type: none"> <li>- Should establish the eco-label that can relate to carbon emission reduction <b>(Section 1 and Section 2.1.1)</b></li> <li>- Carbon valuation <b>(Section 2.1.2 and Appendix C)</b></li> <li>- Calculation of eco-point <b>(Figure A)</b></li> </ul>
		2. Eco-label Type I and Type II	<ul style="list-style-type: none"> <li>- Create Carbon emission Relationship</li> <li>- Create carbon baseline</li> <li>- Carbon reduction calculation <b>(Section 2.1.1 and Appendix B)</b></li> <li>- Carbon valuation <b>(Section 2.1.2 and Appendix C)</b></li> <li>- Calculation of eco-point <b>(Figure A)</b></li> </ul>
		3. Eco-label Type III (Carbon Footprint label)	<ul style="list-style-type: none"> <li>- Create carbon baseline</li> <li>- Carbon reduction calculation <b>(Section 2.1.1 and Appendix B)</b></li> <li>- Carbon valuation</li> </ul>

Sector	Concept	Eco-point Valuation	
Households Utility Services	- To increase consumer awareness of energy/ resources usage efficiency and convert them to carbon reduction	4. Eco-label (Carbon reduction label)	<ul style="list-style-type: none"> <li>- (Section 2.1.2 and Appendix C)</li> <li>- Calculation of eco-point (Figure A)</li> <li>- Carbon valuation (Section 2.1.1 and Appendix B)</li> <li>- Calculation of eco-point (Figure A)</li> <li>- Create carbon baseline</li> <li>- Carbon reduction calculation (Section 2.1.1 and Appendix B)</li> <li>- Carbon valuation (Section 2.1.2 and Appendix C)</li> <li>- Calculation of eco-point (Figure A)</li> </ul>
Transportation Services	- To stimulate the switching usage from private car to alternative transportation that emits less carbon.	Public Mass transit <ul style="list-style-type: none"> <li>- All kind of Train</li> <li>- Buses</li> </ul>	<ul style="list-style-type: none"> <li>- Create carbon baseline</li> <li>- Carbon reduction calculation (Section 2.1.1 and Appendix B)</li> <li>- Carbon valuation (Section 2.1.2 and Appendix C)</li> <li>- Calculation of eco-point (Figure A)</li> </ul>
Tourist Accommodation Services	- Link the existing eco-label to carbon emission reduction	Any kind of eco-label for Tourism and accommodation.	<ul style="list-style-type: none"> <li>- Create carbon baseline</li> <li>- Carbon reduction calculation (Section 2.1.1 and Appendix B)</li> <li>- Carbon valuation (Section 2.1.2 and Appendix C)</li> <li>- Calculation of eco-point (Figure A)</li> </ul>

### 2.2.1.1 Carbon Reduction Calculation

As reported in ISO 14064-1:2006, there are 3 methods for quantifying carbon emissions. These yield accurate, consistent and reproducible results and consisted of calculation based, measurement, and last, a combination of measurement and calculation. Greenhouse gas protocol (2004), however, stated that a measurement method by monitoring concentration and flow is not common. Calculations based on a mass balance or stoichiometric basis specific to a facility or process is common and the most typical approach is calculation using emission factors. The latter approach, therefore, will be applied for the assessment of carbon reduction, by using the difference between carbon at baseline and carbon at current time, as shown in the following equation:

$$\text{Carbon}_{\text{reduction}} = \text{Carbon}_{\text{baseline}} - \text{Carbon}_{\text{current}}$$

For the calculation of the carbon baseline, there are 2 methods for assessment, i.e., benchmark and base year methods. The former method has been fair for everyone who has spent their life in a low carbon manner. The establishment of benchmark, nevertheless, needs much data, time and expenses. The eco-point program (EPP) offices have to be appointed for setting benchmark equitably. The latter is less complex and immediately implemented. (technical explanation can also be found in **Appendix B**)

For establishment of base year, criteria of ISO 14064-1:2006 can be adapted. These are representative of activities, which are verifiable, explainable and consistent with current data.

Calculation of GHG is performed by multiplying the activity data (AD) by the emission factors (EF), as shown in the following equation;

$$\text{Carbon emission} = \text{AD} \times \text{EF}$$

The calculation of carbon reduction is categorized according to 4 sectors; goods, household containing electricity and water as well as gas, transportation and tourist accommodation services. Details of calculation are shown below and tabulated in the **Table 2.4**.

