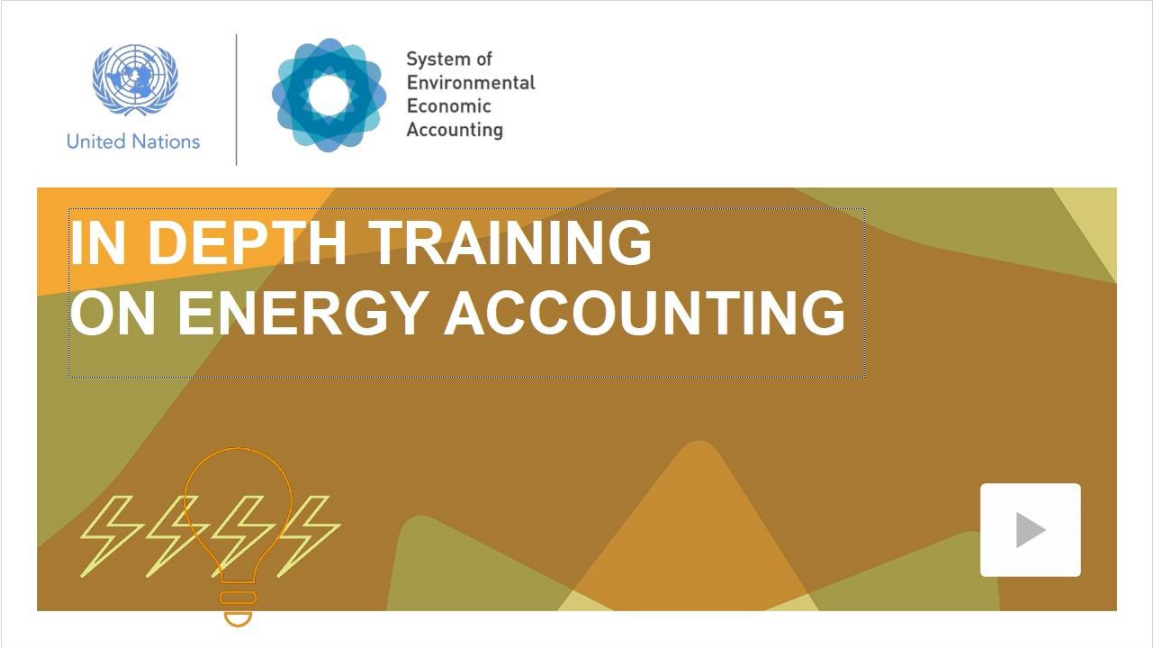
SEEA_Energy

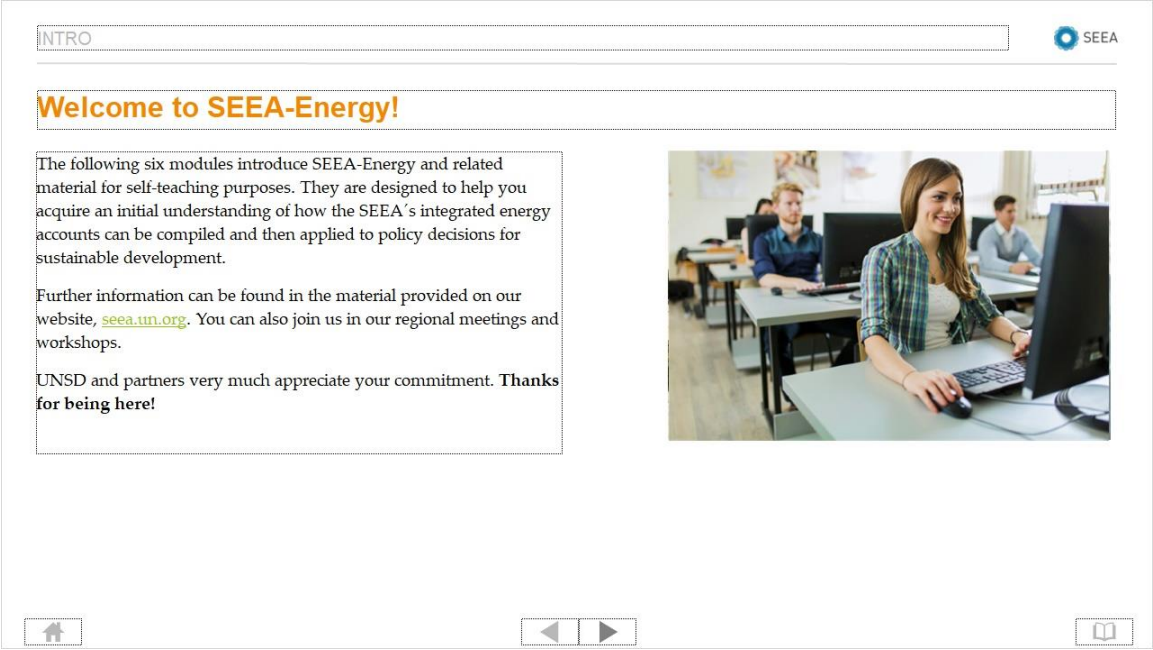
1. Start

1.1 Title page

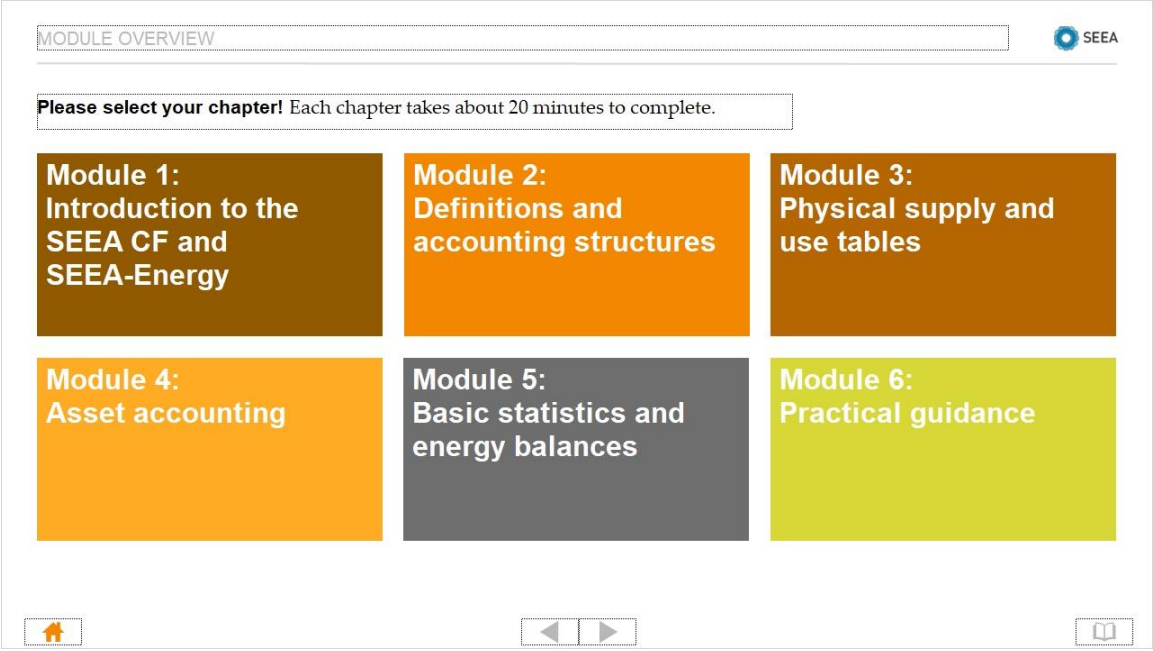


Notes:

1.2 Intro



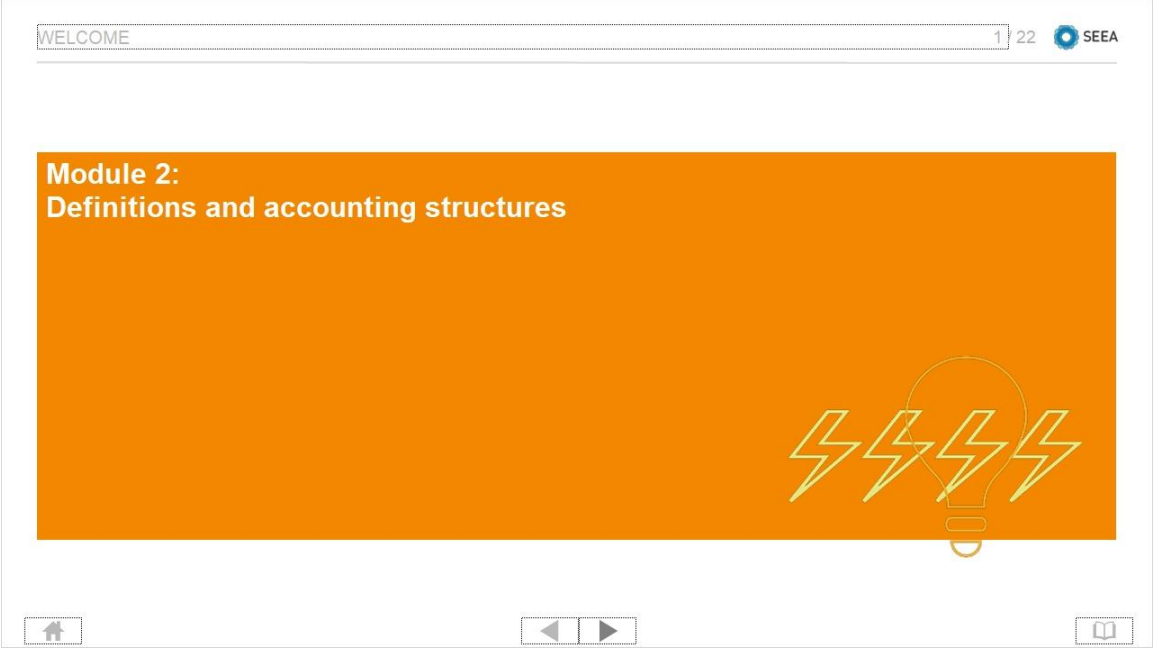
1.3 Module overview



Notes:

2. Module 2 - Definitions and accounting structures

2.1 Welcome



Notes:

2.2 Welcome...

Welcome

… to **Module 2: Definitions and accounting structures**!
This module focuses on important concepts and definitions used in the SEEA-Energy accounts. It also gives you a quick introduction to the main accounts and tables in SEEA-Energy. The topics covered are:

- The scope of SEEA-Energy
- Residence vs. territory principle
- Production, consumption and accumulation
- Types of physical flows related to energy
- Transformation of energy
- Classification of industries, products and use
- Physical and monetary units
- Energy assets
- Other energy-related stocks and flows
- Main types of SEEA-Energy accounts and tables

We appreciate your interest in accounting for energy.

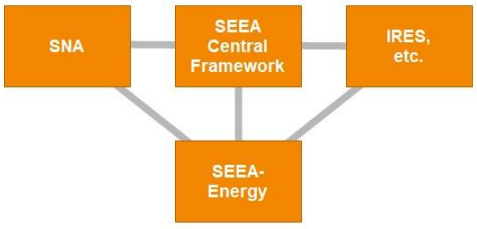
Thanks for learning!

2.3 Concepts & Definitions

Concepts and definitions in the SEEA-Energy

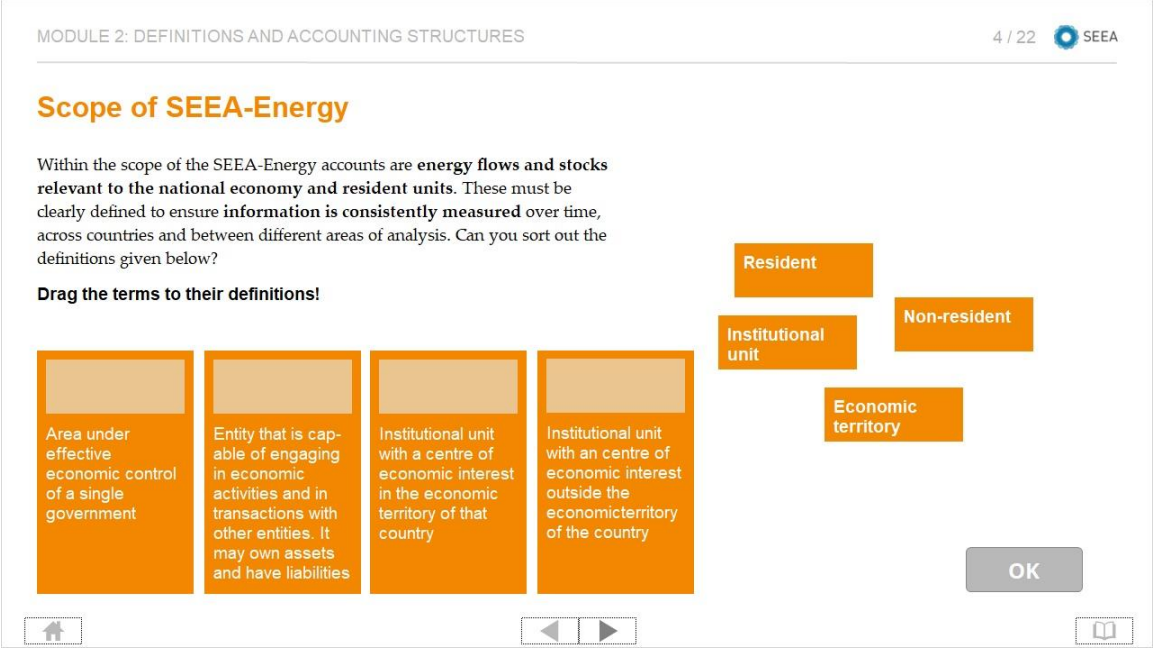
The SEEA-Energy accounts – like any of the SEEA Central Framework accounts – are built around a set of common definitions and principles:

- For the most part, these definitions and principles come from the **System of National Accounts (SNA)**. Others are specific to energy.
- Definitions and concepts specific to energy are mainly drawn from **energy statistics** and the **International Recommendation of Energy Statistics (IRES).**
- In this module we'll look at the important definitions and concepts first. After that you'll get a short overview of the different accounts that are part of SEEA-Energy.



2.4 Scope

(Drag and Drop, 10 points, 1 attempt permitted)



Drag Item	Drop Target
Institutional unit	Rectangle 8
Non-resident	Rectangle 10
Resident	Rectangle 9
Economic territory	Rectangle 4

Drag and drop properties
Return item to start point if dropped outside the correct drop target
Snap dropped items to drop target (Snap to center)
Allow only one item in each drop target
Delay item drop states until interaction is submitted

Feedback when correct:

For energy accounts there are two important points for the question of residency:

Consistent with the SNA treatment, extraction of mineral and energy resources is always considered to be done by resident units.

Resident producing units may operate outside of the national territory.

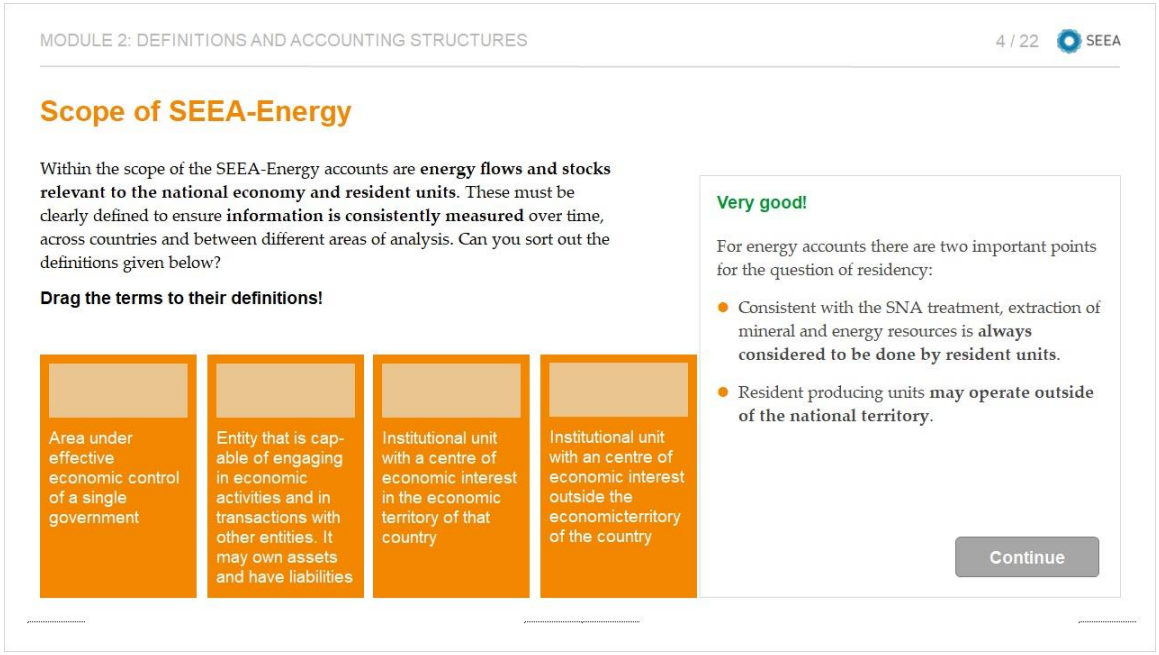
Feedback when incorrect:

For energy accounts there are two important points for the question of residency:

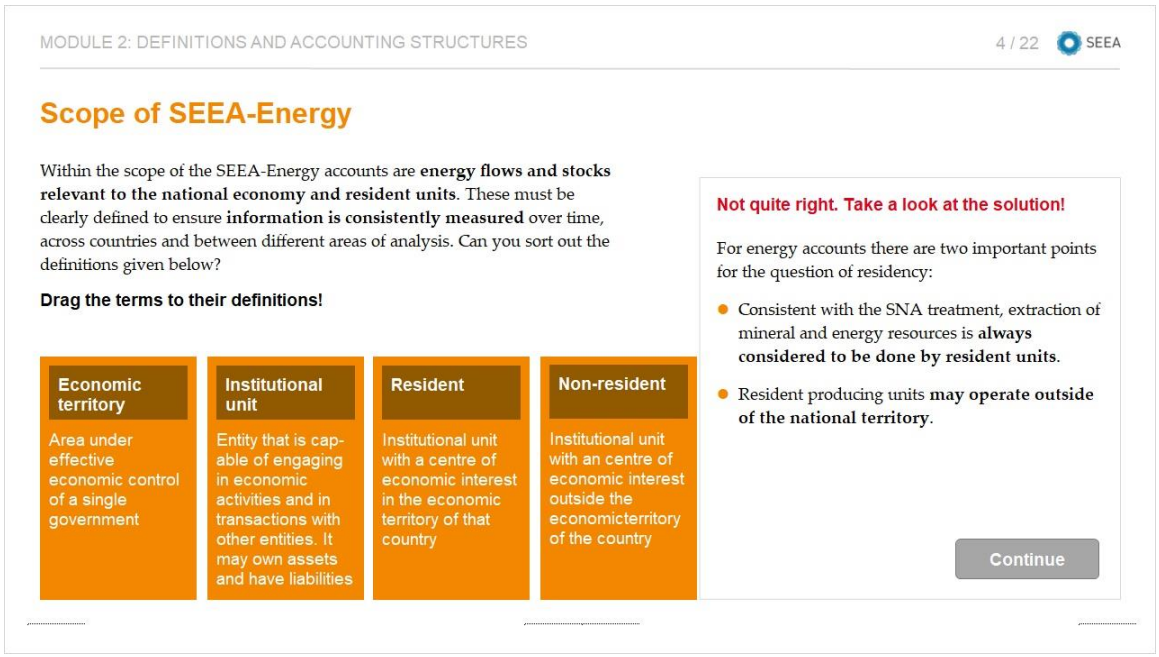
Consistent with the SNA treatment, extraction of mineral and energy resources is always considered to be done by resident units.

Resident producing units may operate outside of the national territory.

Correct (Slide Layer)



Incorrect (Slide Layer)



2.5 Residence vs. territory

MODULE 2: DEFINITIONS AND ACCOUNTING STRUCTURES 5 / 22 SEEA

Residence vs. territory principle

Geographic boundaries for SEEA-Energy are **different from those commonly used** for energy statistics and energy balances.

- SEEA-Energy uses the residence principle and includes energy products sold to residents, whether operating **within the national territory or abroad**. As a result, transactions related to international bunkering and transport are accounted for according to the residence of the operator of the transport equipment.
- Energy statistics and energy balances are usually **based on the territory principle.** This assigns flows to the country in which the producing or consuming unit **is located at the time of the flow**.
- The **rest of the world** is a term used to describe the world outside the national territory.

Explore the table to find out more!

	Residents	Non-residents	
National territory	Sold on territory to resident units	Sold on territory to non-residents (foreign, tourists, transport companies, embassies)	Energy statistics and balances
Rest of the World	Sold to residents operating abroad (tourists, transport companies, etc.)		
	SEEA-Energy		

2.6 Recording

MODULE 2: DEFINITIONS AND ACCOUNTING STRUCTURES 6 / 22 SEEA

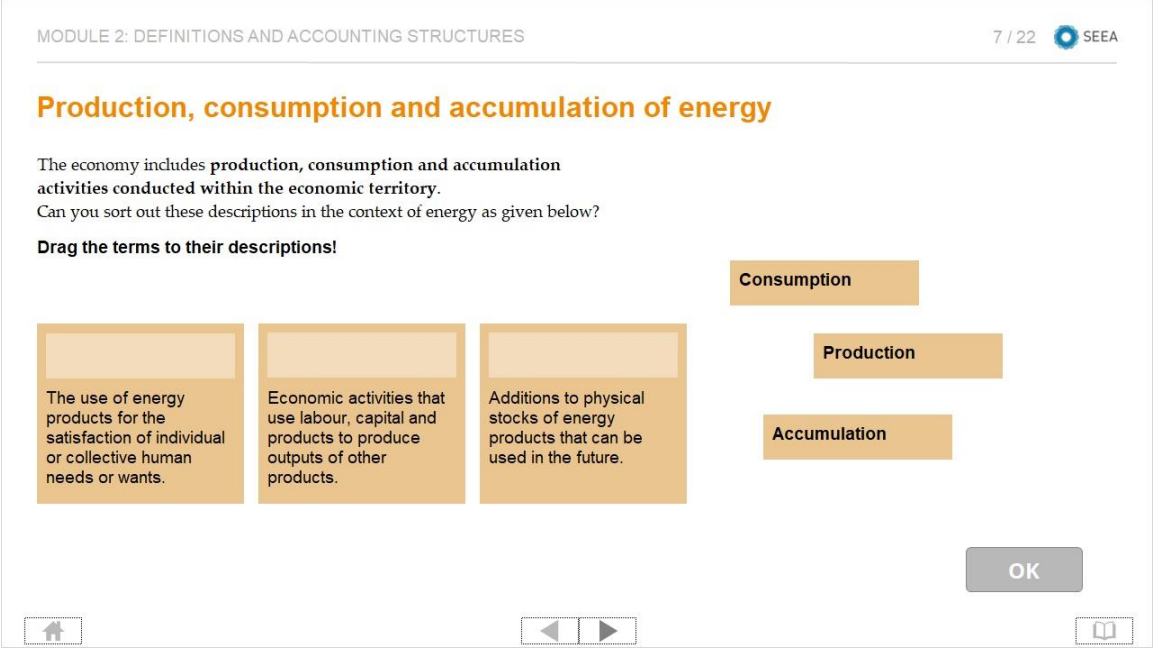
Recording of imports and exports

Imports and exports of energy products should be recorded **when a change of ownership** involving a resident and non-resident unit occurs:

- Energy products **sent abroad for processing** do not involve a change in ownership. Therefore – according to the SNA – no import or export of energy products is recorded in the monetary accounts (instead an import of processing services is recorded).
- For the physical flow accounts however, it is often appropriate to **record the actual physical flows**, i.e. to record an physical export and subsequent physical import of energy products when they are send abroad for processing.

