

## Main methodological aspects

The Energy Account is a satellite account which consists of a set of complete, coherent and integrated tables that describe in detail the interactions related to energy between both the economy and the environment, as well as between the sectors dedicated to production and consumption. For its elaboration, the main methodological references are: System of Environmental-Economic Accounting - Central Framework (SEEA-CF) (UN et al., 2016), System of Environmental-Economic Accounting - Energy (SEEA-Energy) (UN, 2019) and the International Recommendations for Energy Statistics (IRES) (UN, 2017).

The scope of the Energy Account of Costa Rica covers the flows in physical terms that are associated to the supply and use of energy products (PSUT-E). These are represented according to the economic or consumption activity associated with the respective flow. Economic activities are detailed according to the ISIC 4, and energy products are classified according to the Standard International Energy product Classification (SIEC) proposed in the IRES manual.

For the elaboration of the PSUT-E, the main source of information is the National Energy Balance elaborated by the Secretariat of Planning of the Energy Subsector (SEPSE by its acronym in Spanish). Both the account and the balances provide information on the supply and use of energy products; however, they have different conceptual and methodological characteristics that must be taken into account for a correct interpretation of the indicators (see Figure 1).

Other sources of information used to estimate the PSUT-E are the Supply and Use Tables (SUT) and the Balance of Payments elaborated by the Central Bank; the sales reports of the Costa Rican Oil Refinery (RECOPE by its acronym in Spanish) and the energy consumption surveys, prepared by SEPSE. However, as part of the active process of continuous improvement, new sources of information may emerge.

## Adjustments to basic information

According to the methodological guidelines, energy flows must be recorded following the residence principle. Under this principle, the PSUT-E covers transactions carried out by institutional units residing within and outside the national economic territory. The residence of each institutional unit is determined according to the territory with which it has the strongest relationship; in other words, its predominant center of economic interest (see Figure 2).

## Application: Carbon dioxide emissions (CO<sub>2</sub>)

The estimation of CO<sub>2</sub> emissions based on the PSUT-E is a practical application that allows to describe, from an economic approach, the different pressures that both economic activities and households exert on the environment by the use of energy products.

According to the SEEA-CF, the energy uses considered in the emissions included the flows of transformation and final use of energy related to the combustion of fossil fuels and renewable biofuels. For the calculation of the emissions, these uses are multiplied by the emission factor of each energy product. The resulting emissions are shown in gross terms; i.e. the emission reductions that activities can generate in an equivalent manner are not considered.

This estimation differs from the emissions inventory, which in Costa Rica is prepared by the National Meteorological Institute. The differences between the two instruments can be summarized in terms of focus and scope (see Figure 3).

Figure 1

Main characteristics of the instruments used for the representation of energy flows













ENERGY BALANCE		ENERGY ACCOUNT
Secretariat of Planning of the Energy Subsector 	<b>Entity in charge of its elaboration</b>	 Central Bank of Costa Rica
Latin American Energy Organization (OLADE) 	<b>Methodology</b>	 System of Environmental-Economic Accounting Central Framework
Only covers the national territory. 	<b>Geographic coverage</b>	 Covers transactions between residents and non-residents inside and outside the national territory.
Assigned according to the means of transport used: land, sea or air. 	<b>Energy use in transport</b>	 Distributed between all economic and consumption activities.
Detailed description of the energy sector, including the technologies used. 	<b>Scope of the energy sector</b>	 The energy sector is included in the specific ISIC category. There is no breakdown by technologies.
Includes the consumption of energy products by economic activities and households. 	<b>Definition of final consumption</b>	 Refers only to the energy use by households.