**Table 2.4:** Summary of carbon reduction calculation

Sector			Calculation
Goods			Carbon Reduction = $(\text{CFP}_{\text{baseline}} - \text{CFP}_{\text{current}}) \times \text{amount of purchased product}$
Services	Households	Electricity	Carbon Reduction = $(\text{AD}_{\text{baseline}} - \text{AD}_{\text{current}}) \times \text{EF}_{\text{electricity production}}$
		Water	Carbon Reduction = $(\text{AD}_{\text{baseline}} - \text{AD}_{\text{current}}) \times \text{EF}_{\text{water Production}}$
		Gas (LPG)	Carbon Reduction = $(\text{AD}_{\text{baseline}} - \text{AD}_{\text{current}}) \times (\text{EF}_{\text{gas production}} + \text{EF}_{\text{gas combustion}})$
	Transportation		Carbon Reduction = $(\text{EF}_{\text{baseline}} + \text{EF}_{\text{current}}) \times \text{distance of travel}$
	Tourist Accommodation Services		Carbon Reduction = $(\text{CFP}_{\text{baseline}} - \text{CFP}_{\text{current}}) \times \text{amount of room-night}$

**Remarks:** \* Carbon<sub>baseline</sub> divided into Carbon<sub>benchmark</sub> and Carbon<sub>base year</sub>. For Carbon<sub>benchmark</sub>, the EPP office has to establish it.

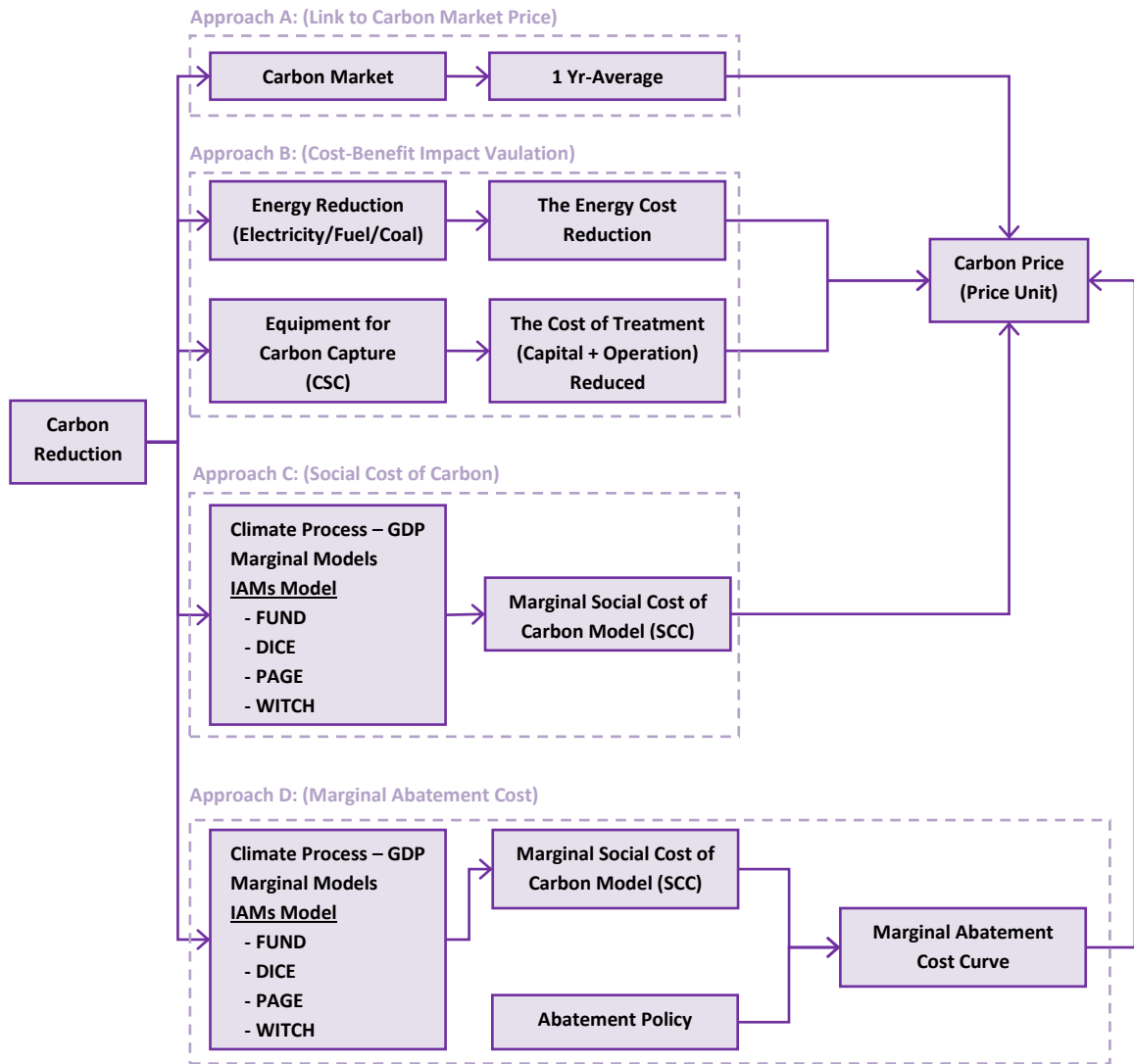
To calculate carbon reduction from goods and services, it requires the information from a third party certifier or the manufacturers. Details and examples of carbon calculation for each goods and services sector are presented in **Appendix B**.