2.7 Productions, Consumption, Accumulation

(Drag and Drop, 10 points, 1 attempt permitted)



Drag Item	Drop Target
Accumulation	Ziel 3
Consumption	Ziel 1
Production	Ziel 2

Drag and drop properties
Return item to start point if dropped outside the correct drop target
Snap dropped items to drop target (Snap to center)
Allow only one item in each drop target
Delay item drop states until interaction is submitted

Feedback when correct:

Energy is produced within the extraction industries, refinery industry and electricity and heating suppliers, etc.

Consumption activities include consumption by households (heating, cooking, transport) and so-called intermediate consumption by industries.

Energy products may be temporarily accumulated in inventories for use in a subsequent period. Similarly, some energy products accumulated during an earlier period may be taken from inventories to be used in the economy, or for export.

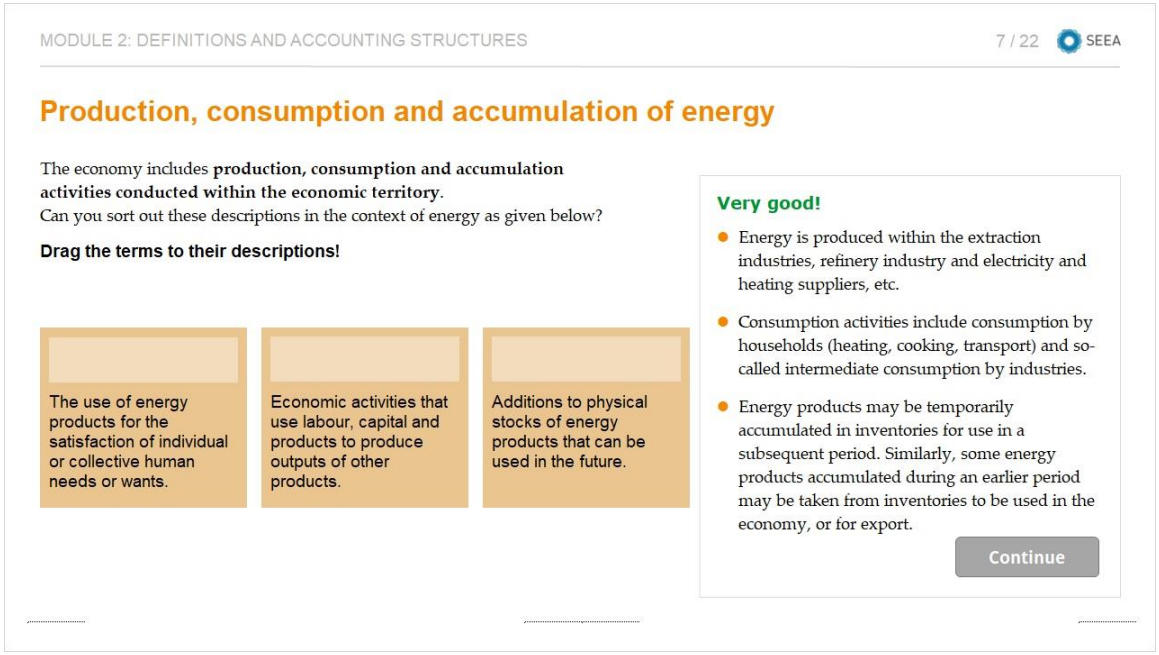
Feedback when incorrect:

Energy is produced within the extraction industries, refinery industry and electricity and heating suppliers, etc.

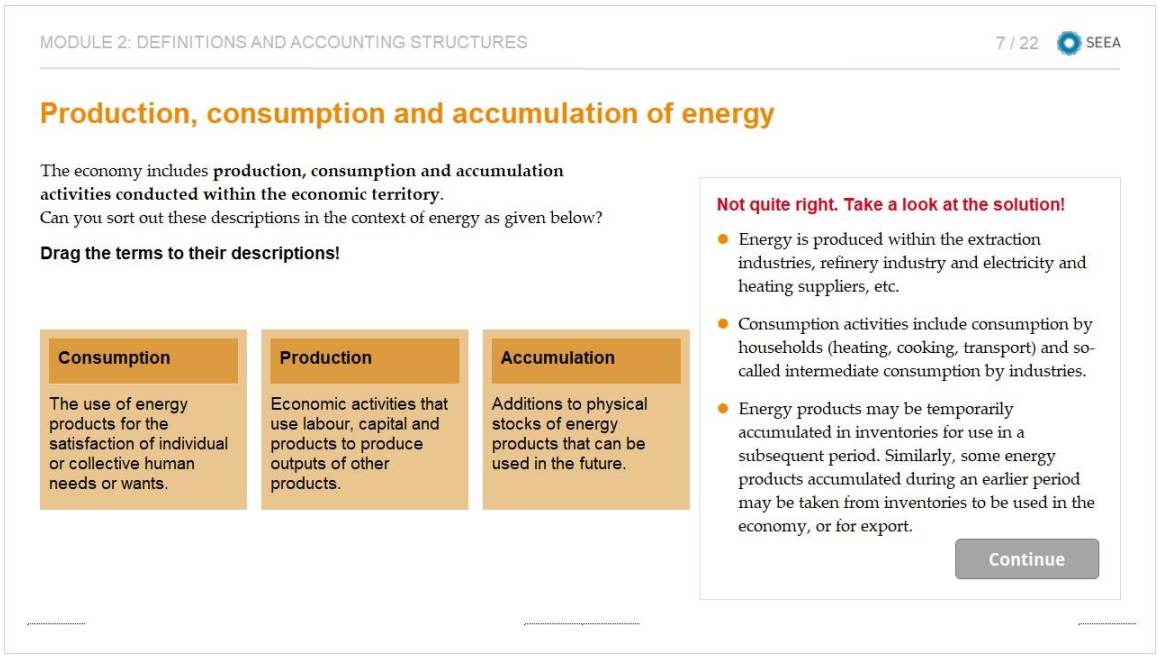
Consumption activities include consumption by households (heating, cooking, transport) and so-called intermediate consumption by industries.

Energy products may be temporarily accumulated in inventories for use in a subsequent period. Similarly, some energy products accumulated during an earlier period may be taken from inventories to be used in the economy, or for export.

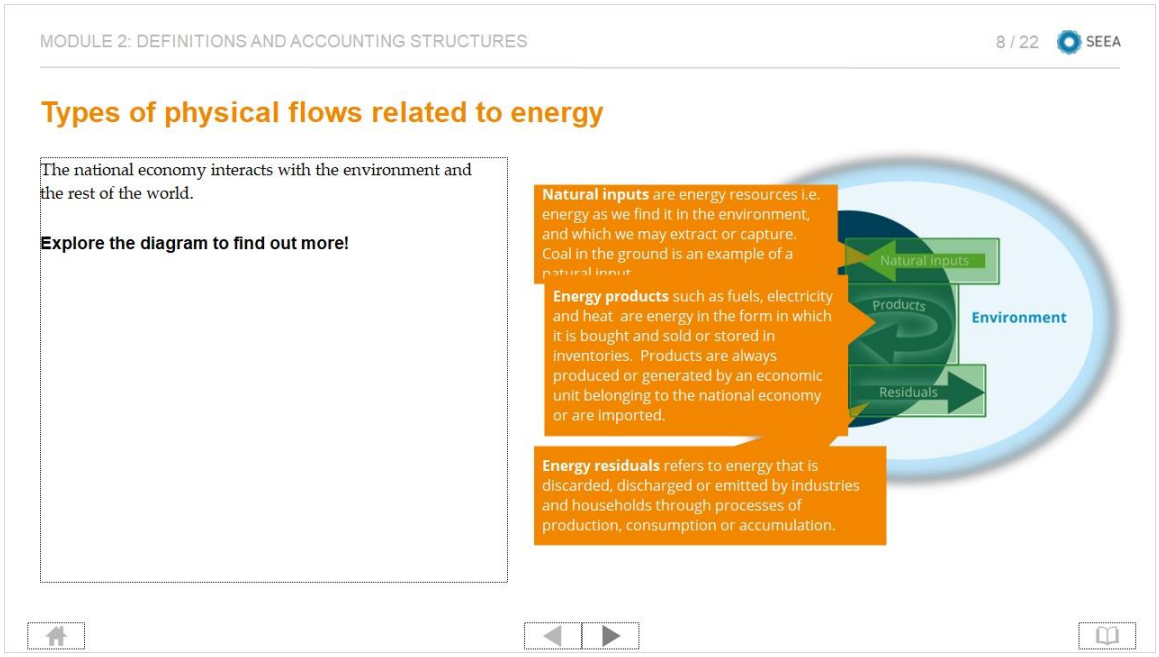
Very good! (Slide Layer)



Not quite right. Take a look at the solution! (Slide Layer)

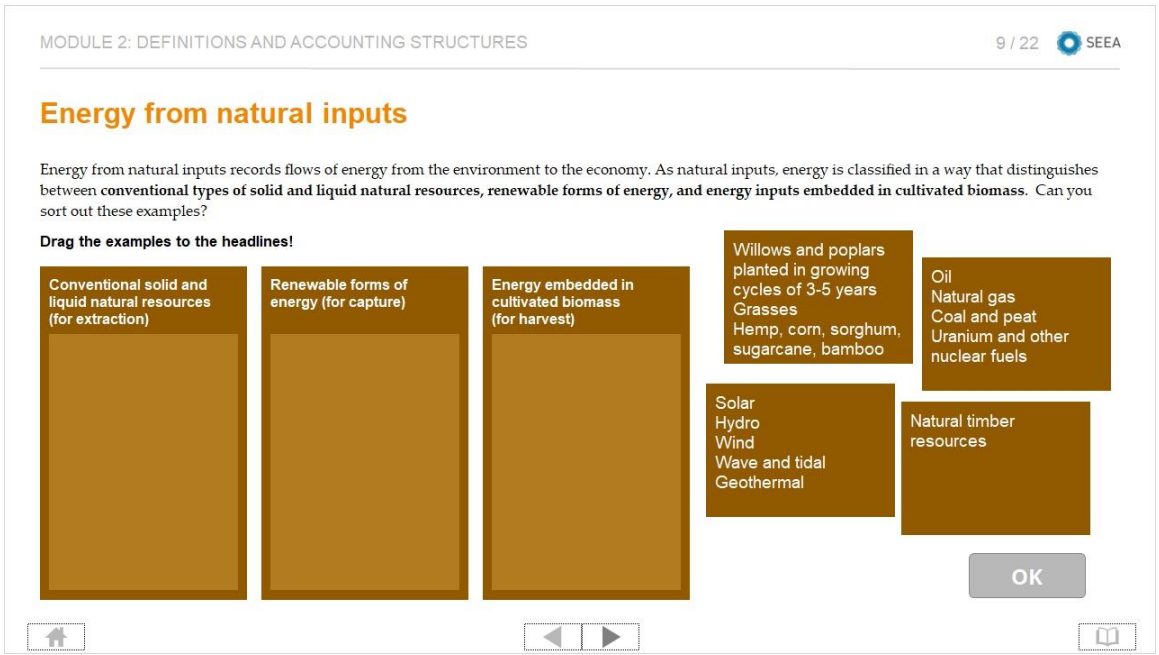


2.8 Types of physical flows



2.9 Energy as natural inpur

(Drag and Drop, 10 points, 1 attempt permitted)



Drag Item	Drop Target
Oil Natural gas Coal and peat Uranium and other nuclear fuels	Target 1
Natural timber resources	Target 1
Willows and poplars planted in growing cycles of 3-5 years Grasses Hemp, corn, sorghum, sugarcane, bamboo	Target 3
Solar Hydro Wind Wave and tidal Geothermal	Target 2

Drag and drop properties
Return item to start point if dropped outside the correct drop target
Snap dropped items to drop target (Tile)
Delay item drop states until interaction is submitted

Feedback when correct:

Inputs of energy from renewable sources are classified by source, and estimates of inputs will generally reflect the amount of energy actually produced.

Natural timber is considered a conventional resource for extraction, and to be differentiated from short-lived energy embedded in cultivated biomass for harvest.

Note that incineration of solid waste to produce energy is recorded in the accounts as being supplied from within the economy.

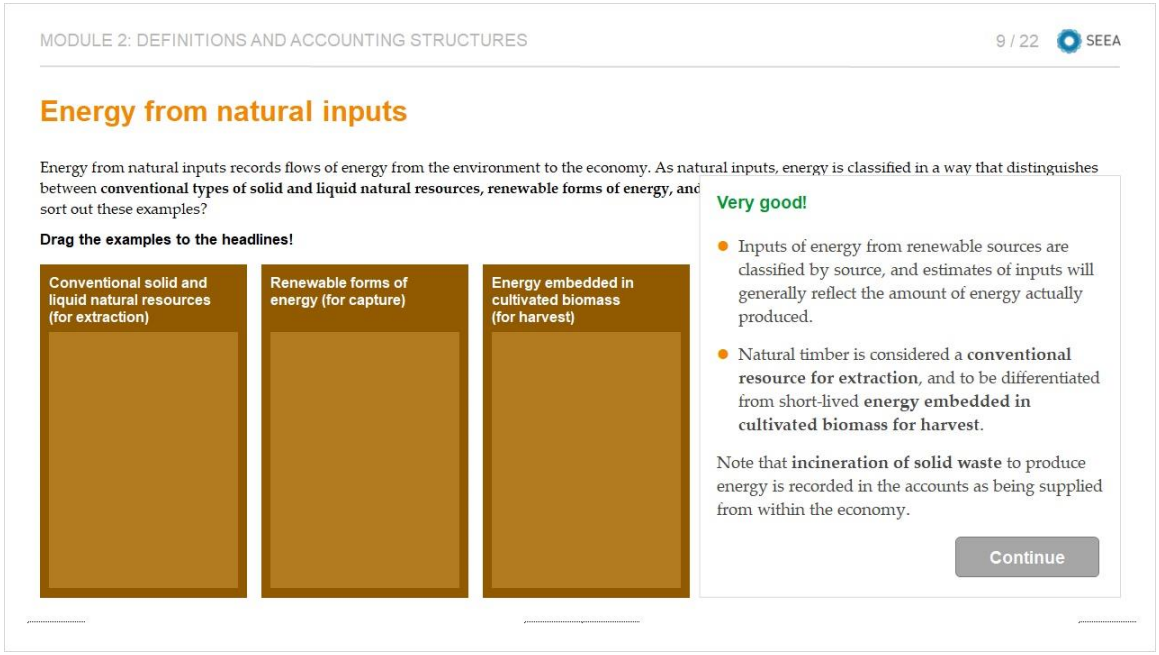
Feedback when incorrect:

Inputs of renewable forms of energy are classified by source, and estimates of inputs will generally reflect the amount of energy actually produced.

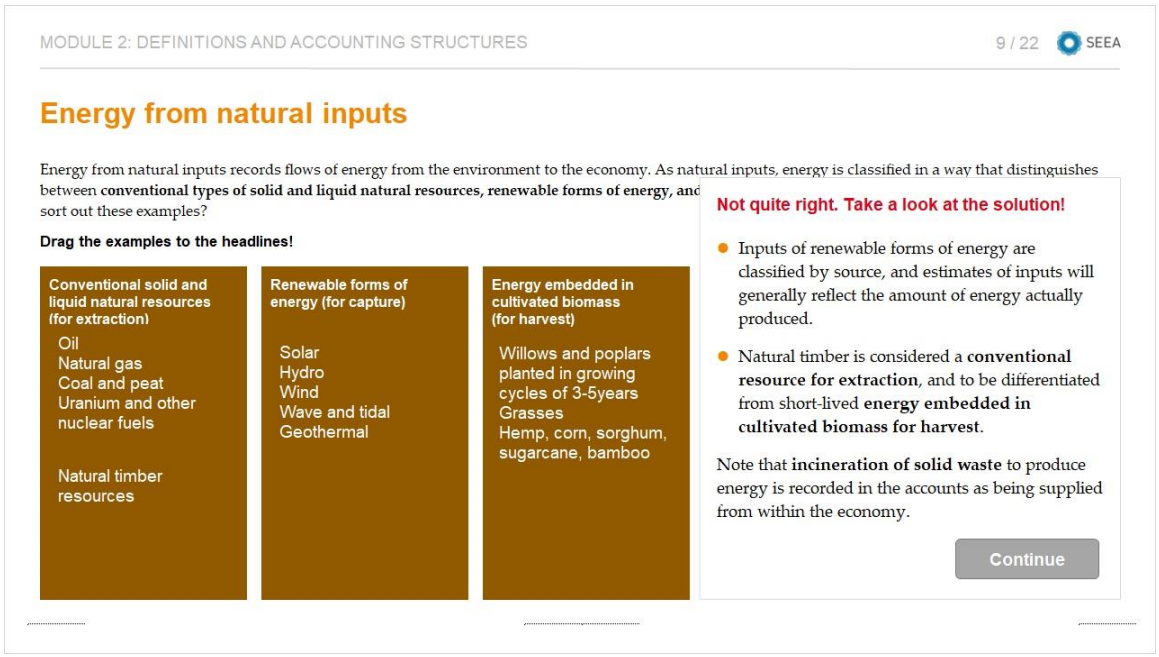
Natural timber is considered a conventional resource for extraction, and to be differentiated from short-lived energy embedded in cultivated biomass for harvest.

Note that incineration of solid waste to produce energy is recorded in the accounts as being supplied from within the economy.

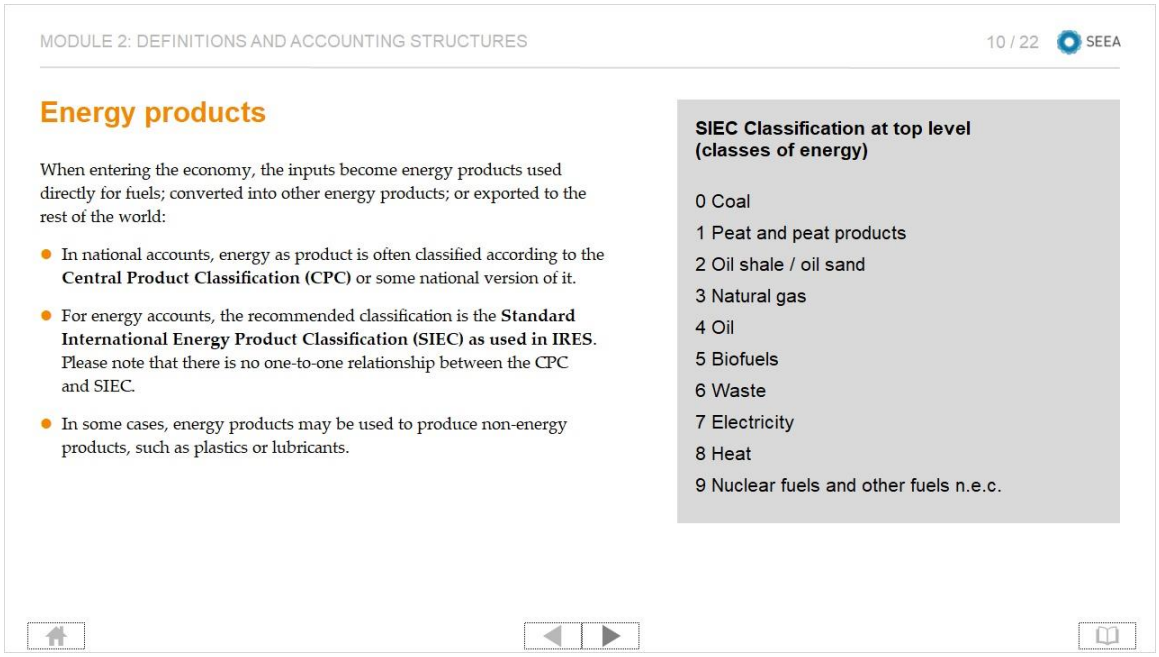
Correct (Slide Layer)



Incorrect (Slide Layer)

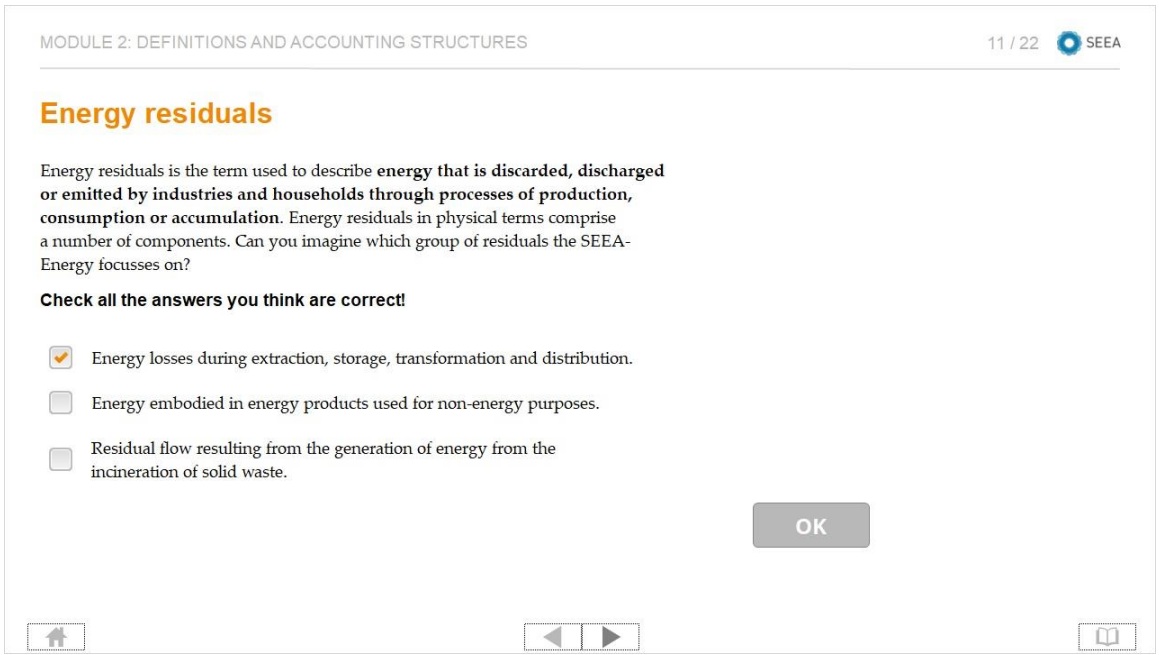


2.10 Energy as energy products



2.11 Energy as residuals

(Multiple Response, 10 points, 1 attempt permitted)



Correct	Choice
X	Energy losses during extraction, storage, transformation and distribution.
	Energy embodied in energy products used for non-energy purposes.
	Residual flow resulting from the generation of energy from the incineration of solid waste.