Figure 2

Territory versus residence principle in energy statistics

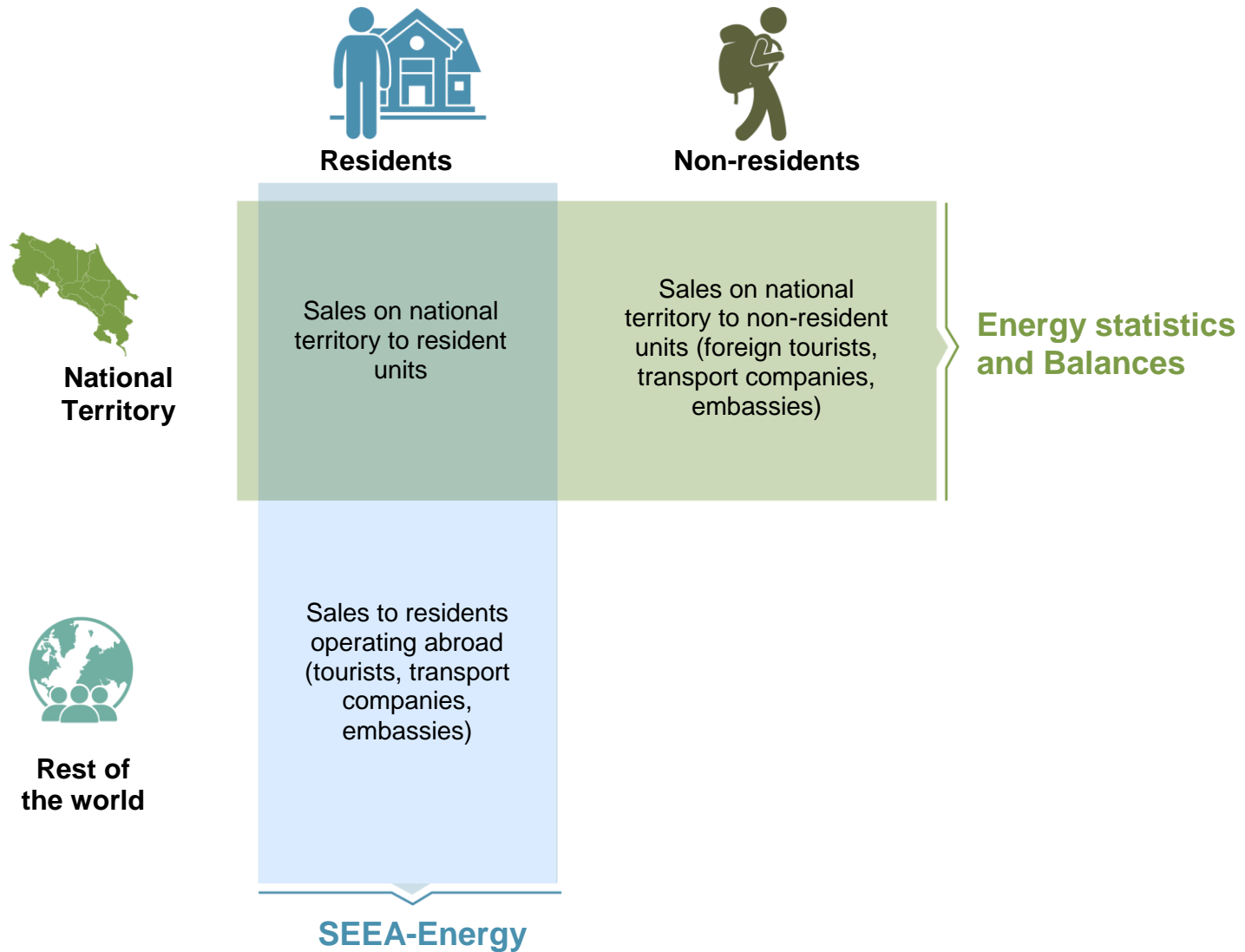
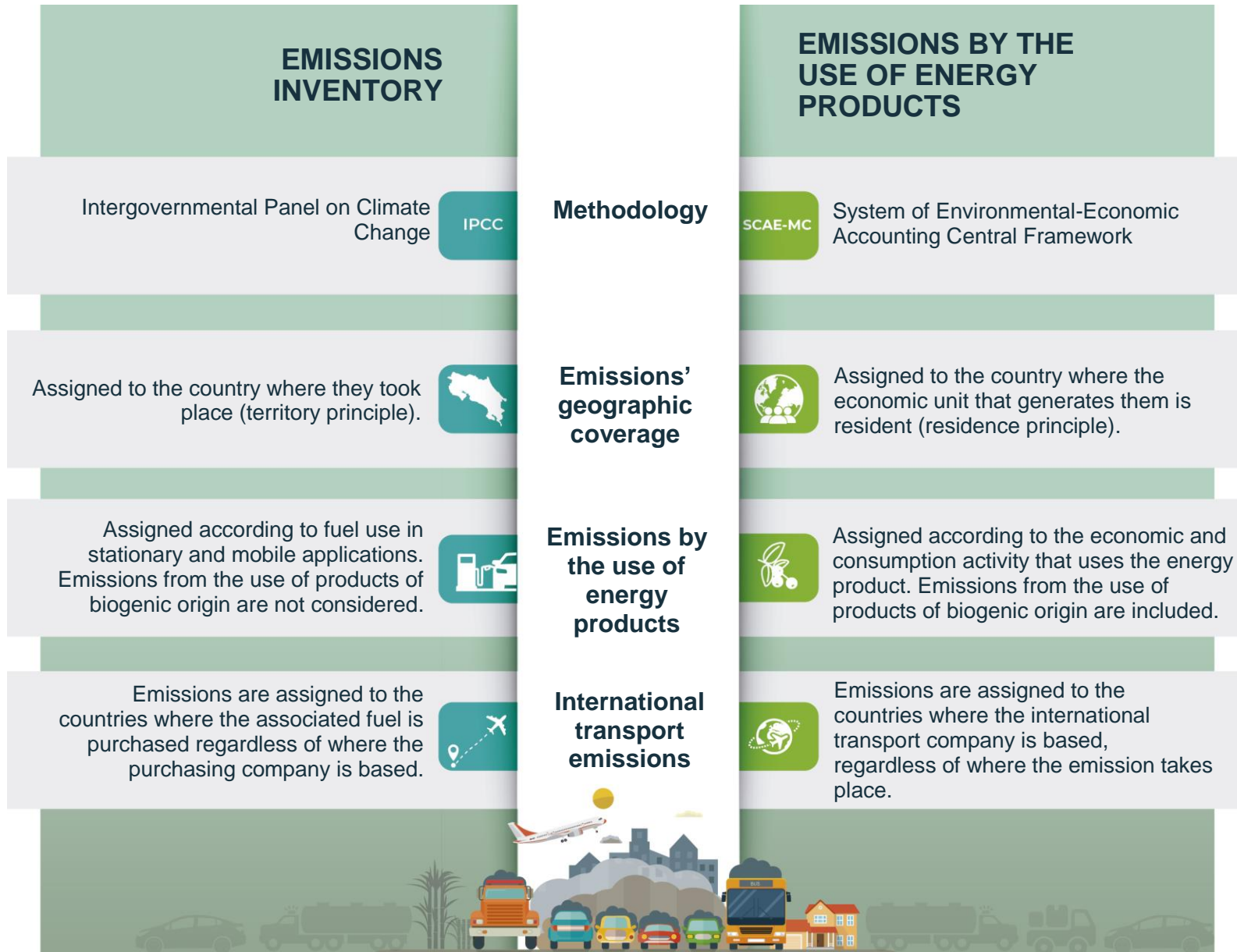