### 2.2.1.2 Carbon Valuation

Keeping all the prior eco-point certification steps in mind, this sector explores the estimated effective carbon prices used by different countries. Carbon price is the amount that must be paid for the emission of 1 ton of carbon dioxide into the atmosphere either through a tax or through the market price set by an emission trading system. Carbon pricing can be valued as “direct” carbon pricing and other “social cost” that attempts to put a price on damages arising from climate change. There are a number of acceptable methods of carbon pricing, but this guideline presents four methods of pricing carbon with numerous pros and cons which can be found in the **Appendix C**:

Approach A	Valuing by considering existing Carbon Market
Approach B	Valuing by considering cost-benefit impact valuation
Approach C	Valuing by considering Social Cost of Carbon (SCC)
Approach D	Valuing by considering Marginal Abatement Cost (MAC)

Since there are several methods of carbon pricing, it is the decision of EPP office or EPP technical committee to consider the method to be used, the positive and negative impacts of the chosen method, whether to use the same method across different goods and services sectors and finally the EPP office must decide the most appropriate price of carbon. The selection of carbon pricing method might depend on circumstances, availability of data, and constraints of each country. Getting the right carbon price will be a fundamental part of a successful EPP implementation.



**Figure 2.3:** Steps of eco-point calculation with carbon reduction related method

- Approach A will use carbon price referred to market prices per ton of carbon in the traded sectors, such as the EU Emissions Trading Scheme. This approach is not complicated and may be suitable in the case of insufficient data for pricing calculation. The major con of this approach is that the carbon price in the trading market is highly fluctuated. Thus, it is a warning to EPP office to carefully consider a constant carbon price for a specific time of EPP implementation.
- Approach B will take into account the impact of CO<sub>2</sub> on environment. The valuing of eco-point to monetary value may use cost-benefit valuing impact by using indirect market methods, i.e. trade-off and defensive expenditure.
- Approach C is called “social cost of carbon” (SCC) method. It comes from valuing the marginal cost of damages to society caused from a ton of additional carbon emissions, mainly focused on climate change and its effects, e.g. changes in net

agricultural productivity, human health, property damages from increased flood risk, and the value of ecosystem services. The SCC method is usually estimated as the net present value of the long-term climate impact, both positive and negative over next 100 years (or longer) of one additional unit of carbon emission today. To calculate carbon pricing by using the SCC method, it requires a simulation model and also experts in the field who are able to collect data and run complex computer modeling.

- Approach D is quite similar to Approach C in terms of climate process and the marginal cost of emitting an extra unit of carbon dioxide. The Marginal Abate Cost (MAC) method presents a different point of view. It reflects the cost of one unit of emission reduction to meet a specific emission target. The MAC approach includes reduction in economic activity, switching fuel sources, altering production process, and sequestering carbon in soil, trees, or ground. The MAC approach has been developed over the past twenty years for internal cooperates' carbon pricing. Similar to the SCC approach, the MAC approach also requires modeling by experts.