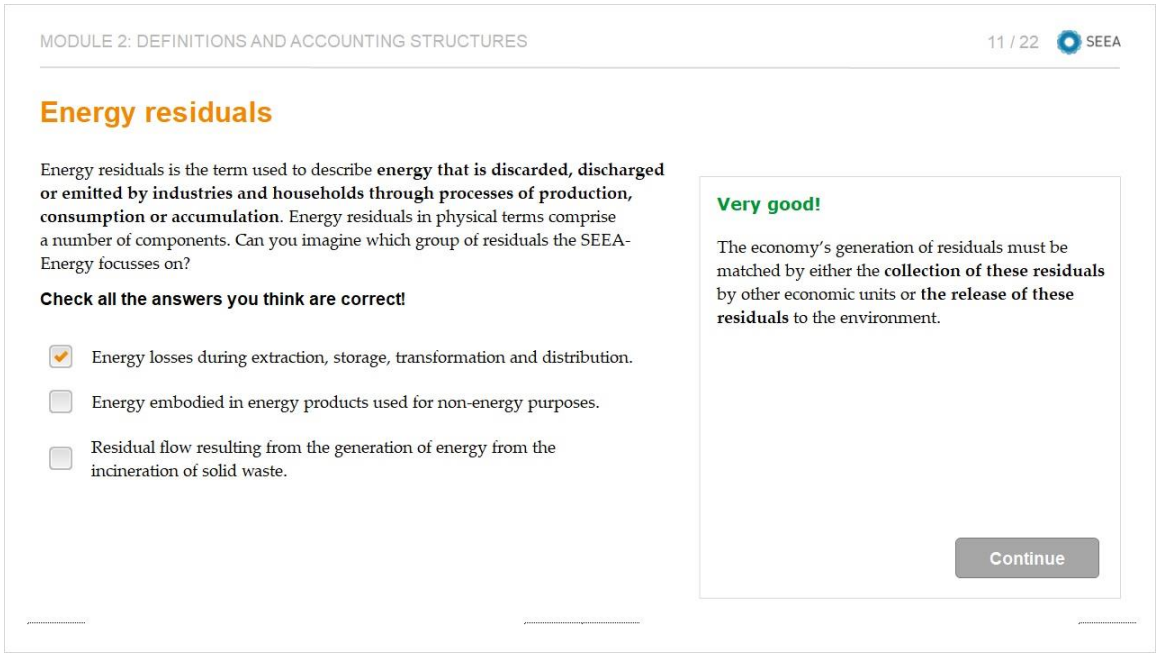
Feedback when correct:

The economy's generation of residuals must be matched by either the collection of these residuals by other economic units or the release of these residuals to the environment.

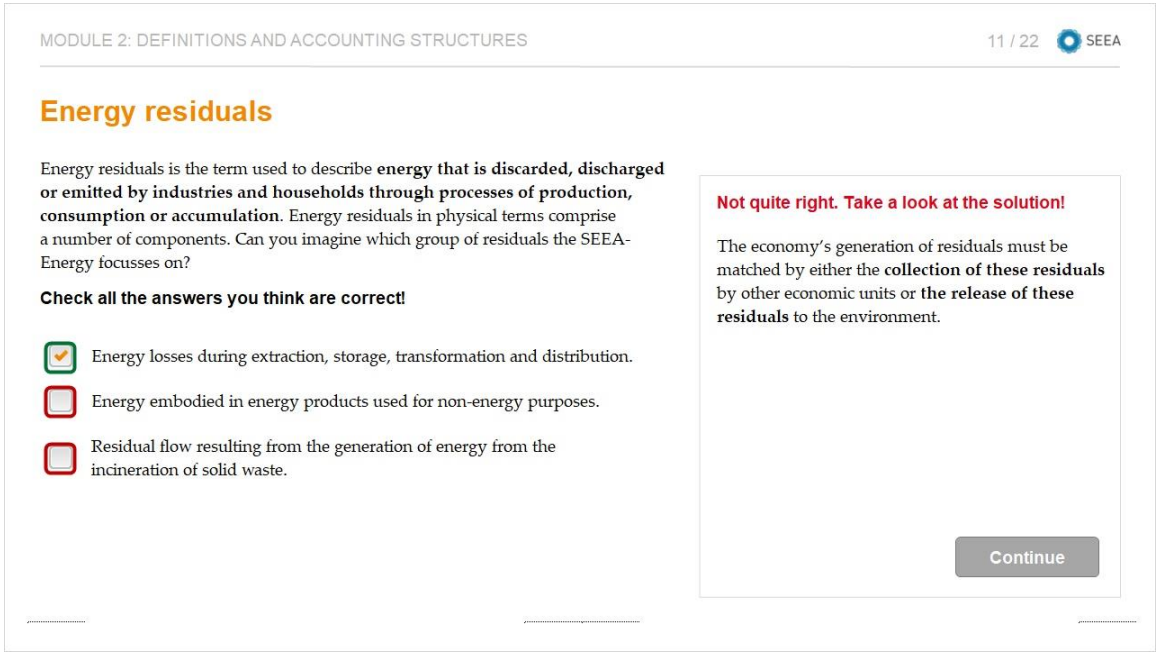
Feedback when incorrect:

The economy's generation of residuals must be matched by either the collection of these residuals by other economic units or the release of these residuals to the environment.

Very good! (Slide Layer)

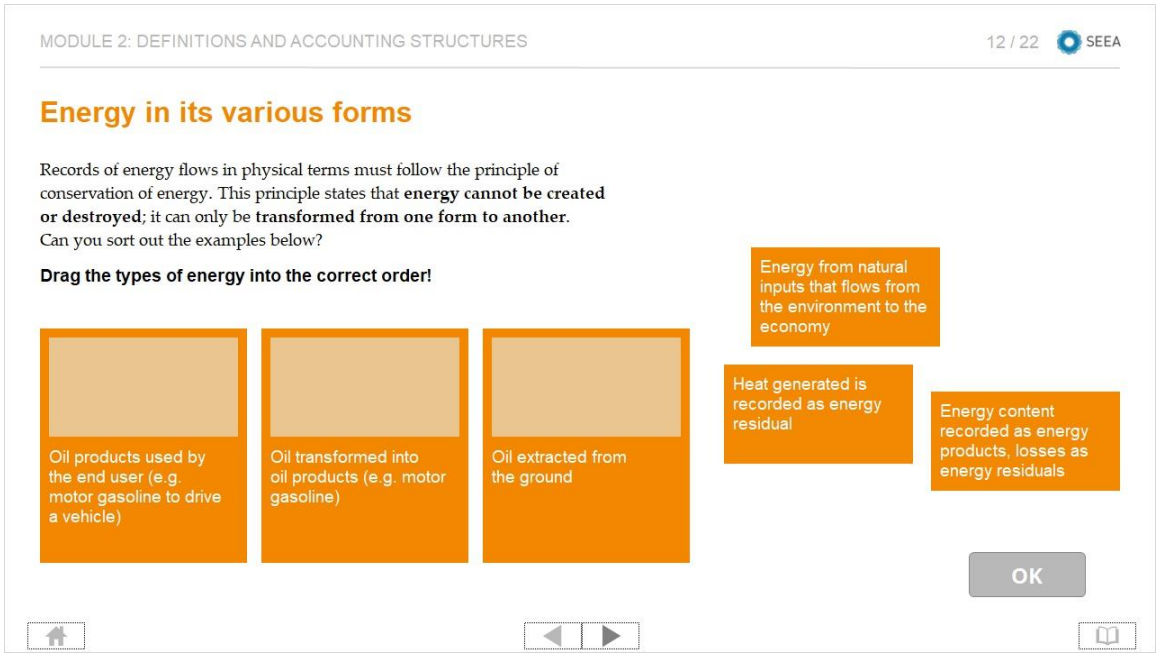


Not quite right. Take a look at the solution! (Slide Layer)



2.12 Transformation of energy

(Drag and Drop, 10 points, 1 attempt permitted)



Drag Item	Drop Target
Heat generated is recorded as energy residual	Target 1
Energy from natural inputs that flows from the environment to the economy	Target 3
Energy content recorded as energy products, losses as energy residuals	Target 2

Drag and drop properties
Return item to start point if dropped outside the correct drop target
Snap dropped items to drop target (Snap to center)
Allow only one item in each drop target
Delay item drop states until interaction is submitted

Feedback when correct:

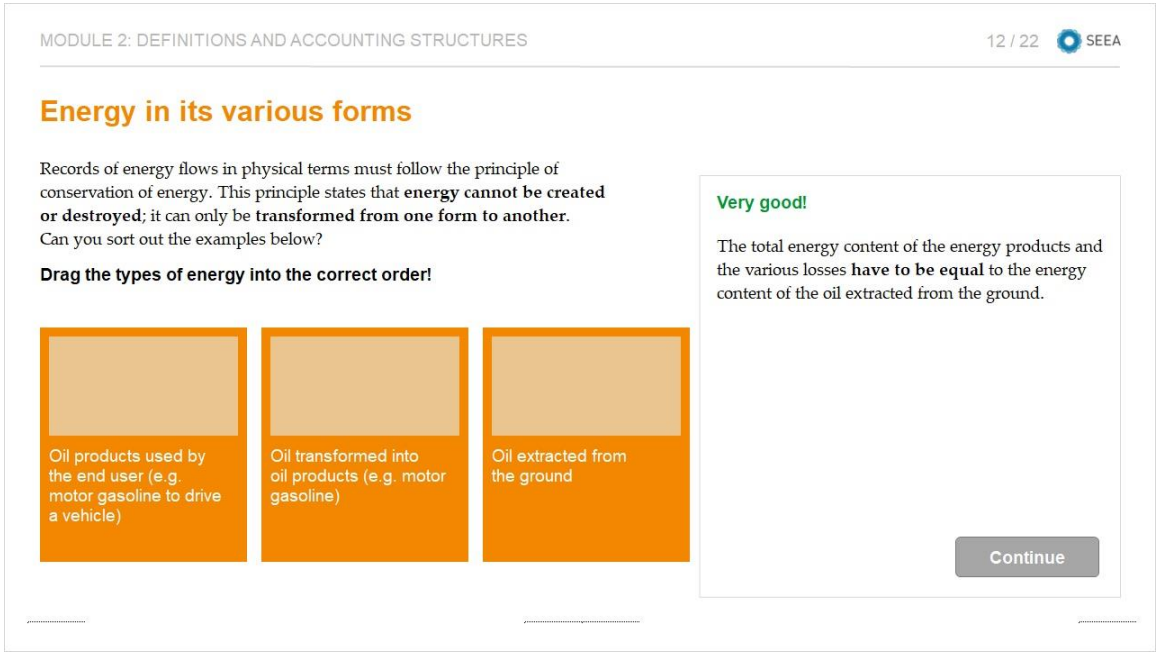
The total energy content of the energy products and the various losses have to be equal to the energy content of the oil extracted from the ground.

Feedback when incorrect:

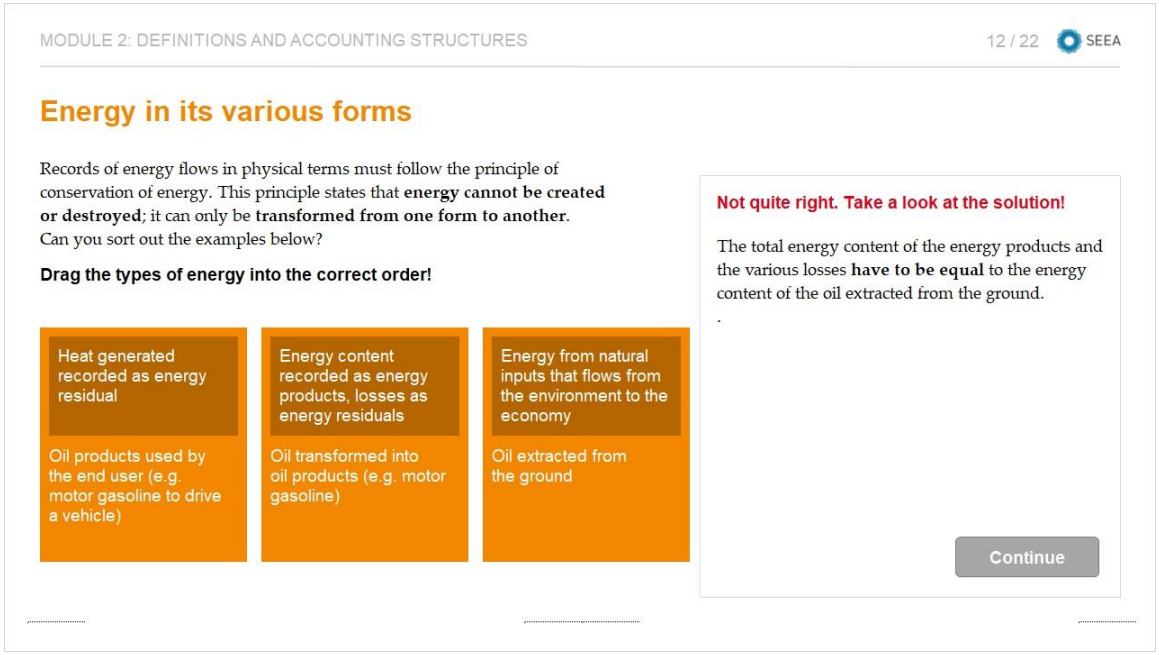
The total energy content of the energy products and the various losses have to be equal to the energy content of the oil extracted from the ground.

.

Correct (Slide Layer)

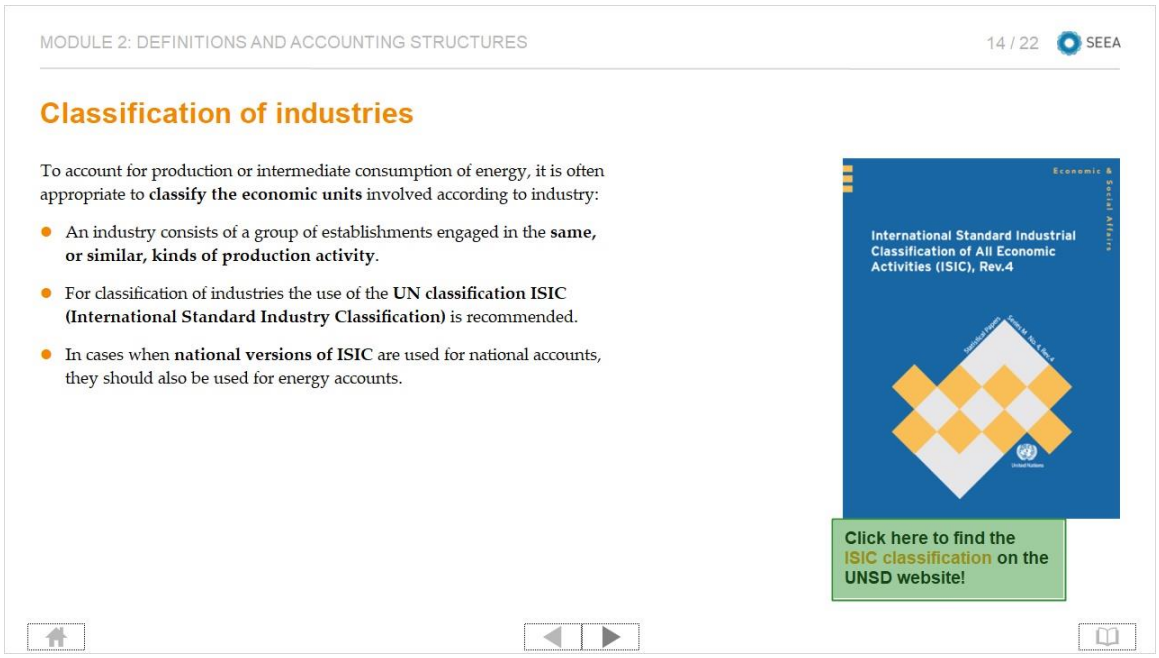


Incorrect (Slide Layer)



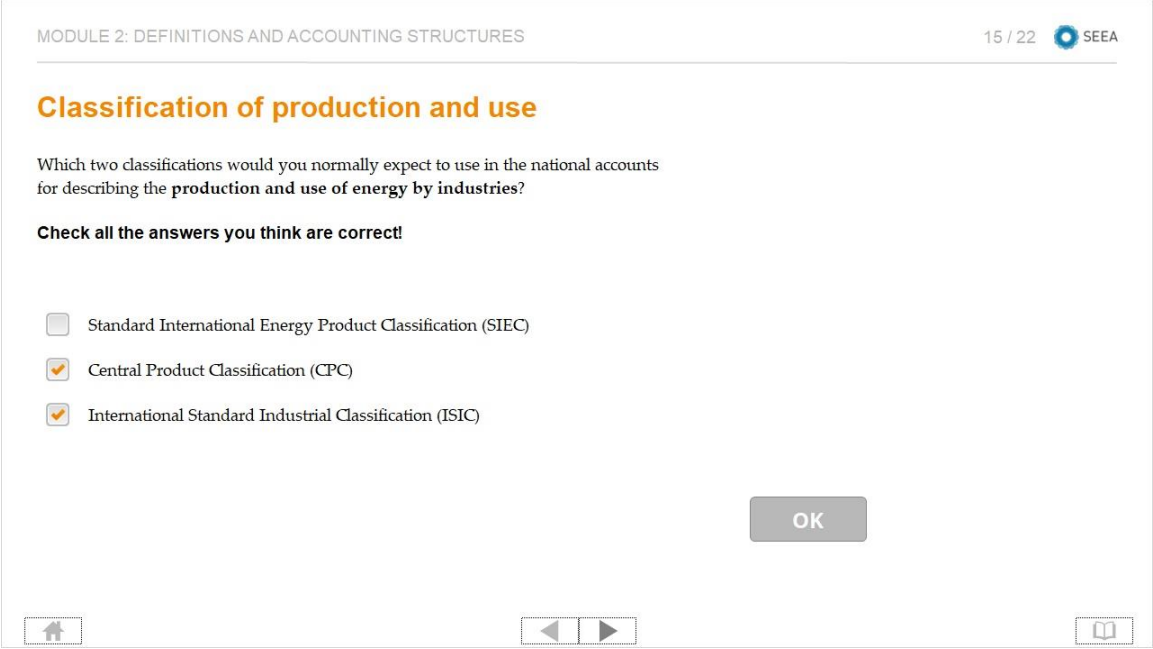
2.13 Physical flows of energy

2.14 Classfication of industries



2.15 Classification of production and use

(Multiple Response, 10 points, 1 attempt permitted)



Correct	Choice
	Standard International Energy Product Classification (SIEC)
X	Central Product Classification (CPC)
X	International Standard Industrial Classification (ISIC)

Feedback when correct:

Normally national accounts do not use SIEC.

If the national accounts include supply and use tables, CPC, or a national version of it, is often used to classify products.

ISIC or a national version of it is used to classify economic activities/industries.

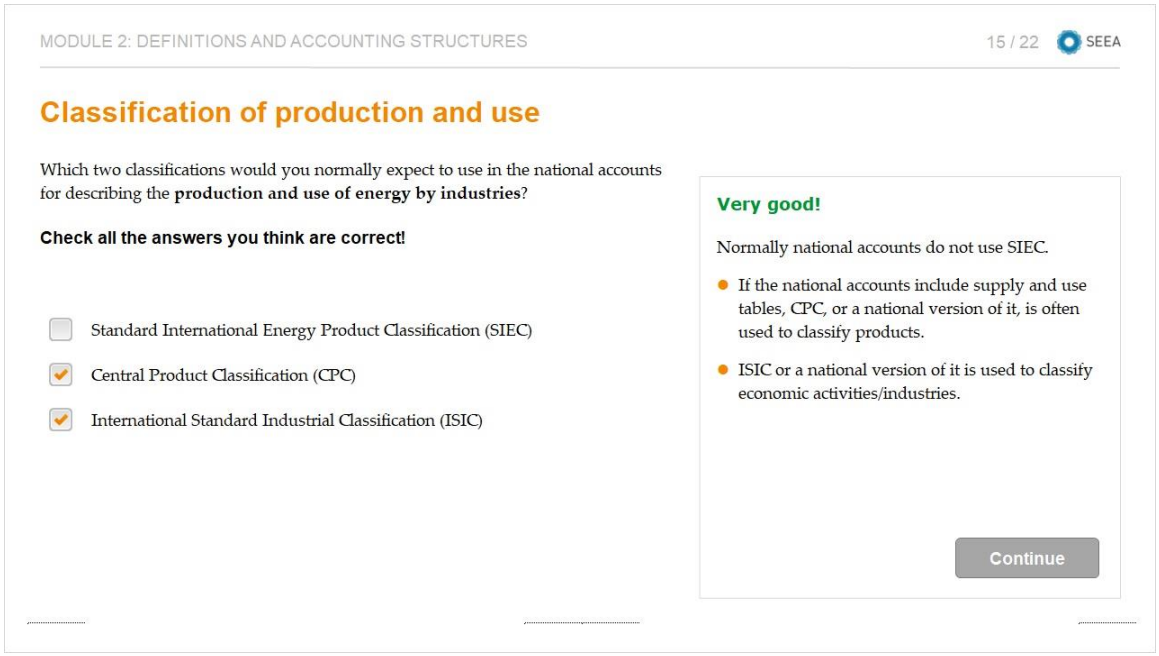
Feedback when incorrect:

Normally national accounts do not use SIEC.