Figure 3

Differences between the Emissions Inventory and the emissions derived from the Energy Account



## References

- Acosta J, 2017. Método para la derivación de cuentas de energía a partir de balances energéticos. Curso introductorio a las cuentas de energía [*Method for derivation of energy accounts from energy balances. Introductory course on Energy Accounts*]. Dominican Republic, 2017. Available at <https://www.cepal.org/es/cursos/curso-introductorio-cuentas-energia> [Accessed June 28, 2018]
- Latin American Energy Organization (OLADE), 2011. Manual de Estadísticas Energéticas [*Energy Statistics Manual*]. Quito, Ecuador. Available at: <http://biblioteca.olade.org/opac-tmpl/Documentos/old0179.pdf>
- Secretariat of Planning of the Energy Subsector (SEPSE), 2019. Energy balances 2011-2016 [Documents shared by e-mail]. Available at <https://sepse.go.cr/ciena/balances-energeticos/>
- United Nations Organization (UN), European Commission, International Monetary Fund (IMF), Food and Agriculture Organization of the United Nations (FAO), Organization for Economic Cooperation and Development (OECD) & World Bank, 2014. Sistema de Contabilidad Ambiental y Económica 2012: Marco Central 2012 [*System of Environmental-Economic Accounting: Central Framework SEEA-CF*]. UN, New York, United States: UN. Available at: [https://unstats.un.org/unsd/envaccounting/seearev/CF\\_trans/SEEA\\_CF\\_Final\\_sp.pdf](https://unstats.un.org/unsd/envaccounting/seearev/CF_trans/SEEA_CF_Final_sp.pdf)
- United Nations (UN), 2017. International Recommendations for Energy Statistics (IRES). New York, USA. Available at: <https://unstats.un.org/unsd/energy/ires/IRES-web.pdf>
- United Nations (UN), 2019. SEEA-Energy: System of Environmental-Economic Accounting for Energy. New York, USA. Available at: [https://seea.un.org/sites/seea.un.org/files/documents/seea-energy\\_final\\_web.pdf](https://seea.un.org/sites/seea.un.org/files/documents/seea-energy_final_web.pdf)