### 2.2.2 Valuating Eco-points for Indirect Goal

The **Indirect Goal** is suitable for APEC member economies that might have some basic eco-labels but do not have carbon-reduction labels. The short-term target of this goal is to at least stimulate the consumption of eco-goods or services. In order to make the eco-point easy and understandable by consumers, an eco-point should be equivalent to one small monetary unit of each country.

$$\begin{aligned} \text{One Eco-points} &= \text{One appropriate monetary unit} \\ \text{Number of Eco-point} &= \text{Percentage of goods' and services' price} \end{aligned}$$

This method is valuating eco-point as the proportion of products' or services' prices which can vary from 1-10% of product price. This method is currently being used in Japan and Korea Eco-point scheme. However, the percentage given to eco-point can be higher than 10%, if there are willingly supports or subsidies offered by business owners. The example of manufacturers' willingness to give extra eco-points can be positively found in Korea. The eco-point awarding method for goods and services sectors can be summarized in the **Table 2.5**.

**Table 2.5:** Summary of concept of eco-point valuation methods for Indirect Goal

Sector	Objectives	Eco-points Valuation	
Consumer Goods	- To stimulate consumers using goods that have less environmental impact	- Any kind of eco-label	% of goods' or products' price
Households Utility Services	- To increase consumers awareness of energy/ resources usage efficiency	- Electricity usage reduction - Water usage reduction - Gas usage reduction (compared with reference)	% of utilities tariff
Transportation Services	- To stimulate the use of the transportation mode that consumes less energy	Public Mass transit - All kind of Train - Buses	% of ticket fee
Tourist Accommodation Services	- To stimulate the use of the accommodations that uses energy/ resources efficiently	- Any kind of eco-label for Tourism and accommodation.	% of rental rate

In goods sector, the eligible products that can join EPP should be at least certified by product standards and the eco-label agencies (environment label, carbon footprint label or carbon reduction label). The eco-point certification can be evaluated as the percentage of their price (similar to the marketing promotion). The percentage or proportion of eco-points awarded to consumers should be an agreement between three main stakeholders, i.e. EPP office, eco-label agency and business unit (producers/suppliers/distributors) to decide what percentages each party is willing to contribute.

In households sector, the main focus is on the efficient usage of energy or resources such as electricity, water or gas. The efficient usage of energy or resources can be directly measured from the reduction amount. Since the amount of usage may vary due to the seasonal change or other factors, the measurement of usage reduction should be long enough to eliminate the effect of external factors. For example, Korea is using the % reduction of six-month average of usage compared with a reference value.

In transport sector, the main aim is to switch mode of people' transportation from private car to public transport modes that consume less energy. The eco-point will be awarded only to people who use mass transit system such as train, trams, buses or other public transport modes. Eco-points will be given to public transport users by the percentage of ticket fares.

To encourage tourists to use environmentally-friendly accommodation, eco-point should be given to tourists who choose to stay at eco-friendly accommodation as a proportion of the room rate.



The example of this proportional method applied in Japan and Korea are shown in **Box (2.1)**

### Box (2.1): Valuing by proportion of production prices

The existing EPP for consumer products (Korea) and home appliances (Japan) are calculated based on the proportion of product price. For transportation sector, the eco-point is calculated based on the cost of fare (approximately at 10%). For households sector, consumption of three basic household usages (electricity, water supply and gas) is a major consideration of eco-point awarding. The point is calculated from percentage of usage reduction compared with previous usage records.

#### Home appliance sector: Japan Case

Consumers who purchase approved home appliances over the “Four-Star” level certified under the “Unified Energy Conservation Label” could apply for Eco-Points worth 5 to 10 percent of the product’s value. Each Eco-Point was worth JPY 1. Eco-points are rewarded according to appliance’s capacity as shown in the table below.