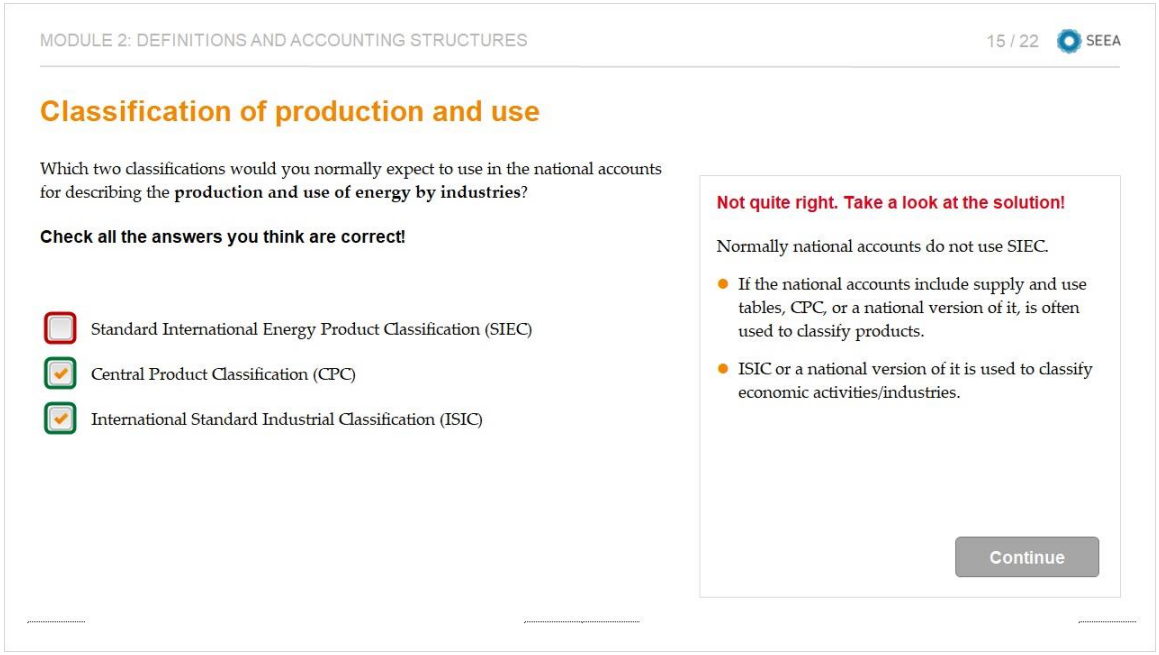
If the national accounts include supply and use tables, CPC, or a national version of it, is often used to classify products.

ISIC or a national version of it is used to classify economic activities/industries.

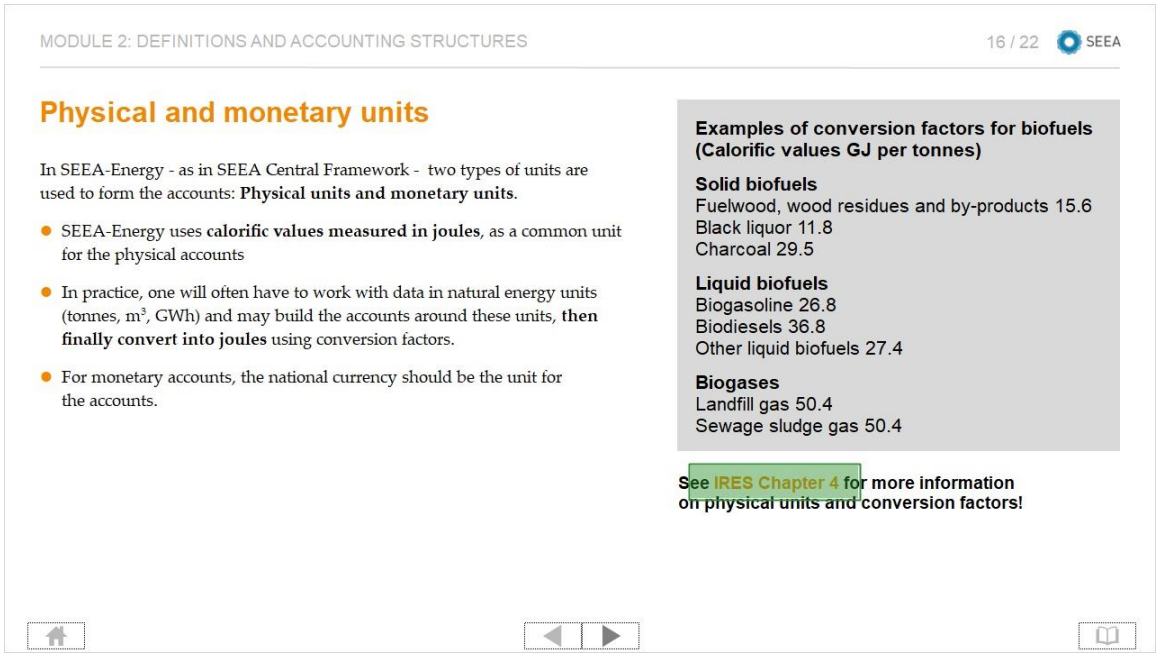
Very good! (Slide Layer)



Not quite right. Take a look at the solution! (Slide Layer)

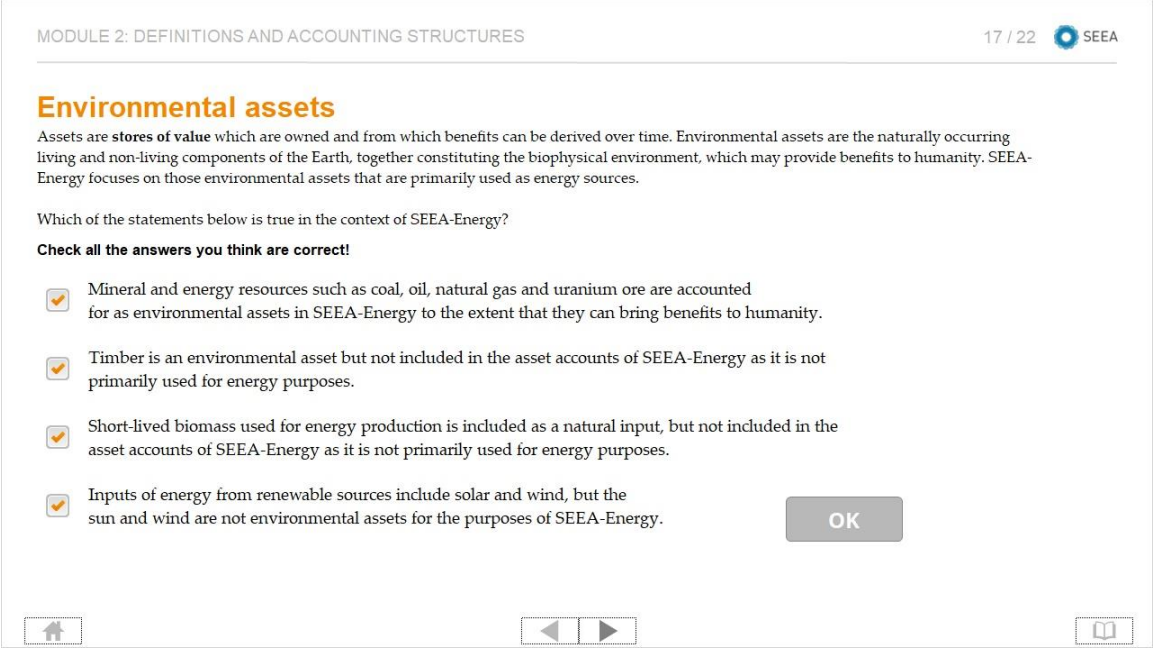


2.16 Physical and monetary units



2.17 Energy assets

(Multiple Response, 10 points, 1 attempt permitted)



Correct	Choice
X	Mineral and energy resources such as coal, oil, natural gas and uranium ore are accounted for as environmental assets in SEEA-Energy to the extent that they can bring benefits to humanity.
X	Timber is an environmental asset but not included in the asset accounts of SEEA-Energy as it is not primarily used for energy purposes.
X	Short-lived biomass used for energy production is included as a natural input, but not included in the asset accounts of SEEA-Energy as it is not primarily used for energy purposes.
X	Inputs of energy from renewable sources include solar and wind, but the

sun and wind are not environmental assets for the purposes of SEEA-Energy.

Feedback when correct:

Assets provide inputs of capital into production processes and are a source of wealth for economic units, including households.

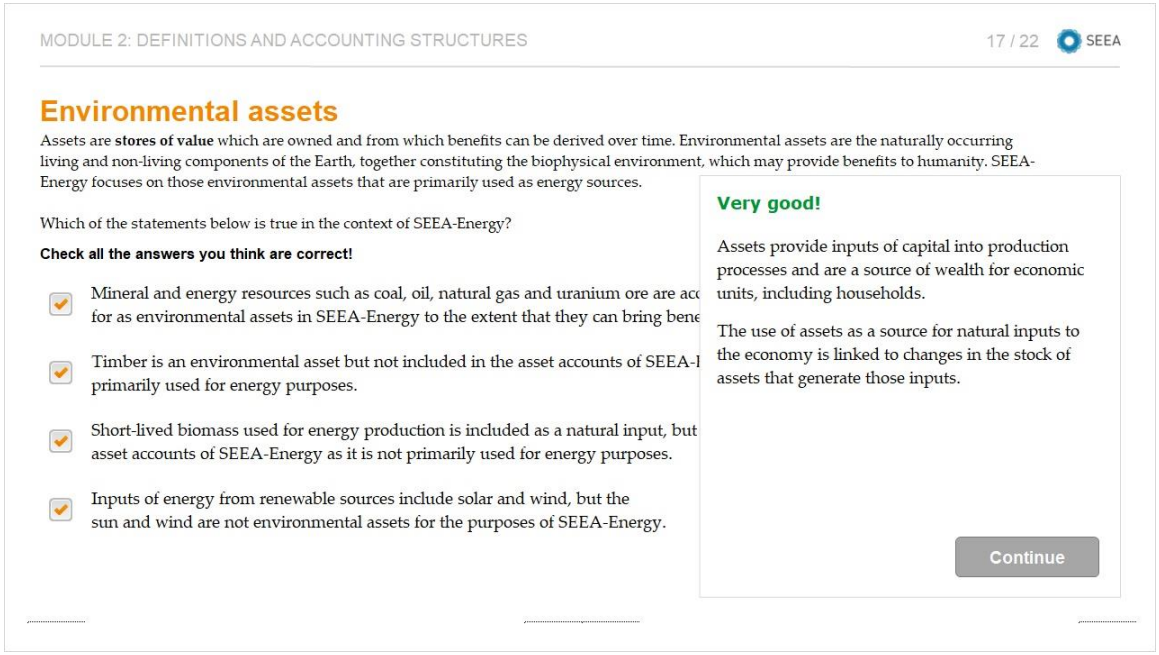
The use of assets as a source for natural inputs to the economy is linked to changes in the stock of assets that generate those inputs.

Feedback when incorrect:

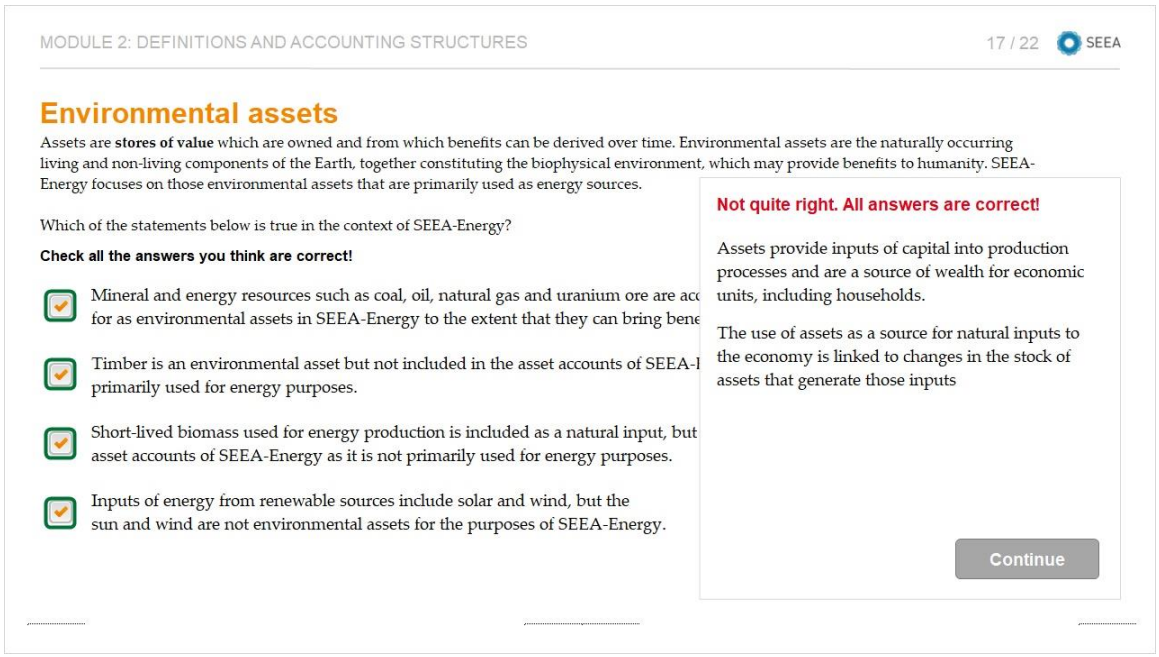
Assets provide inputs of capital into production processes and are a source of wealth for economic units, including households.

The use of assets as a source for natural inputs to the economy is linked to changes in the stock of assets that generate those inputs

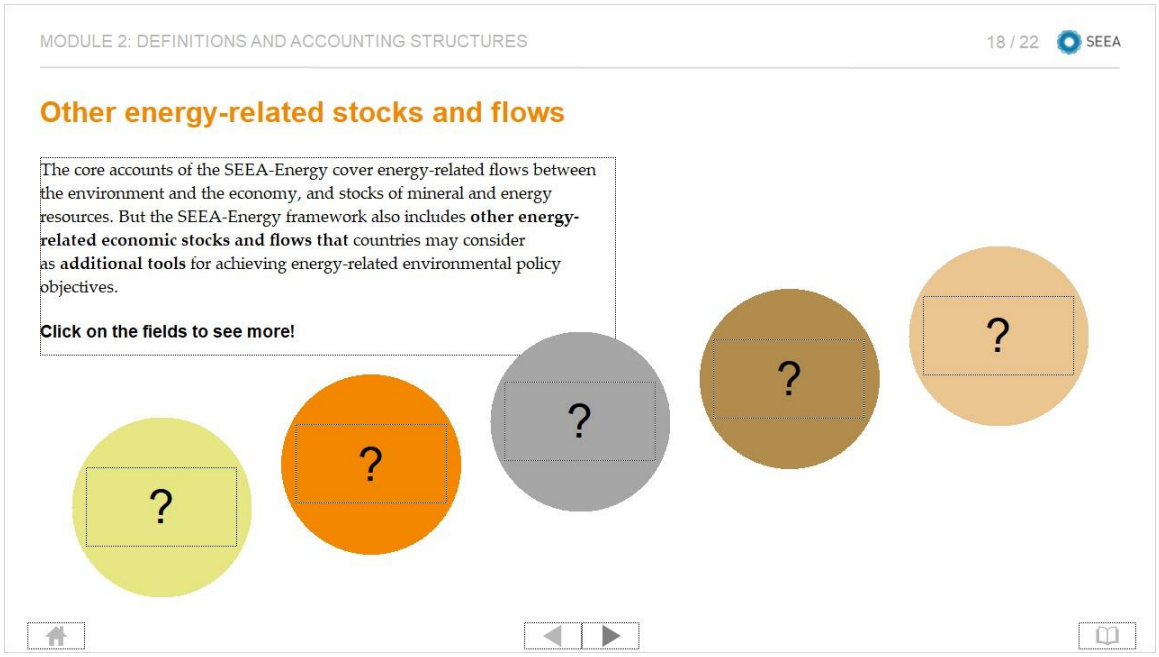
Very good! (Slide Layer)



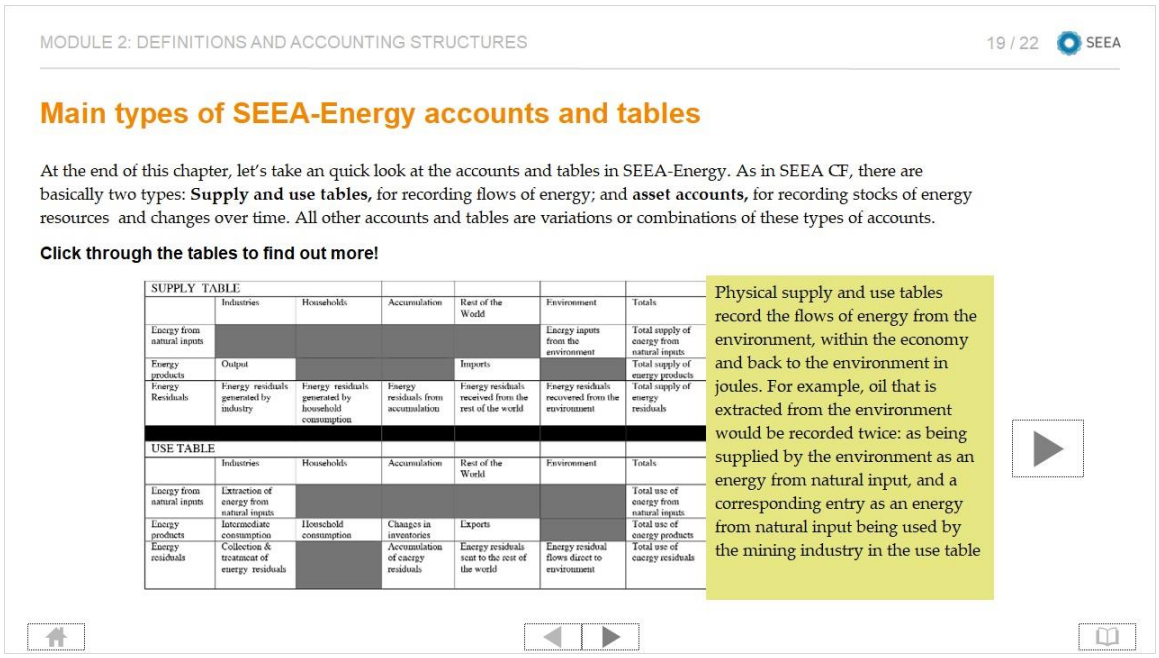
Not quite right. All answers are correct! (Slide Layer)



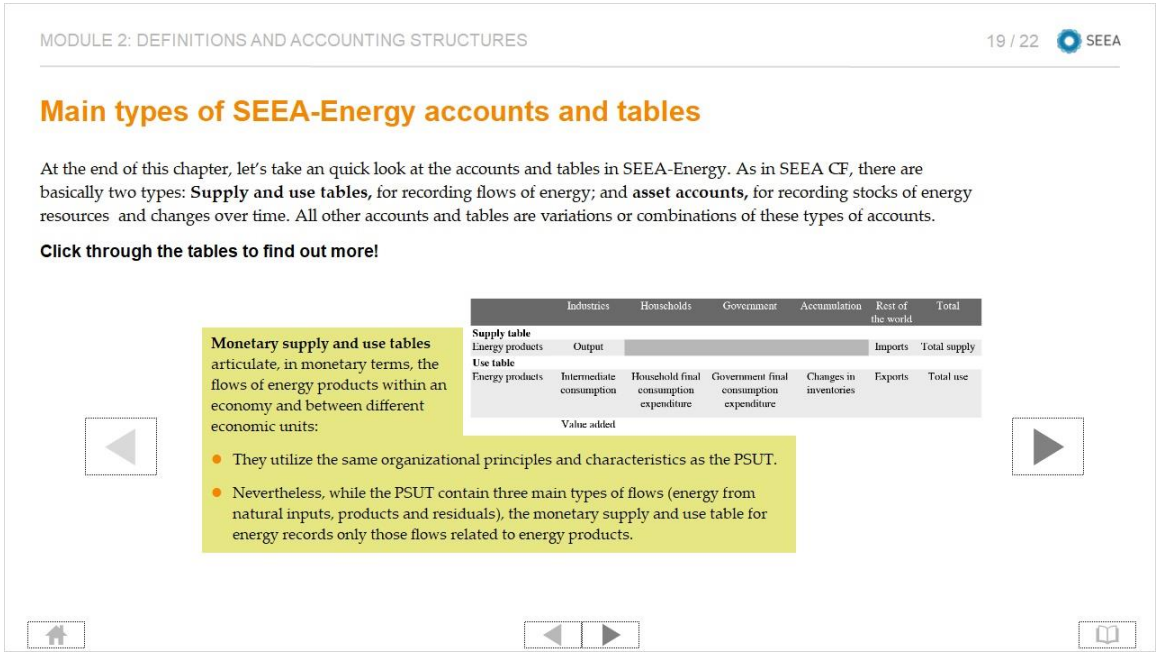
2.18 Other energy-related stocks and flows



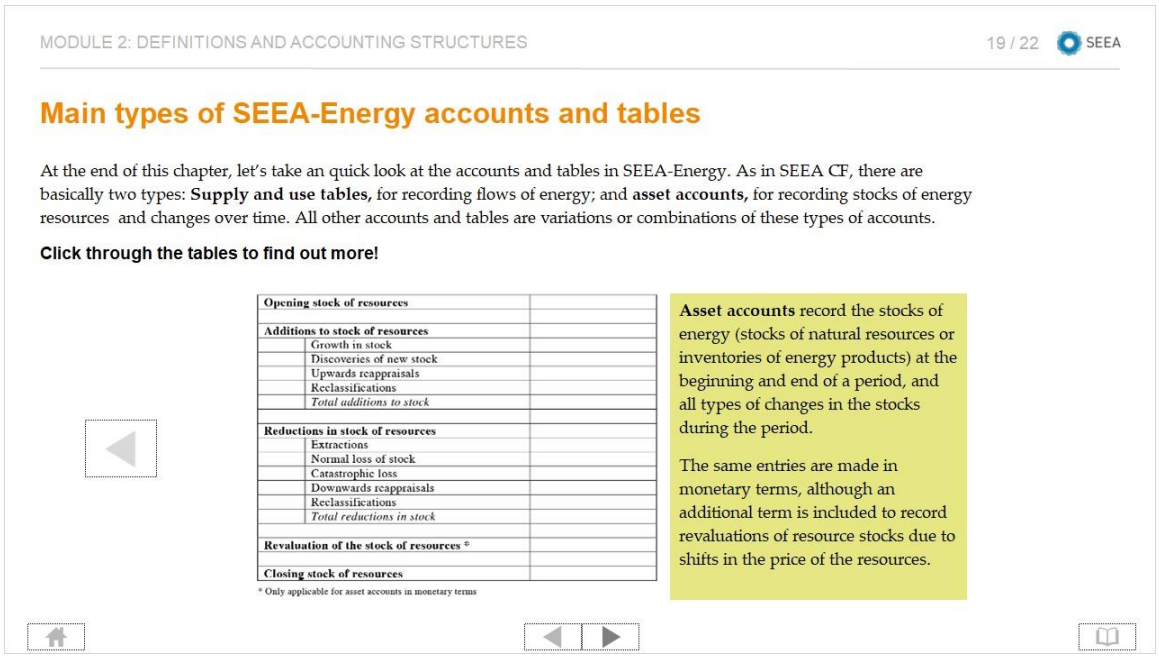
2.19 Main types of SEEA Energy accounts and tables



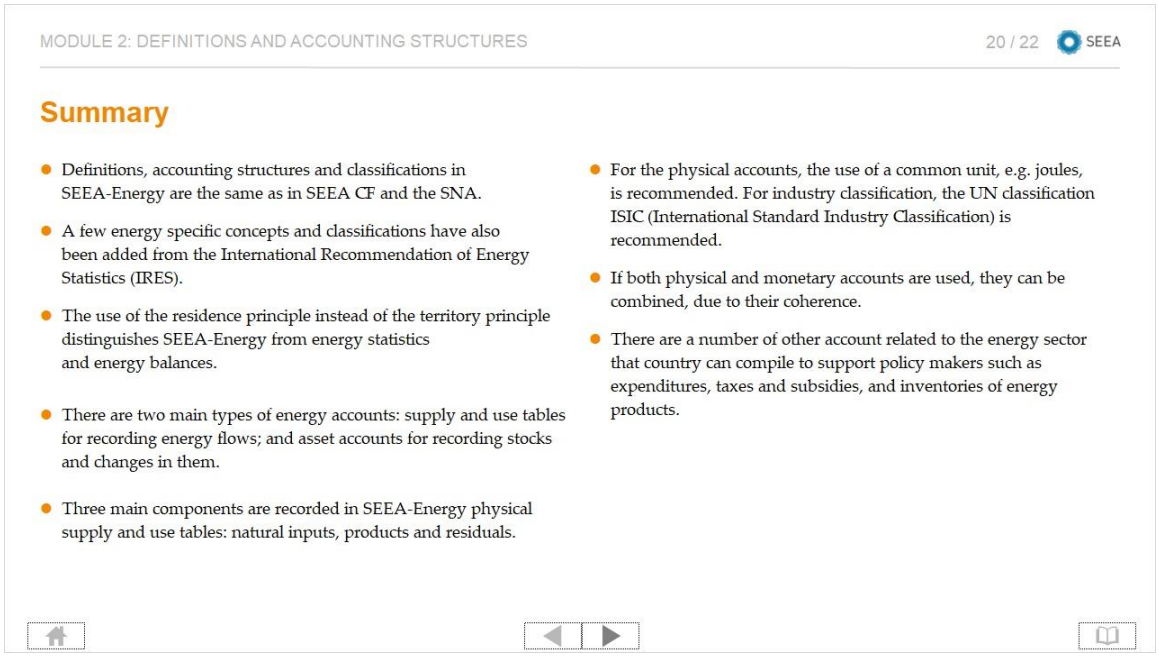
Untitled Layer 1 (Slide Layer)



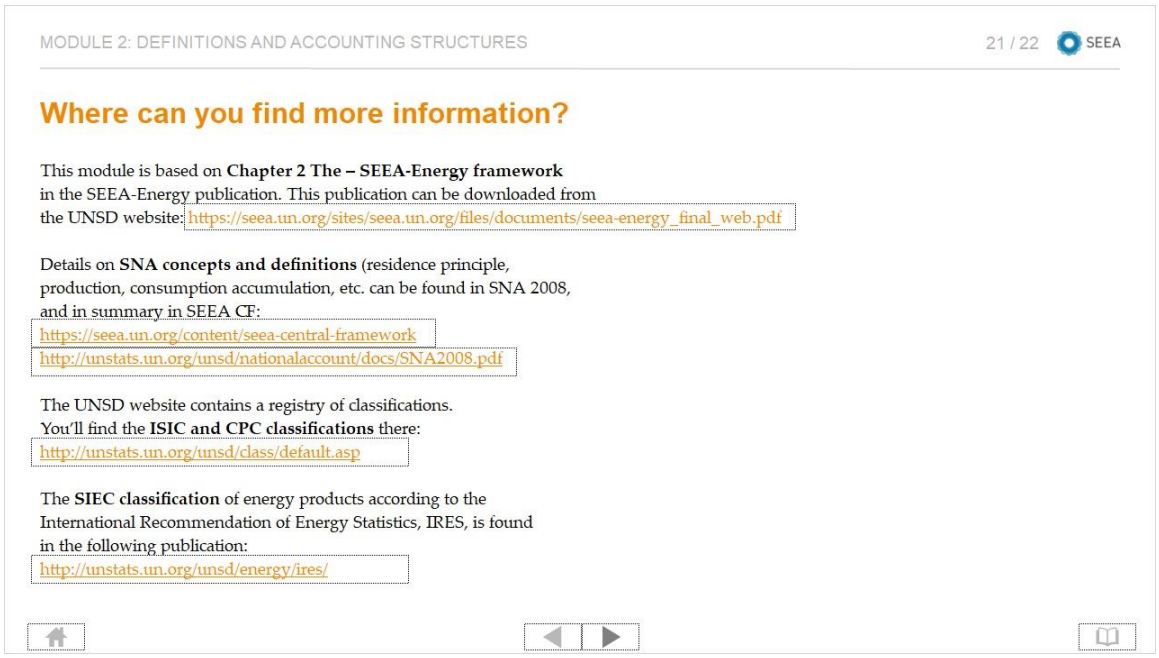
Untitled Layer 2 (Slide Layer)



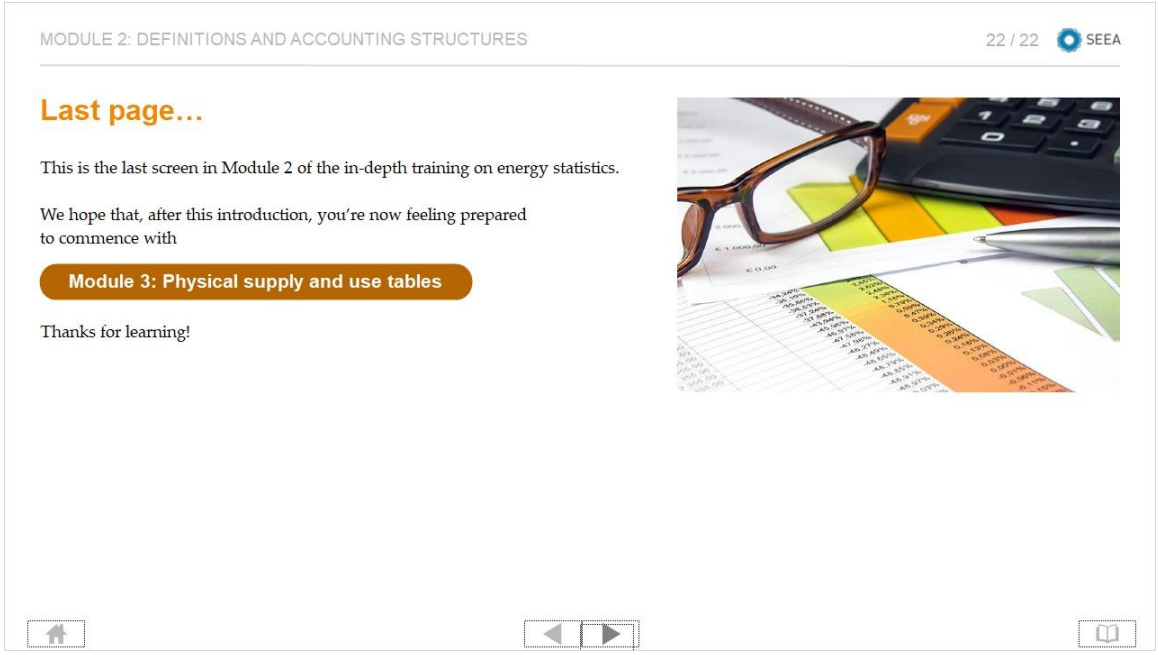
2.20 Summary



2.21 Where can you find more information?

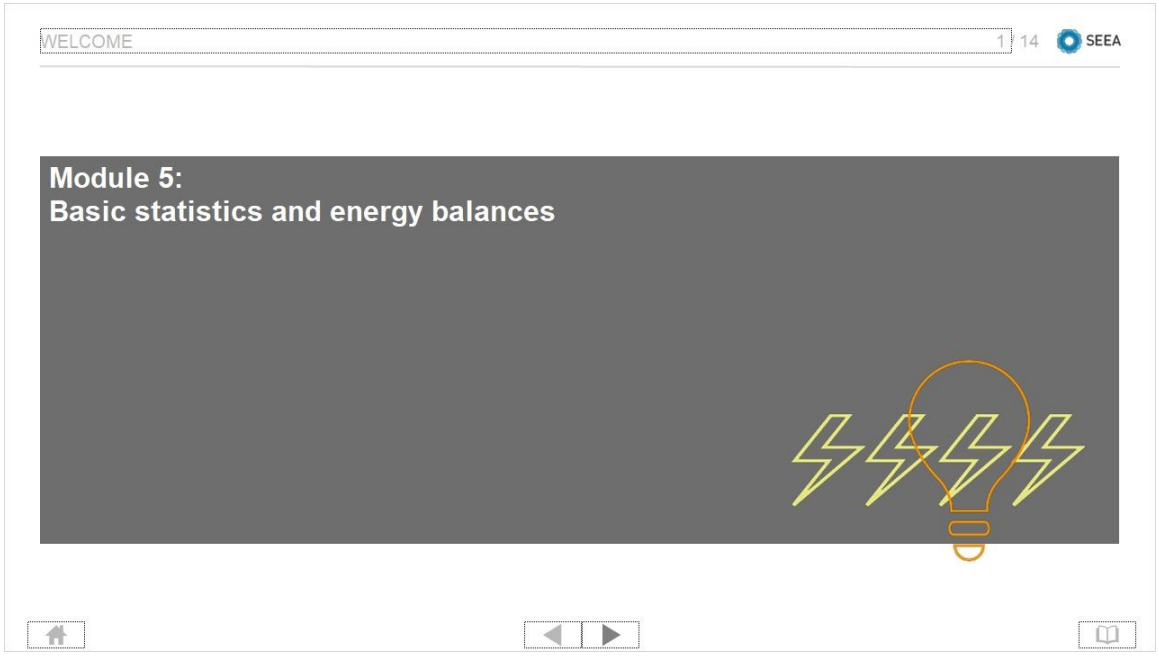


2.22 Last page



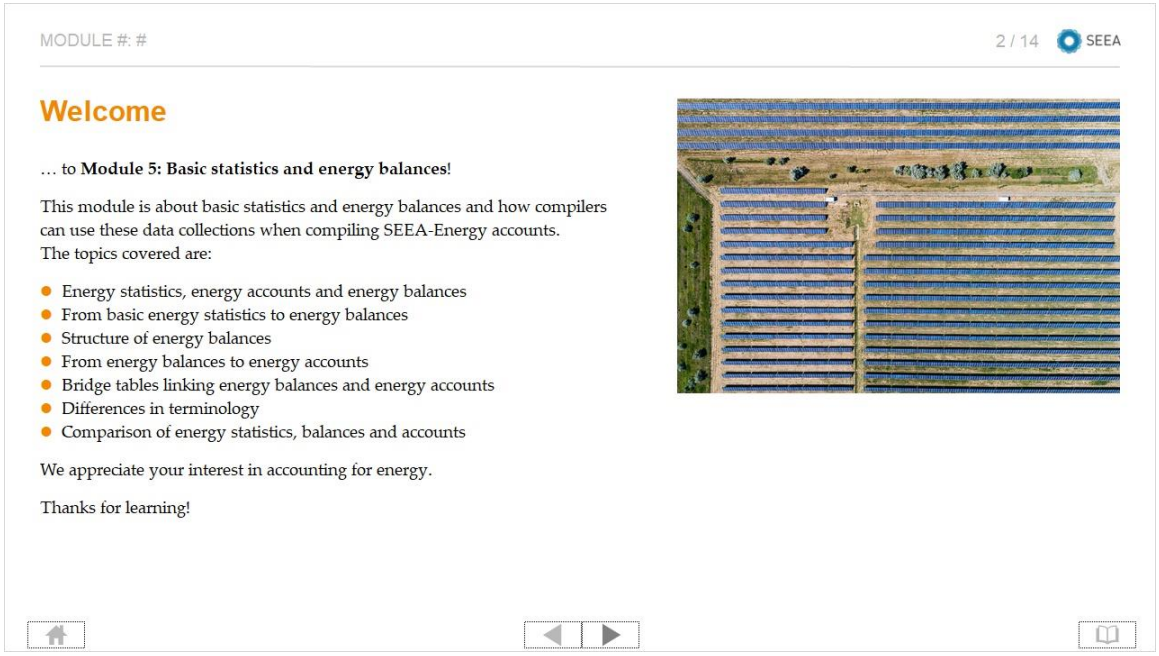
3. Module 5 - Basic statistics and energy balance

3.1 Welcome



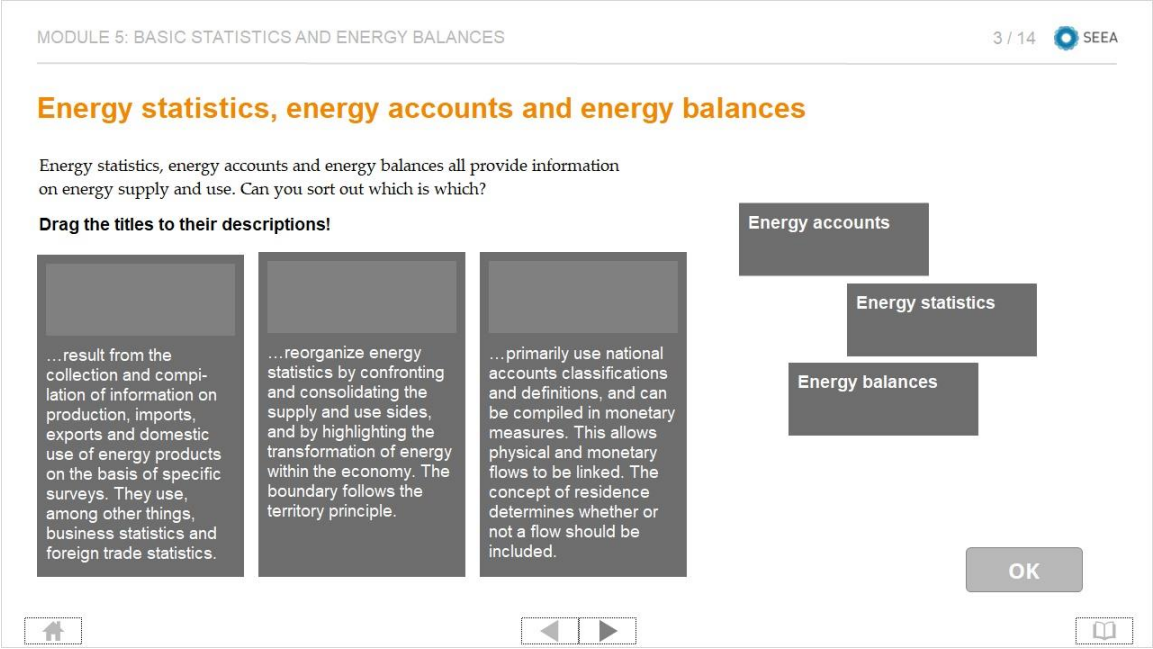
Notes:

3.2 Welcome...



3.3 Energy statistics, energy accounts and energy balances

(Drag and Drop, 10 points, 1 attempt permitted)



Drag Item	Drop Target
Energy statistics	Target 1
Energy balances	Target 2
Energy accounts	Target 3

Drag and drop properties
Return item to start point if dropped outside the correct drop target
Snap dropped items to drop target (Snap to center)
Allow only one item in each drop target
Delay item drop states until interaction is submitted

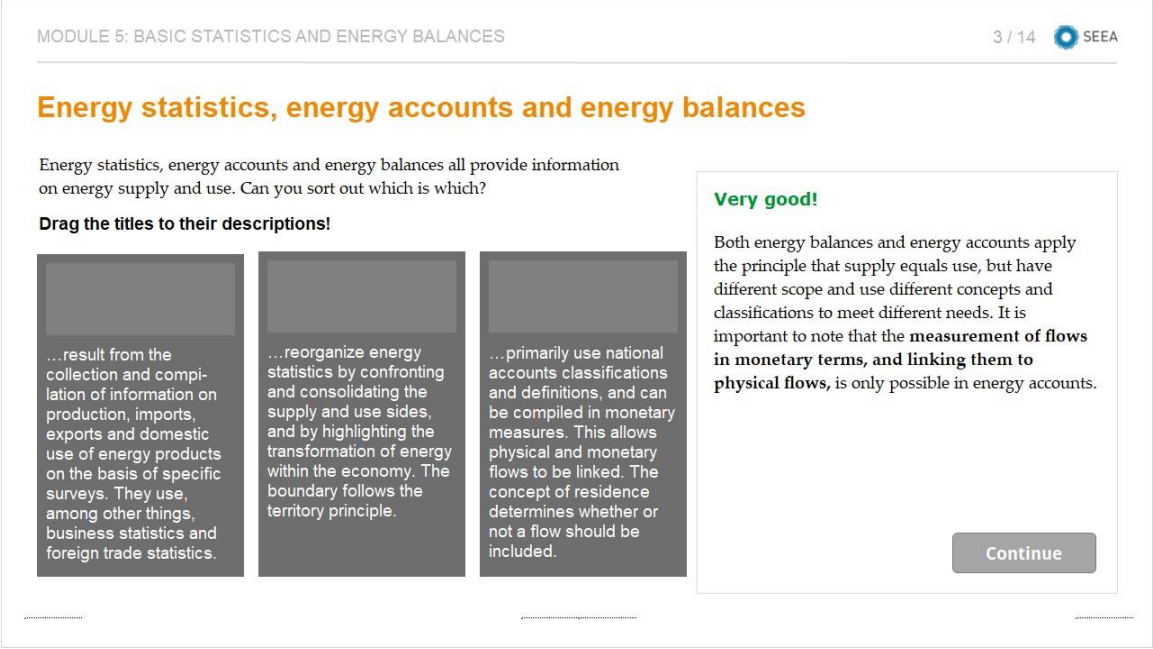
Feedback when correct:

Both energy balances and energy accounts apply the principle that supply equals use, but have different scope and use different concepts and classifications to meet different needs. It is important to note that the measurement of flows in monetary terms, and linking them to physical flows, is only possible in energy accounts.

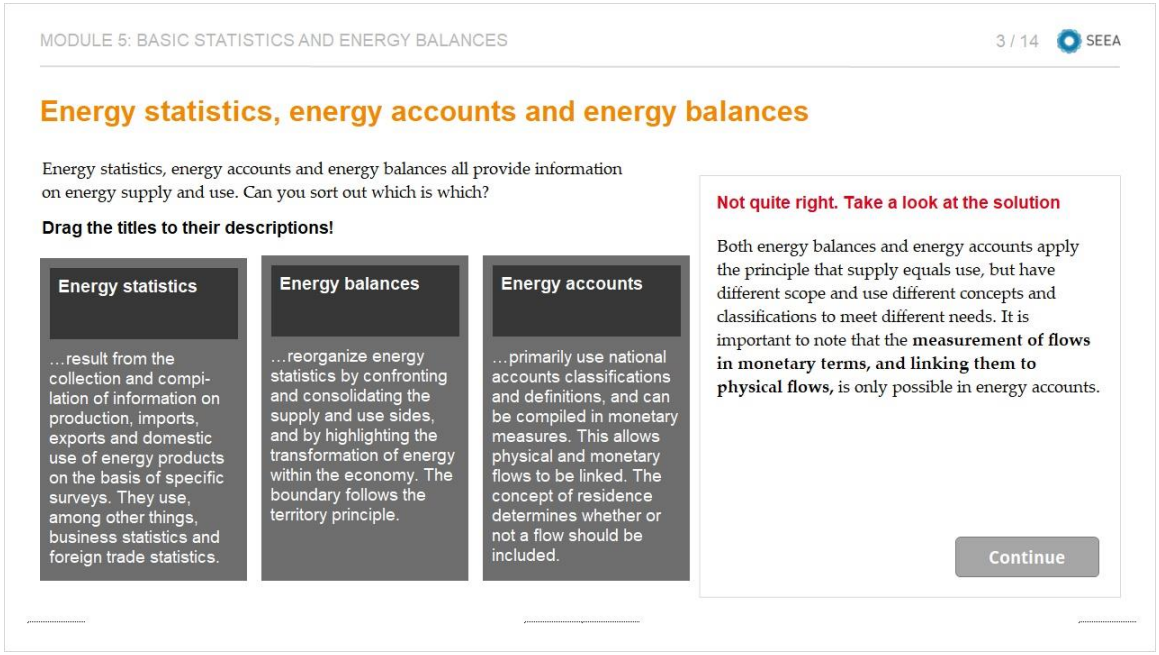
Feedback when incorrect:

Both energy balances and energy accounts apply the principle that supply equals use, but have different scope and use different concepts and classifications to meet different needs. It is important to note that the measurement of flows in monetary terms, and linking them to physical flows, is only possible in energy accounts.