Air Conditioning		Refrigerator		Television	
Capacity	Eco-point	Capacity	Eco-point	Capacity	Eco-point
3.6 kW or more	9,000	> 501 liter	10,000	> 46V	36,000
2.8 kW -3.5 kW	7,000	401-500 liter	9,000	40V, 42V	23,000
< 2.2 kW	6,000	251-400 liter	6,000	27V	17,000
		< 250 liter	3,000	< 26V	7,000

#### Household sector: Korea Case

Carbon Point Program: For carbon point program, households can earn points by reduction in water, electricity and gas consumption for 6 months compared to a reference set by the average of the previous two years under incentive criteria in Table 6. A household can reach up to 70,000 points (1 point = 1 KRW), approximately € 50 per year. The following table shows Criteria for Carbon Point System Incentive.

Item	Annual Greenhouse Gas Reduction Rate	
	Below 5-10%	Greater that 10%
Electricity	20,000 KRW	40,000 KRW
Water	5,000 KRW	10,000 KRW
Gas	10,000 KRW	20,000 KRW

#### Consumer Product Sector: Korea Case

Green purchasing points: When purchasing green products certified with eco-labels, such as Korea Eco-Label and Carbon Label, via green credit card, green points can be collected and redeemed. The points will have different monetary values depending on the product price (equivalent to 1-5% of the product price).

#### Transportation Sector: Korea Case

Public transport program: Eco-points are given to passengers with green credit card using intermodal public transport. The point values depend on the amount of card payment, which vary from 10% (20,000 - 1,000,000 KRW) to 20% (1,000,000 KRW). The maximum points are 10,000 points.

This method is not complicated and easy to be implemented to all sectors: households, goods & products, transports and accommodation services. However, the controversies of this approach are that there are no-relation to carbon reduction and its real economic cost of reduction.

### 2.3. Issuance of Certification

To set the certified issuance system, it is necessary to identify relevant stakeholders. In general, stakeholders who are involved in certification system can be broadly classified into business owner, EPP office and existing eco-label agencies. Their roles and responsibilities are:

- The business owners may comprise suppliers, producers, distributors, retailers, services providers or those who has the roles of supplying goods and services in the markets. These business owners, who are interested in participating in EPP, need to have their goods and services certified by eco-label agencies and qualified by EPP office. Besides, they should be involved in the process of eco-point calculation because it is their decision to provide extra eco-points for their products in order to attract more consumers. If **Indirect Goal** is implemented, these business owners in hand with eco-label certifier might need to provide the data of carbon emission of their goods or services. The superb scenario is that these business owners might be willing to subsidize in funding and redeeming part.
- EPP office is mainly composed of 2 sub-committees; technical and administrative committees. Framing certification systems is another important role of the technical committee. Technical committee is a jointed committee that may consist of representatives from governmental agencies, business units, experts in climate change field and existing eco-label agencies or those who have a role for certifying goods and services in general market. While administrative committee will take part in designing operation procedures for applying, rewarding and redeeming.
- Existing eco-label agencies are third party certifiers at local or national levels. These certifiers should be a part of the technical committee since they should have data of goods and services regarding environmental performances of products such as carbon emission, base year data, etc.

These stakeholders have an important role in setting the EPP certification system, criteria and procedure. General issues that should be regularly discussed in EPP technical committee meeting are:

- Scope of goods and services to be implemented by EPP
- Structure, roles and responsibilities of technical committee
- Explore existing eco-labels and select eco-labels to be qualified for EPP
- Decide to use existing eco-labels or create a new label specifically for EPP
- Method of CO<sub>2</sub> emission calculation

- Method for evaluating the eco-point (the example of method will be provided in the **Section 2.1**), etc.

These issues require cooperation of various related stakeholders and also intensive discussion.

After that, EPP office should establish the registration process and application form. The business owners, who are interested to join the EPP program, should submit the application form to EPP office. Then, the EPP office will check the minimum requirements and qualify the products. Then EPP office will work hand in hand with business owners to estimate the eco-point and award the point (certified) to the evaluated product. Therefore, the certification process comprise of 4 steps:

1. Business owner submits the application form

The EPP office should prepare application form and instruction for the business owner in either hardcopy version or online-IT system. The application form should help the EPP office to gather all basic information of products and technical requirements such as the carbon emission data for the Direct Goal. This information will be used to assess whether the applied goods or services are qualified for certification.

2. EPP Office checks the minimum requirements of the products

The EPP office should examine the technical data of goods or services whether it conforms to goods or services standards and eco-label requirements. Then EPP office will decide whether the product is qualified for EPP.