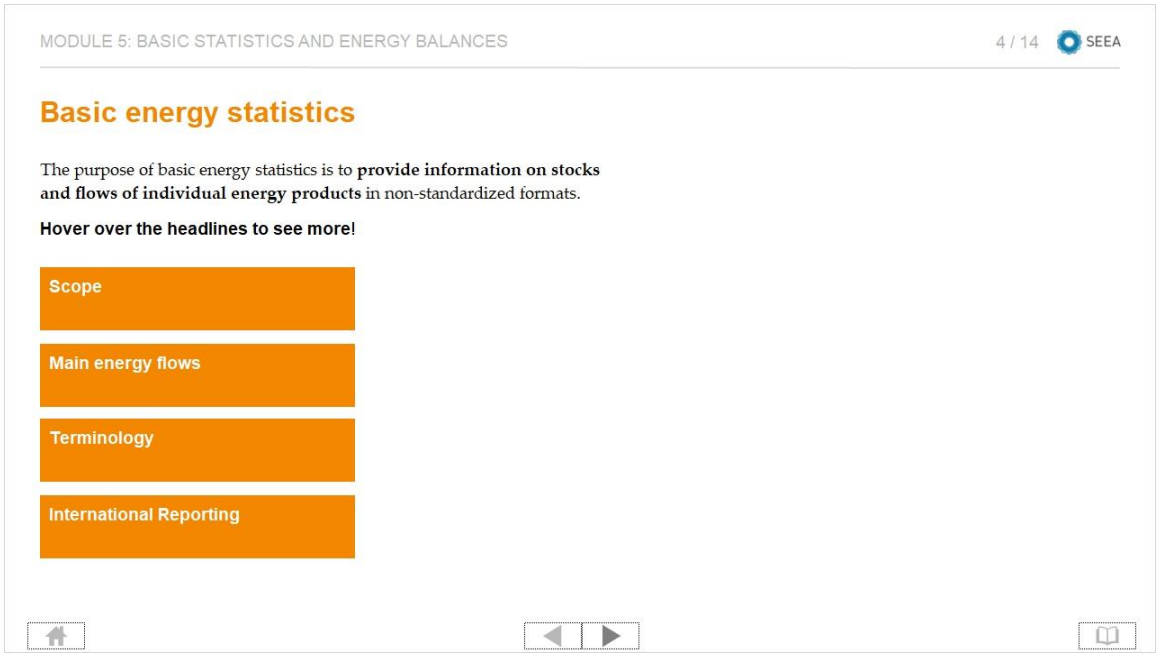
Very good! (Slide Layer)



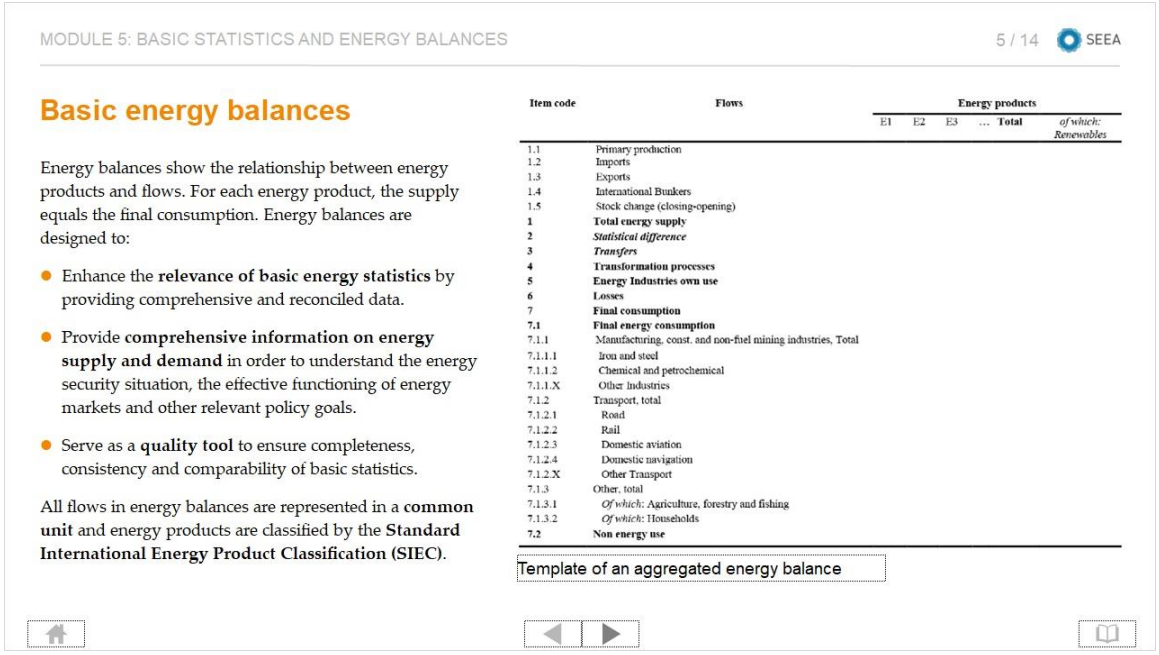
Not quite right. Take a look at the solution (Slide Layer)



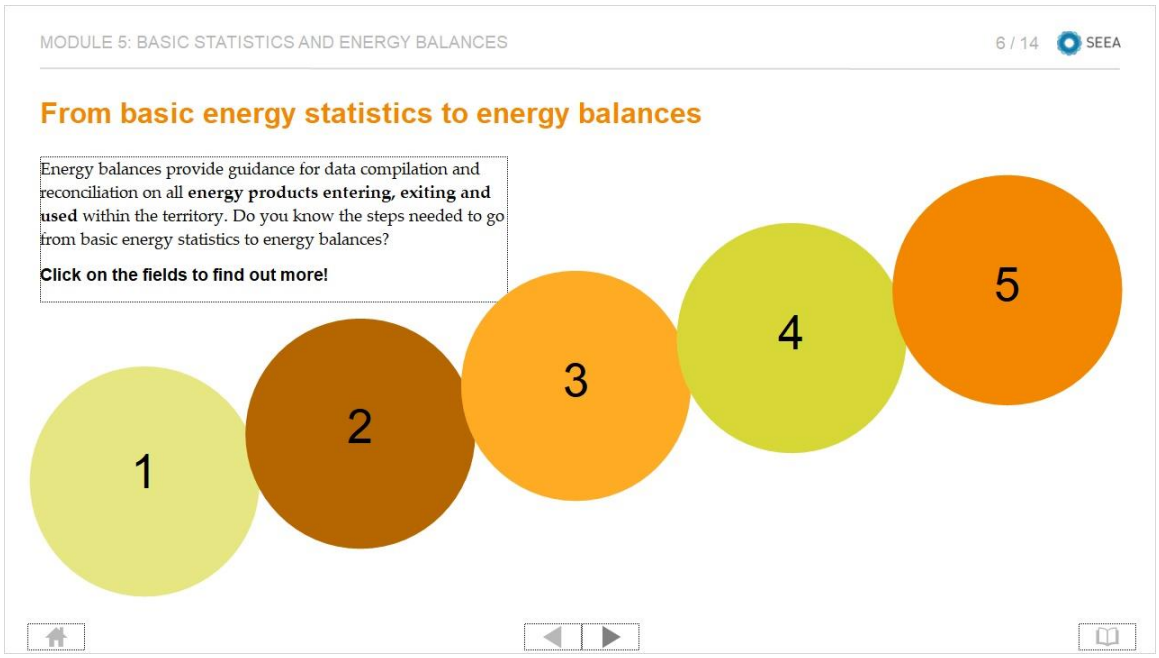
3.4 Basic energy statistics



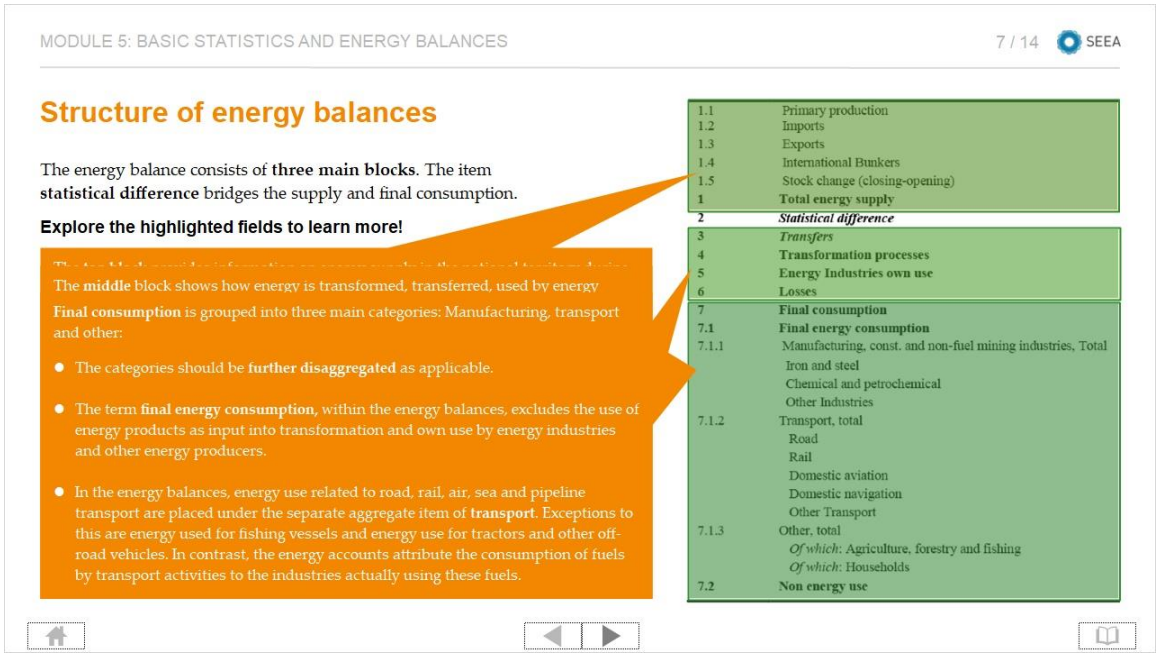
3.5 Basic energy balances



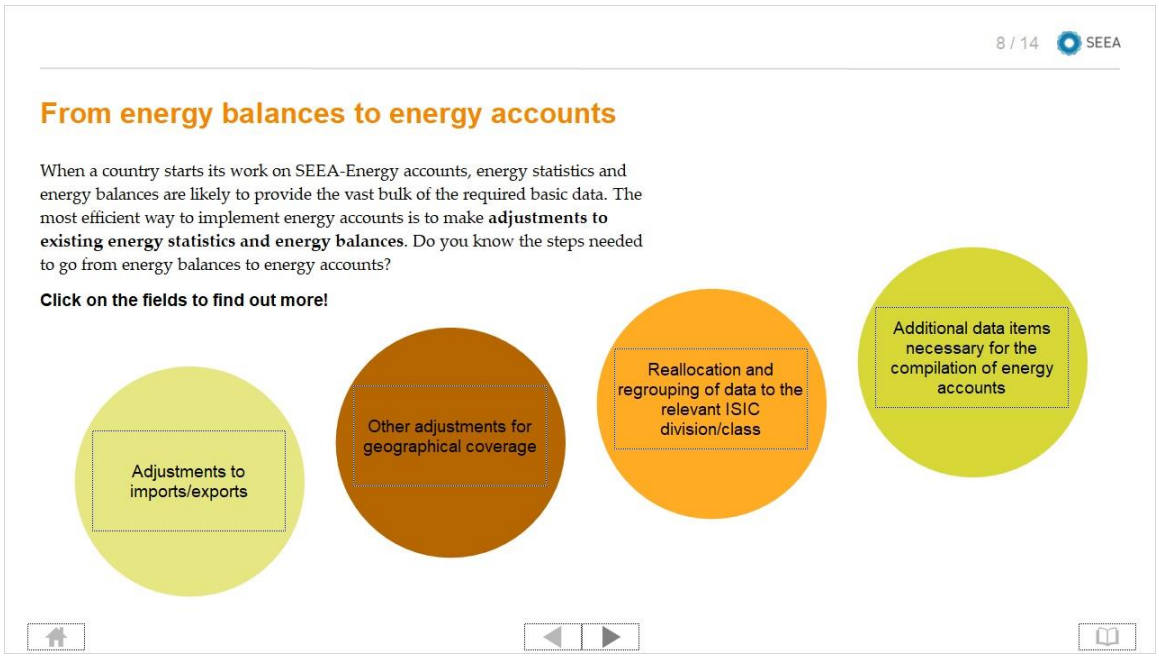
3.6 From basic energy statistics to energy balances



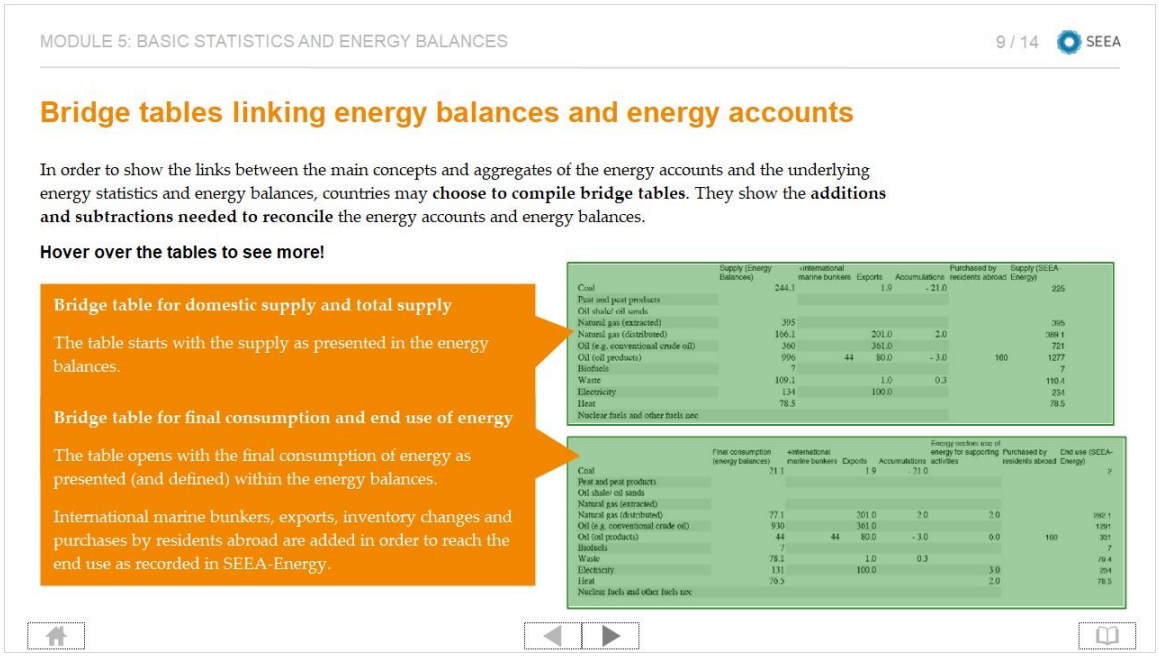
3.7 Structure of energy balances



3.8 From energy balances to energy accounts

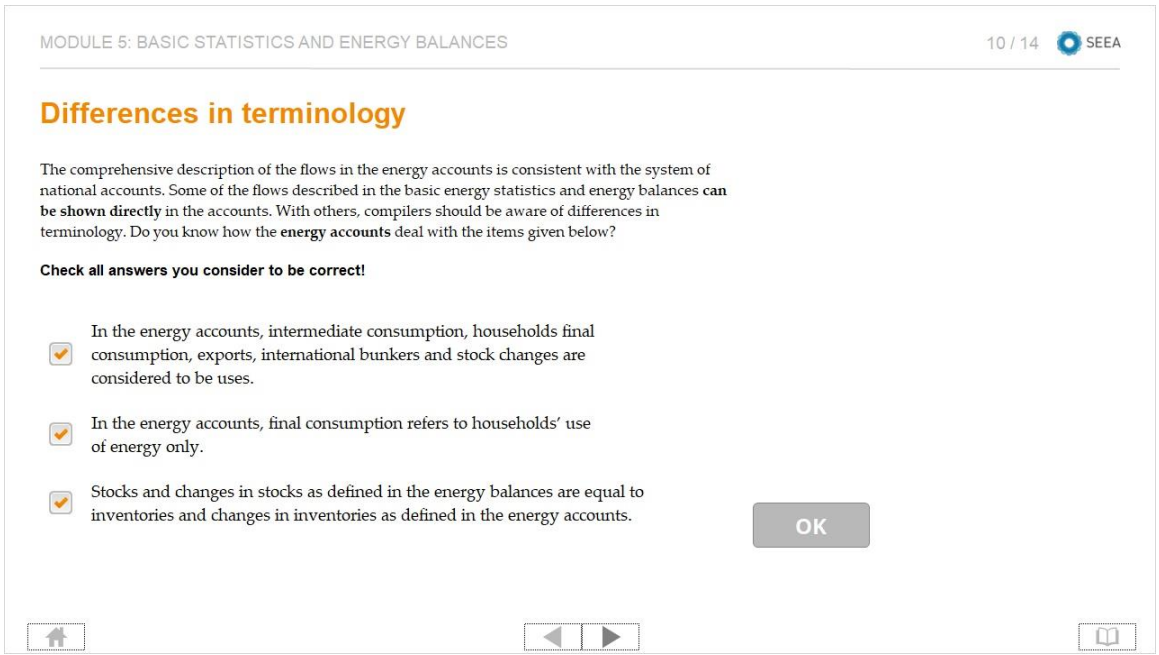


3.9 Bridge tables linking energy balances and energy accounts



3.10 Differences in terminology

(Multiple Response, 10 points, 1 attempt permitted)



Correct	Choice
X	In the energy accounts, intermediate consumption, households final consumption, exports, international bunkers and stock changes are considered to be uses.
X	In the energy accounts, final consumption refers to households' use of energy only.
X	Stocks and changes in stocks as defined in the energy balances are equal to inventories and changes in inventories as defined in the energy accounts.

Feedback when correct:

Even though there are many similarities between energy balances and energy accounts, some crucial differences exist:

Differences in terminology and concepts, e.g. in the energy balance, final consumption refers to the use of fuels, electricity and heat delivered to final consumers (industries or households)

Conceptual differences including territory principle / residence principle

Treatment of transport

Feedback when incorrect:

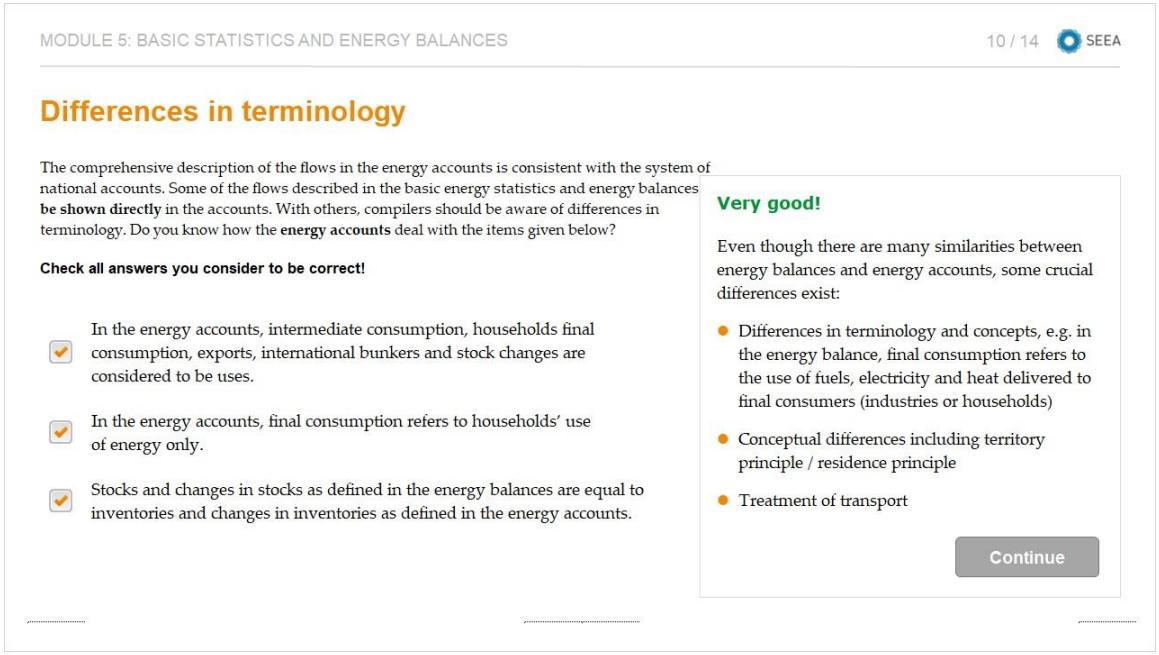
Even though there are many similarities between energy balances and energy accounts, some crucial differences exist:

Differences in terminology and concepts, e.g. in the energy balance, final consumption refers to the use of fuels, electricity and heat delivered to final consumers (industries or households)

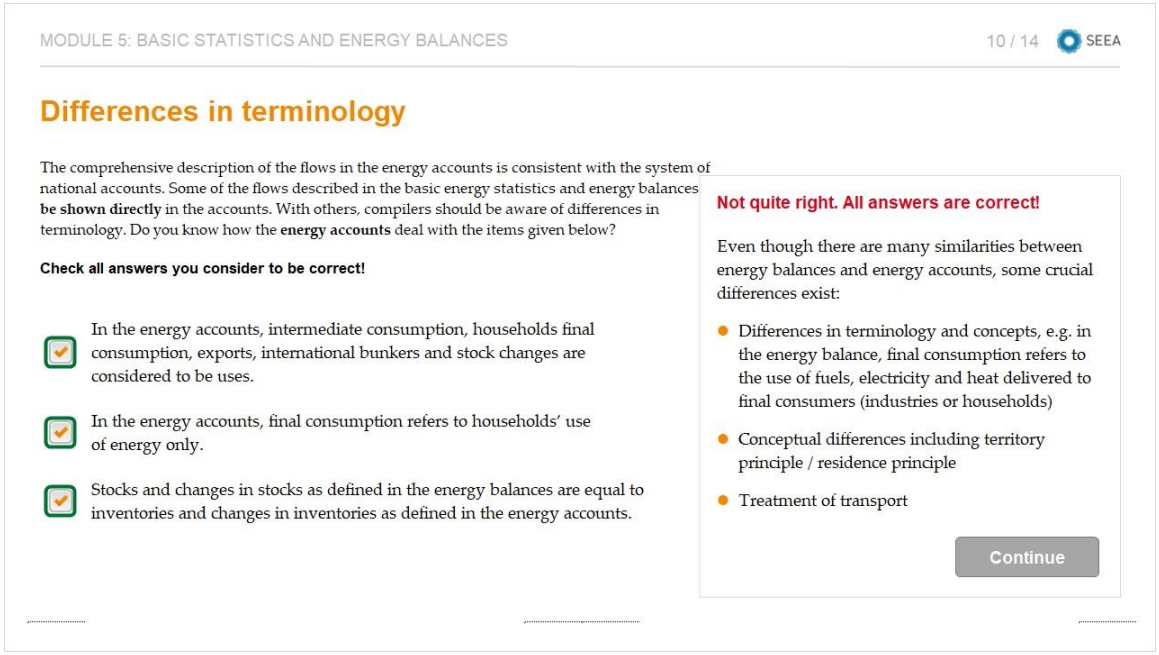
Conceptual differences including territory principle / residence principle

Treatment of transport

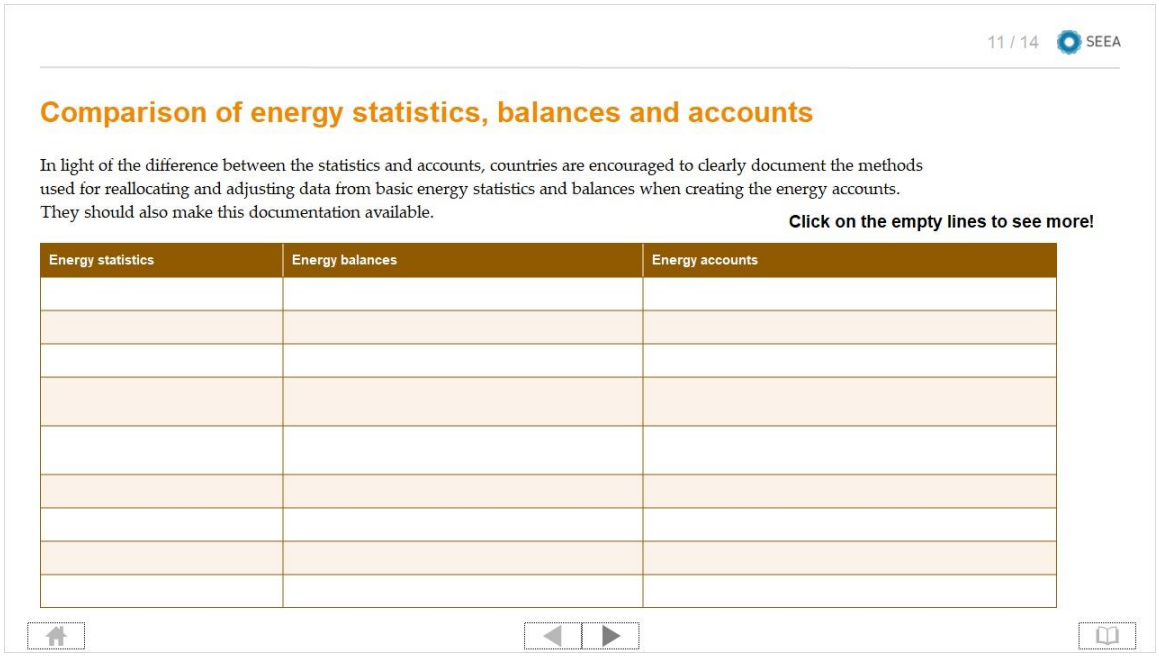
Very good! (Slide Layer)