3. EPP Office estimates the appropriate eco-point for the products

After checking the minimum requirement, EPP office should evaluate the appropriate eco-point for products (the detail of eco-point evaluation for Direct and Indirect Goal for each type of product is provided in **Section 2 Develop Eco-points Valuation System**). However, the eco-points awarded to consumers can be extra contributed from business owner up on their agreement.

4. EPP office awards (certifies) the eco-point to the products

The program operator has to set the certification and also point calculation system for EPP. Once the goods or services are certified, the eco-point can be attached on the qualified goods or services. The business owner's right to use the Eco-points is conditional upon its fulfillment of the terms or the contract, which will be valid for a certain period, or until the criteria for the status are re-evaluated.

After the products are certified by EPP office, the number of eco-point for each product can be attached on to product in the form of sticker. This method of attaching

sticker has to be done by the product's owner. Or the eco-point can be a separated promotional paper attached to the shelf where the product is displayed. So the customers can notice the product's eco-point. This promotional paper can be supplied by business owner.

**Table 2.6:** Direct Carbon Emission Reduction

Sector	Applicant	Certifier	Procedure
Consumer Goods	Business owner (Supplier/Producer)	EPP Office	<ol style="list-style-type: none"> <li>1. Business owner (who has eco-label) apply for certification</li> <li>2. EPP office cooperates with Existing eco-label agency</li> <li>3. EPP office calculation point (Section 2.1 eco- point valuation for Direct Goal)</li> <li>4. EPP office certifies eco- point to goods</li> </ol>
Households Utility Services	Authority/Business owner who provides the electricity/water supply or other services	EPP Office	<ol style="list-style-type: none"> <li>1. Business owner applies for certification</li> <li>2. EPP office calculation point (Section 2.1 eco- point valuation for Direct Goal)</li> <li>3. EPP office certifies eco- point to services</li> </ol>
Transportation Services	Authority/Business owner who provides the electricity/water supply or other services	EPP Office	<ol style="list-style-type: none"> <li>1. Business owner (who has eco-label) apply for certification</li> <li>2. EPP office calculation point (Section 2.1 eco- point valuation for Direct Goal)</li> <li>3. EPP office certifies eco- point to services</li> </ol>
Tourist Accommodation Services	Business owner (Hotel owners)	EPP Office	<ol style="list-style-type: none"> <li>1. Business owner (who has eco-label) apply for certification</li> <li>2. EPP office cooperates with Existing eco-label agency</li> <li>3. EPP office calculation point (Section 2.1 eco- point valuation for Direct Goal)</li> <li>4. EPP office certifies eco- point to services</li> </ol>

**Table 2.7:** Indirect carbon emission related

Sector	Applicant	Certifier	Minimum Procedure
Consumer Goods	Business owner (Supplier/Producer)	EPP Office	<ol style="list-style-type: none"> <li>1. Business owner (who has eco-label) apply for certification</li> <li>2. EPP office cooperates with Existing eco-label agency</li> <li>3. EPP office calculation point (Section 2.2 eco- point valuation for Indirect Goal)</li> <li>4. EPP office certify eco- point to goods</li> </ol>
Households Utility Services	Authority/Business owner who provide the electricity/water supply or other services	EPP Office	<ol style="list-style-type: none"> <li>1. Business owner apply for certification</li> <li>2. EPP office calculation point (Section 2.2 eco- point valuation for Indirect Goal)</li> <li>3. EPP office certify eco- point to services</li> </ol>
Transportation Services	Authority/Business owner who provide the electricity/water supply or other services	EPP Office	<ol style="list-style-type: none"> <li>1. Business owner (who having eco-label) apply for certification</li> <li>2. EPP office calculation point (Section 2.2 eco- point valuation for Indirect Goal)</li> <li>3. EPP office certify eco- point to services</li> </ol>
Tourist Accommodation Services	Business owner (Hotel owners)	EPP Office	<ol style="list-style-type: none"> <li>1. Business owner (who having eco-label) apply for certification</li> <li>2. EPP office cooperate with Existing eco-label agency</li> <li>3. EPP office calculation point (Section 2.2 eco- point valuation Indirect Goal)</li> <li>4. EPP office certify eco- point to services</li> </ol>