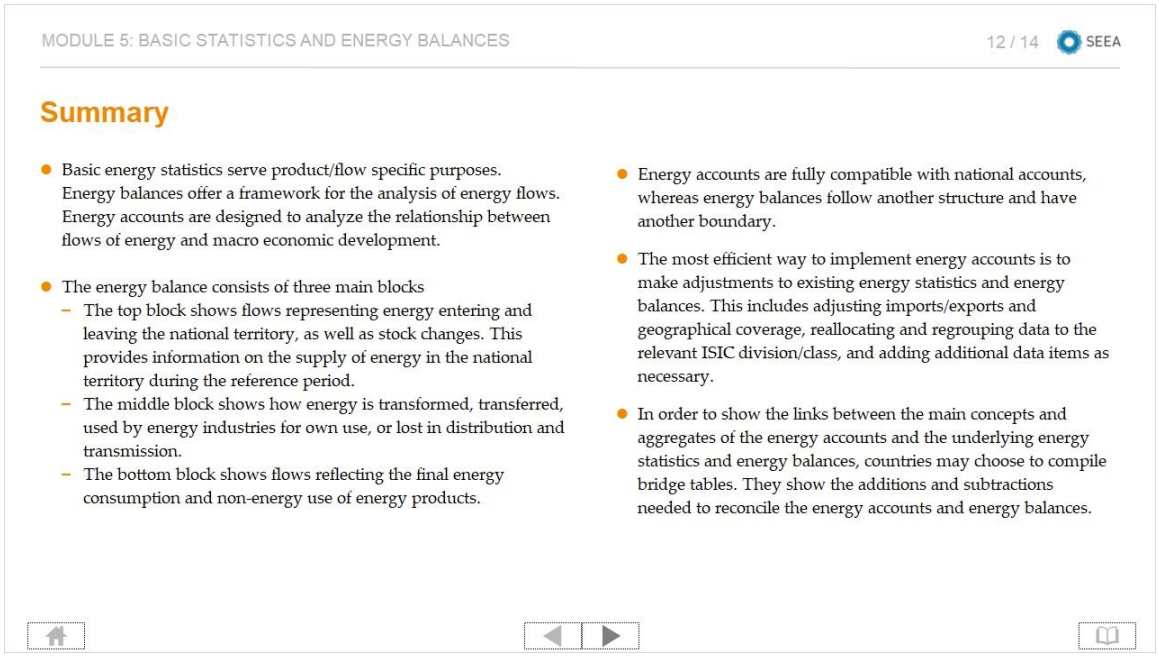
Not quite right. All answers are correct! (Slide Layer)



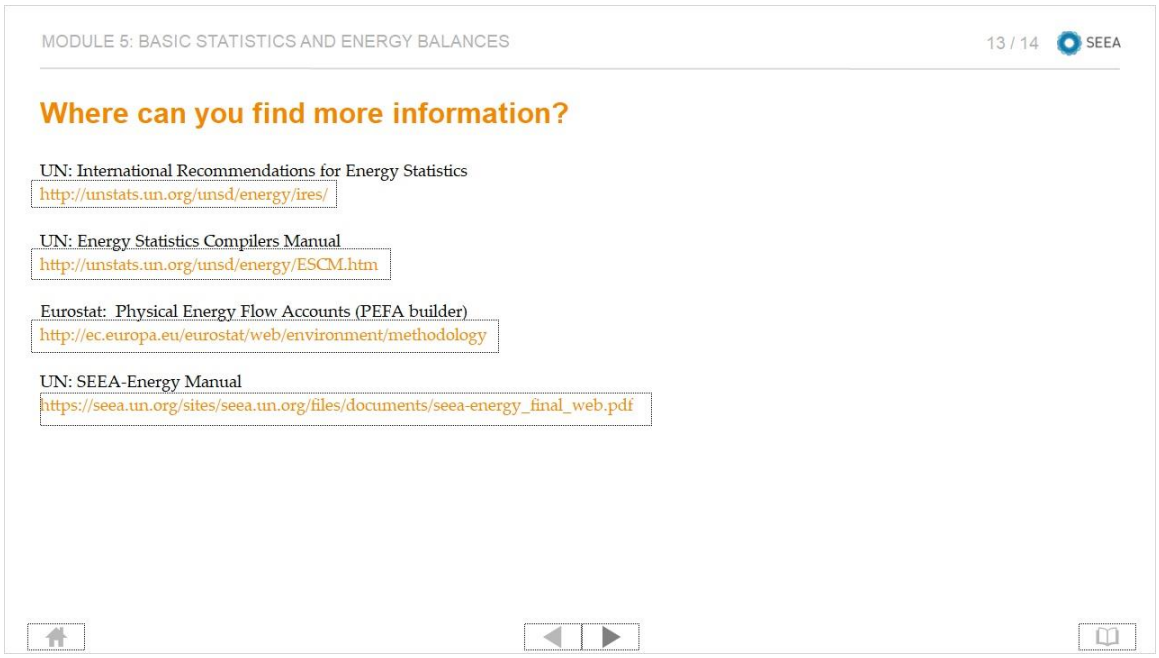
3.11 Untitled Slide



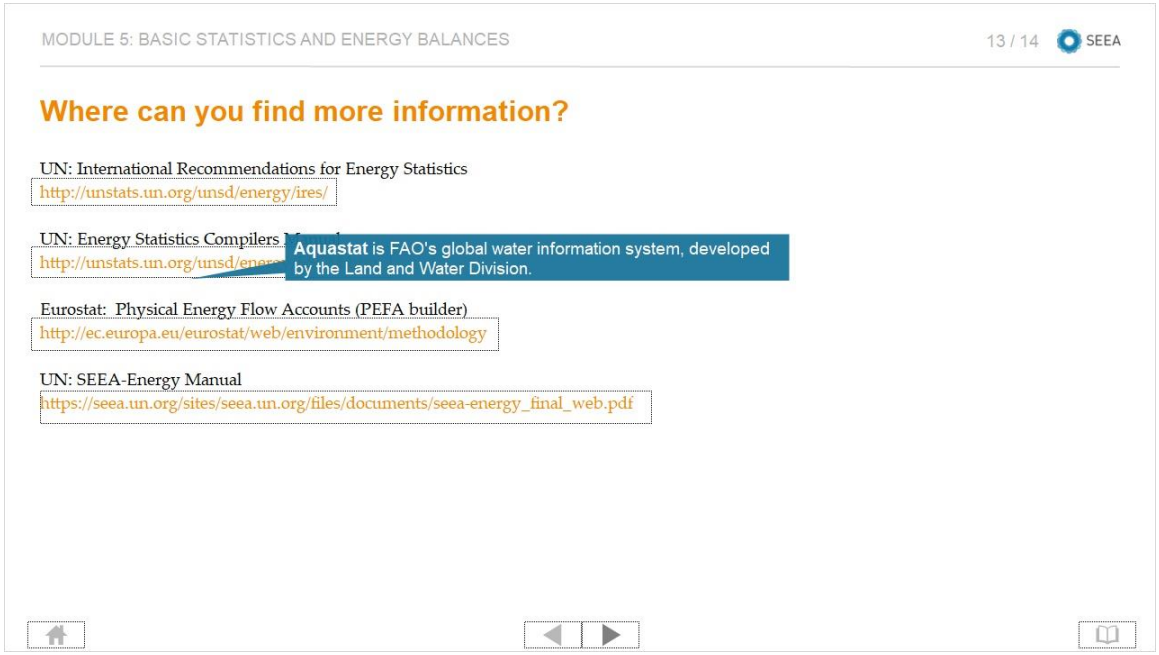
3.12 Summary



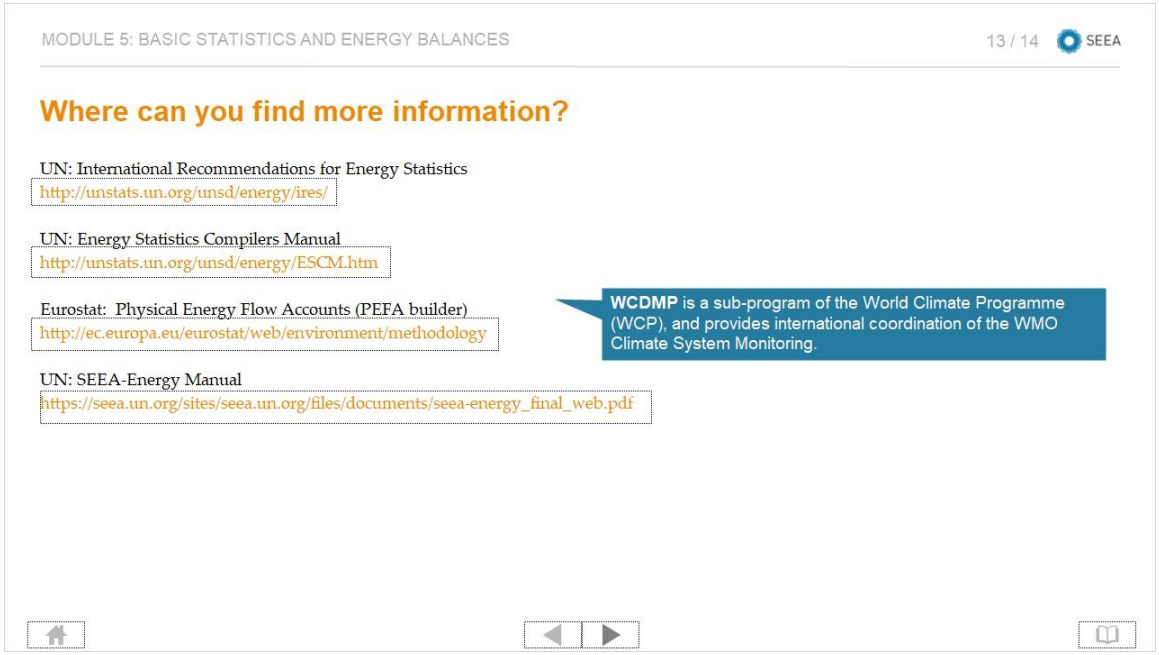
3.13 Where can you find more information?



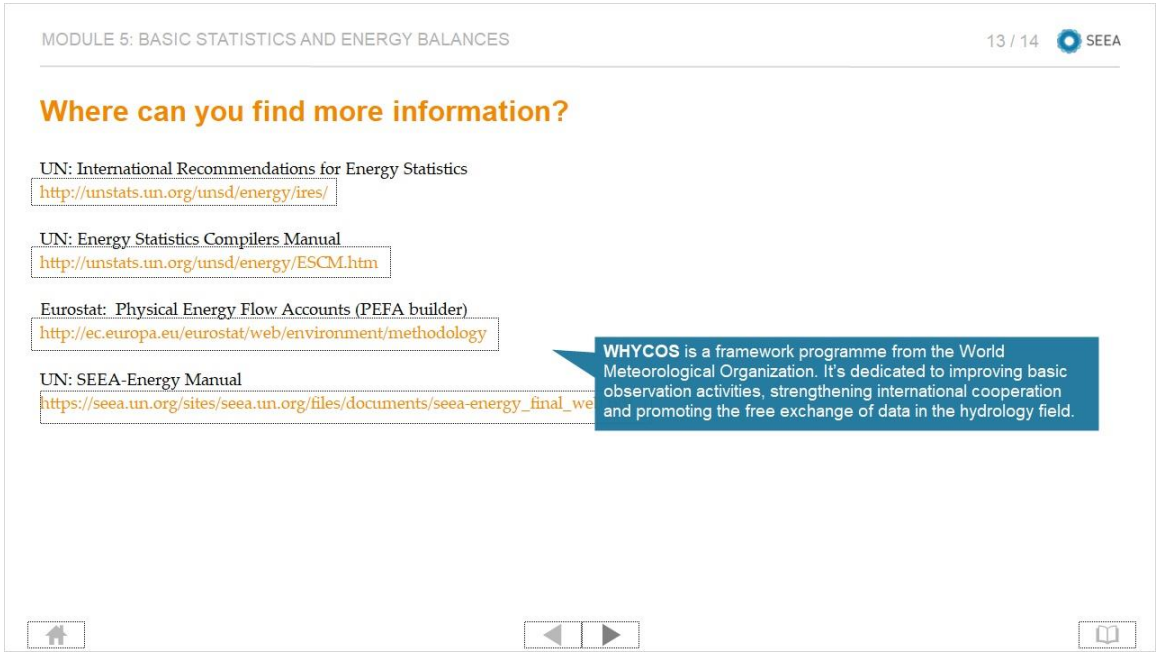
Explanation 1 (Slide Layer)



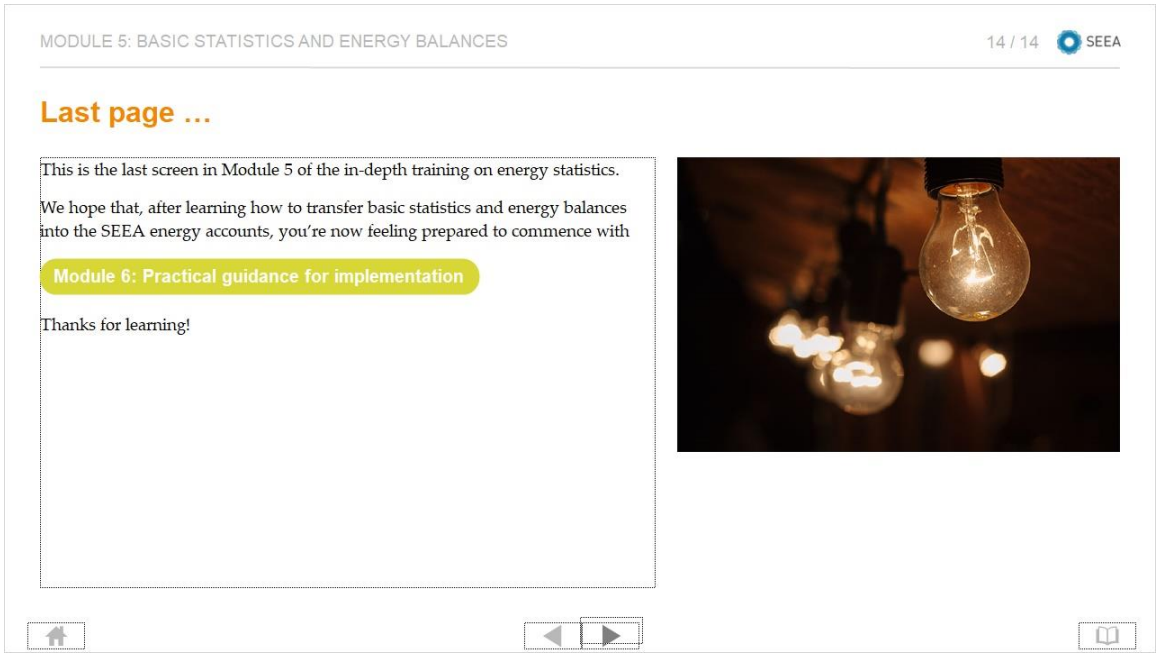
Explanation 2 (Slide Layer)



Explanation 3 (Slide Layer)

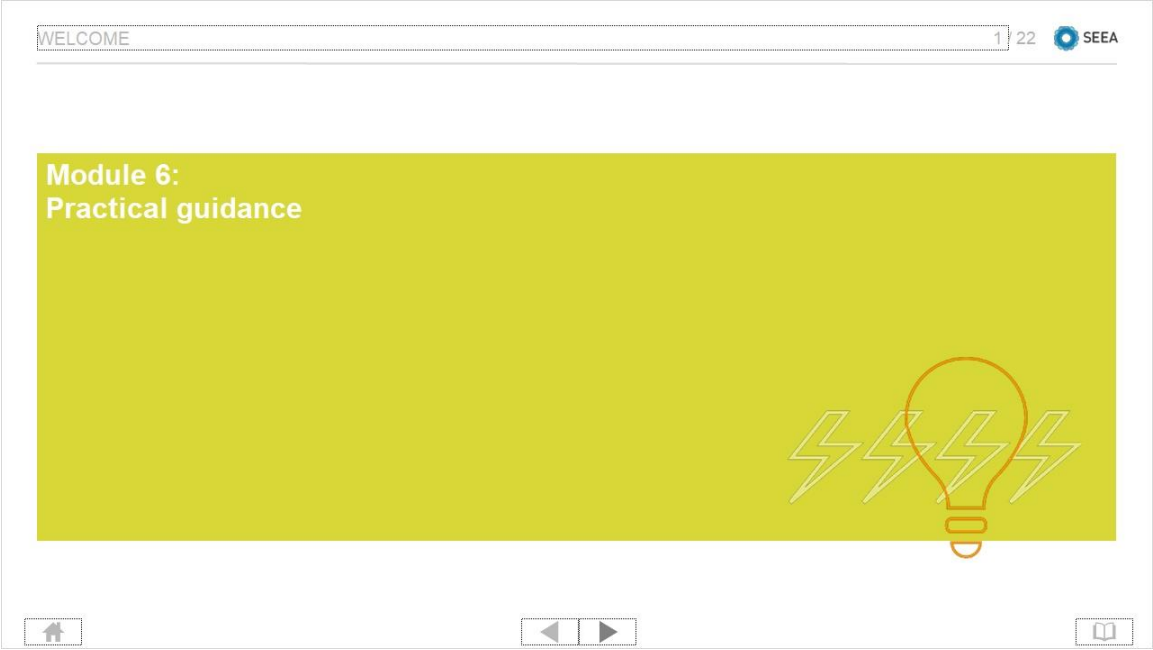


3.14 Last Page



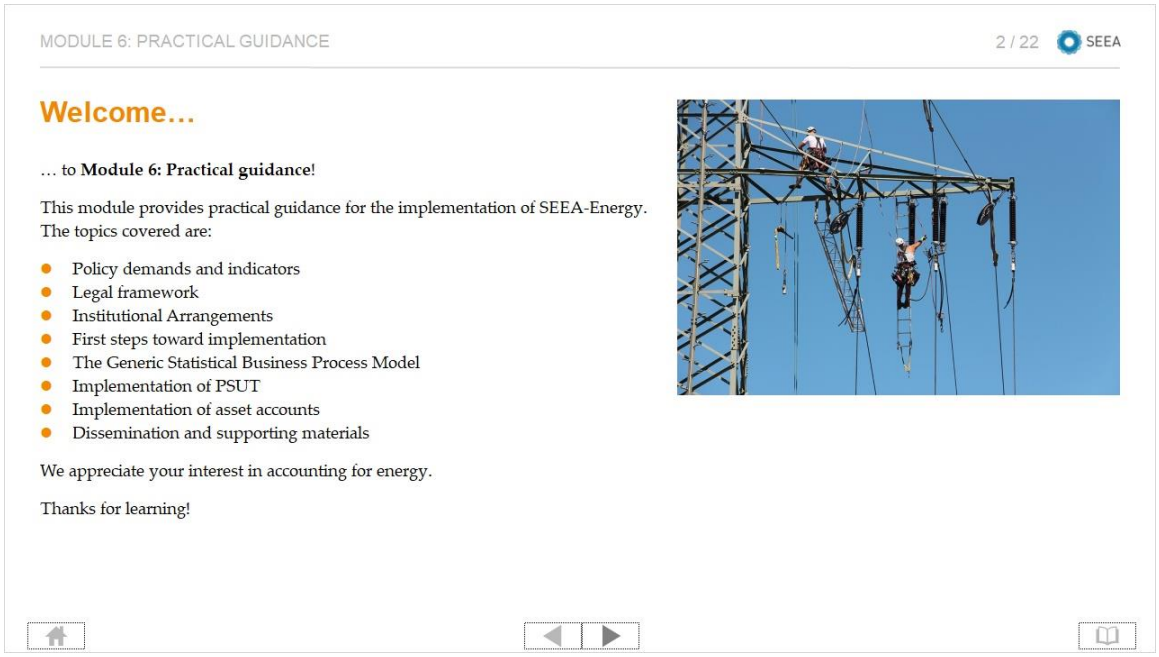
4. Module 6 - Practical guidance

4.1 Welcome

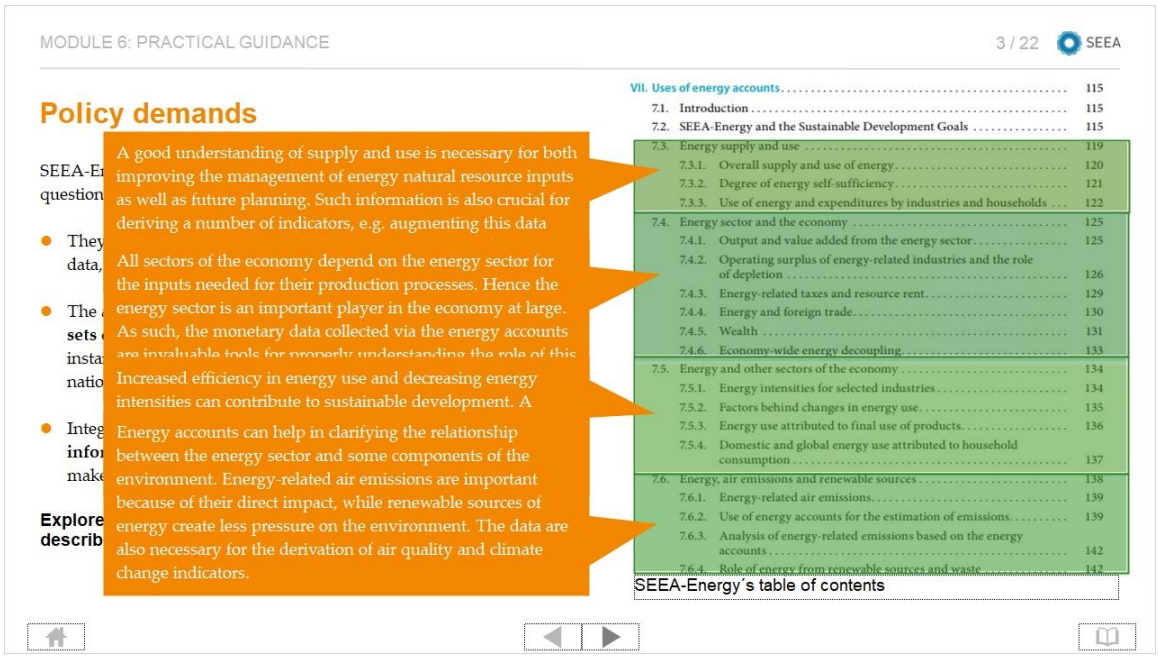


Notes:

4.2 Welcome…

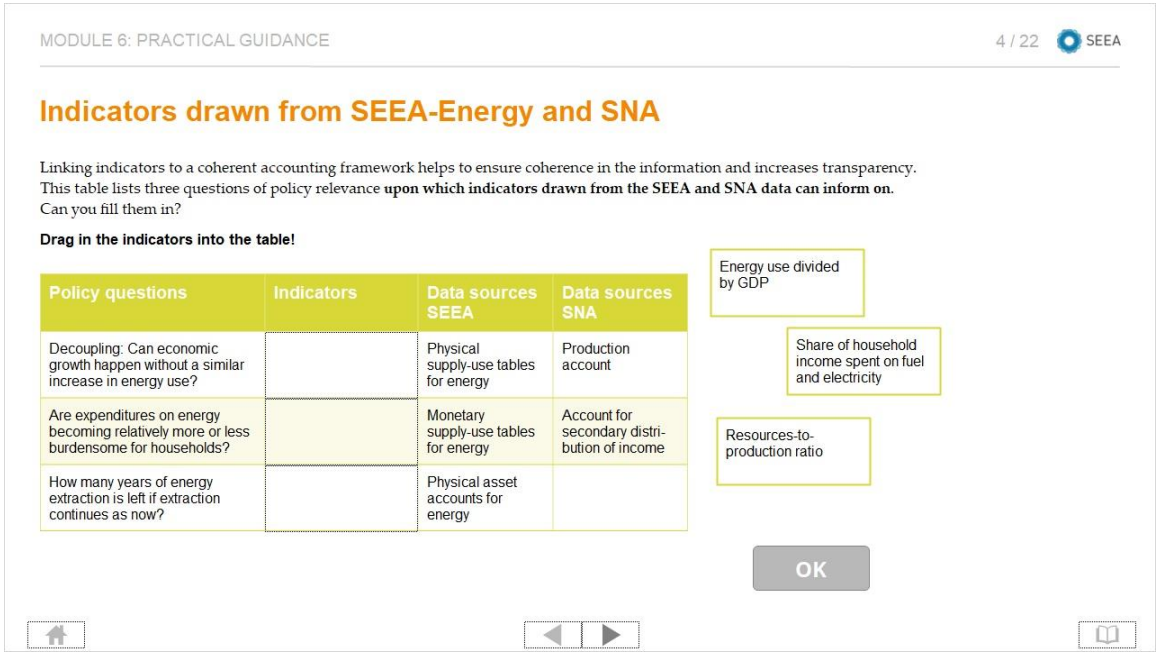


4.3 Policy demands



4.4 Indicators drawn from SEEA Energy and SNA

(Drag and Drop, 10 points, 1 attempt permitted)



Drag Item	Drop Target
Energy use divided by GDP	Target 1
Share of household income spent on fuel and electricity	Target 2
Resources-to-production ratio	Target 3

Drag and drop properties
Return item to start point if dropped outside the correct drop target
Snap dropped items to drop target (Snap to center)
Allow only one item in each drop target

Delay item drop states until interaction is submitted

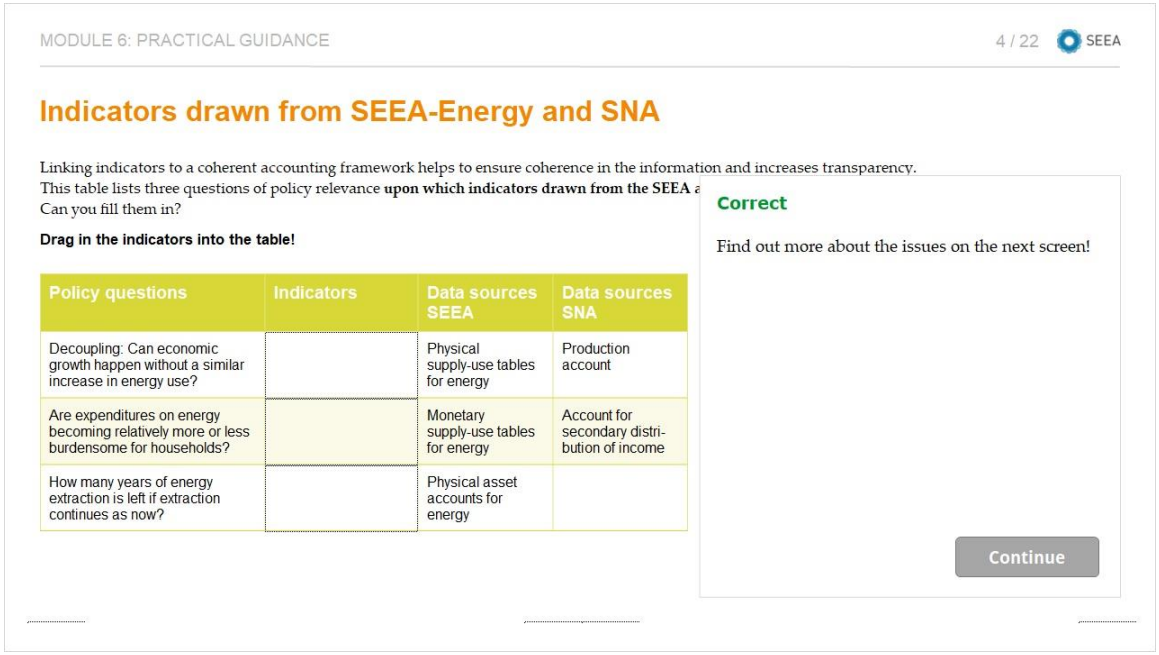
Feedback when correct:

Find out more about the issues on the next screen!

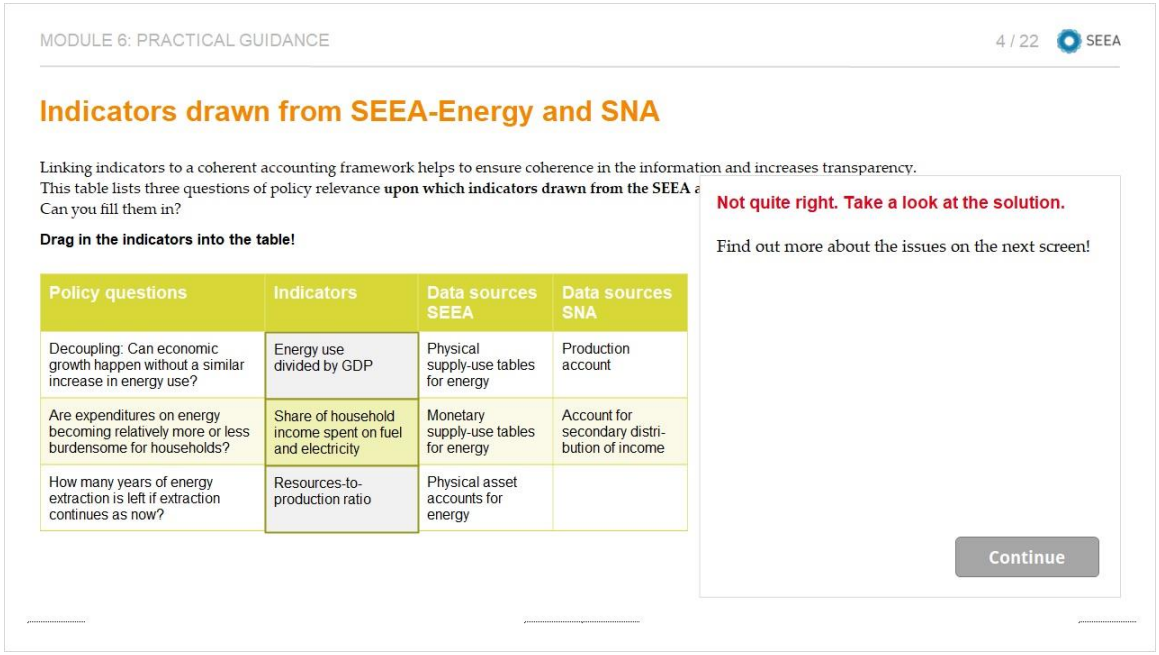
Feedback when incorrect:

Find out more about the issues on the next screen!

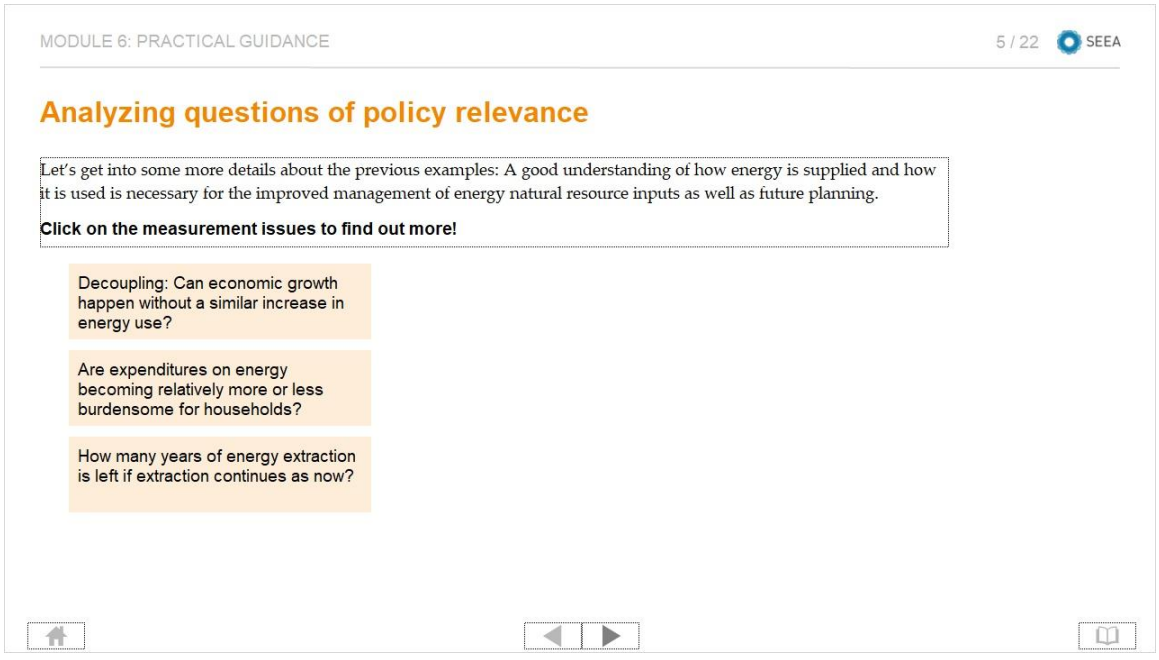
Correct (Slide Layer)



Not quite right. Take a look at the solution. (Slide Layer)



4.5 Analyzing questions of policy relevance



4.6 Sustainable Development Goals (SDGs)

MODULE 6: PRACTICAL GUIDANCE 6 / 22 SEEA

Sustainable Development Goals (SDGs)

The Sustainable Development Goals (SDGs) and targets were adopted by the United Nations General Assembly in 2015:

- Goal 7 of the SDGs aims to **ensure access to affordable, reliable, sustainable and modern energy for all** through a number of targets.
- Besides goal 7, a number of other targets in the SDG's could be informed by the energy accounts including two targets in Goal 12 on **ensuring sustainable consumption and production patterns**.
- Compiling the various energy accounts makes it possible to inform multiple targets in an integrated fashion.

4.7 SEEA Energy links with SDG 7

MODULE 6: PRACTICAL GUIDANCE 7 / 22 SEEA

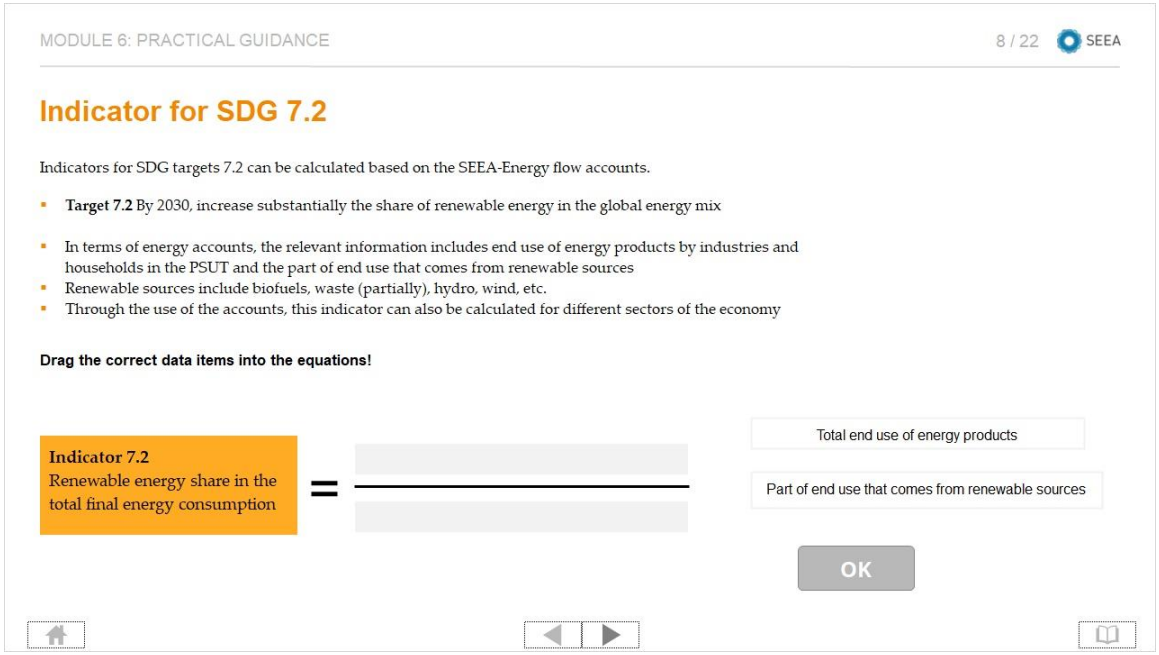
SEEA-Energy links with SDG 7

How SEEA-Energy links to the targets set for SDG 7 is presented below. **Click on the empty fields to fill them in!**

7.1 By 2030, ensure universal access to affordable, reliable and modern energy services	
7.2 By 2030, increase substantially the share of renewable energy in the global energy mix	
7.3 By 2030, double the global rate of improvement in energy efficiency	
7.a By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology	
7.b By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States and landlocked developing countries, in accordance with their respective programmes of support	

4.8 Indicators of SDG 7

(Drag and Drop, 10 points, 1 attempt permitted)



Drag Item	Drop Target
Part of end use that comes from renewable sources	Target 1 1
Total end use of energy products	Target 2 1

Drag and drop properties
Return item to start point if dropped outside the correct drop target
Snap dropped items to drop target (Snap to center)
Allow only one item in each drop target
Delay item drop states until interaction is submitted

Feedback when correct:

Renewable energy consumption includes energy derived from: hydro, solid biofuels, wind, solar, liquid biofuels, biogas, geothermal and waste.

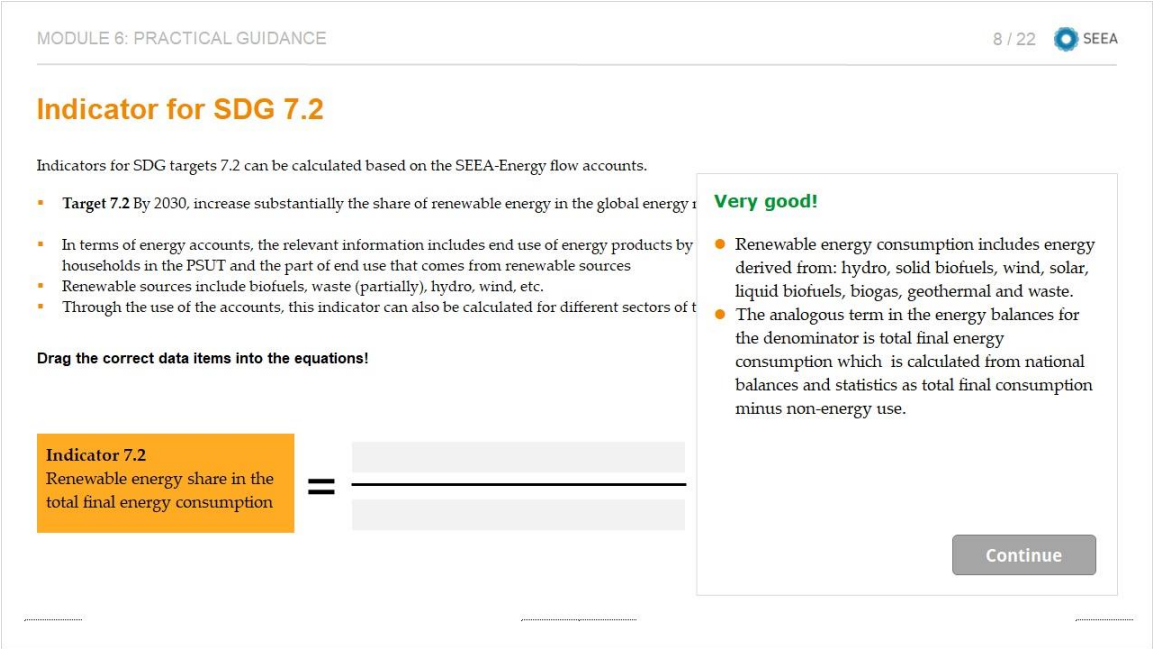
The analogous term in the energy balances for the denominator is total final energy consumption which is calculated from national balances and statistics as total final consumption minus non-energy use.

Feedback when incorrect:

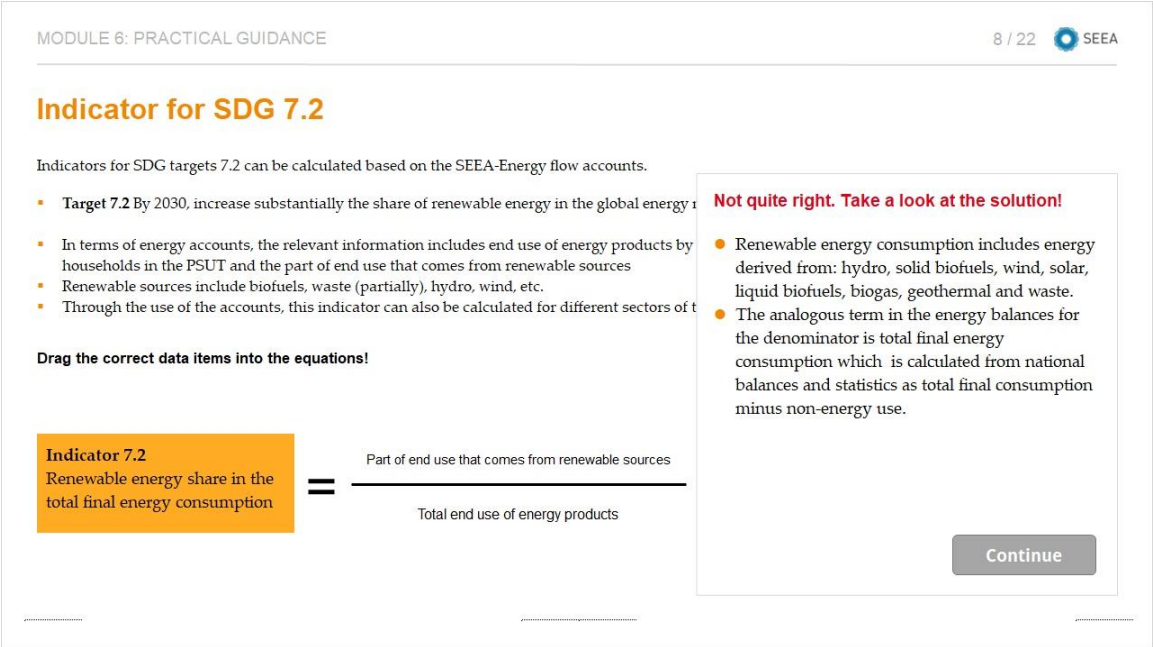
Renewable energy consumption includes energy derived from: hydro, solid biofuels, wind, solar, liquid biofuels, biogas, geothermal and waste.

The analogous term in the energy balances for the denominator is total final energy consumption which is calculated from national balances and statistics as total final consumption minus non-energy use.

Very good! (Slide Layer)

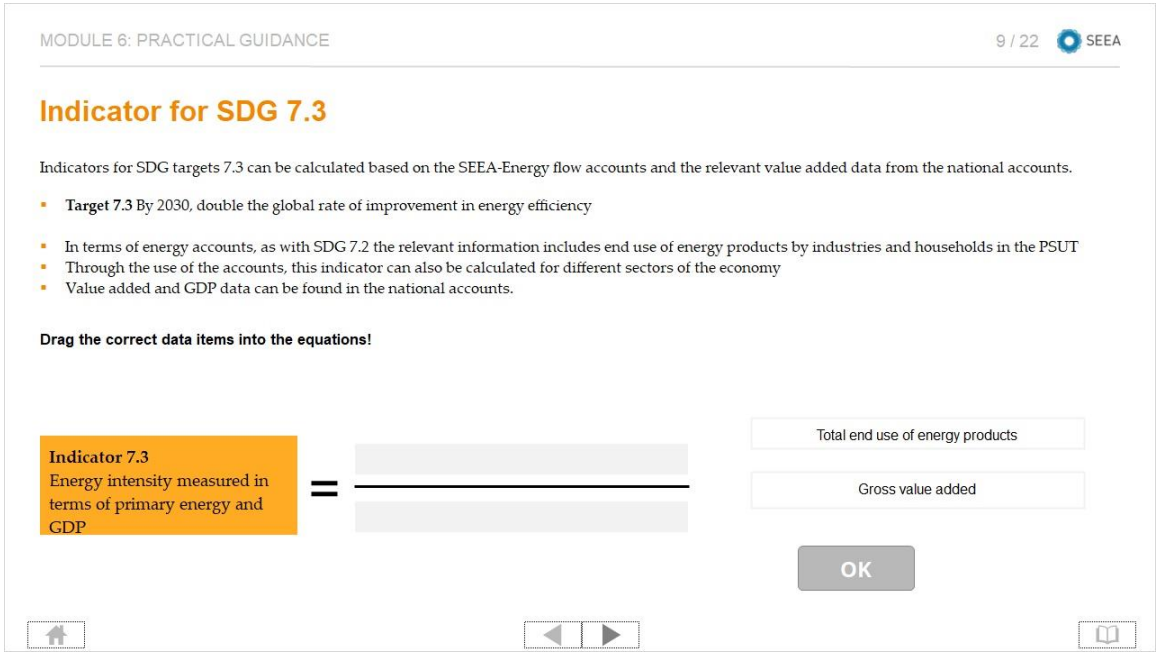


Not quite right. Take a look at the solution! (Slide Layer)



4.9 Indicators of SDG 7

(Drag and Drop, 10 points, 1 attempt permitted)



Drag Item	Drop Target
Gross value added	Target 2 1
Total end use of energy products	Target 1 1

Drag and drop properties
Return item to start point if dropped outside the correct drop target
Snap dropped items to drop target (Snap to center)
Allow only one item in each drop target
Delay item drop states until interaction is submitted

Feedback when correct:

By using the same definitions and classifications as the national accounts, information on the end use of energy contained in the PSUT can be directly linked with value added information from the national accounts.

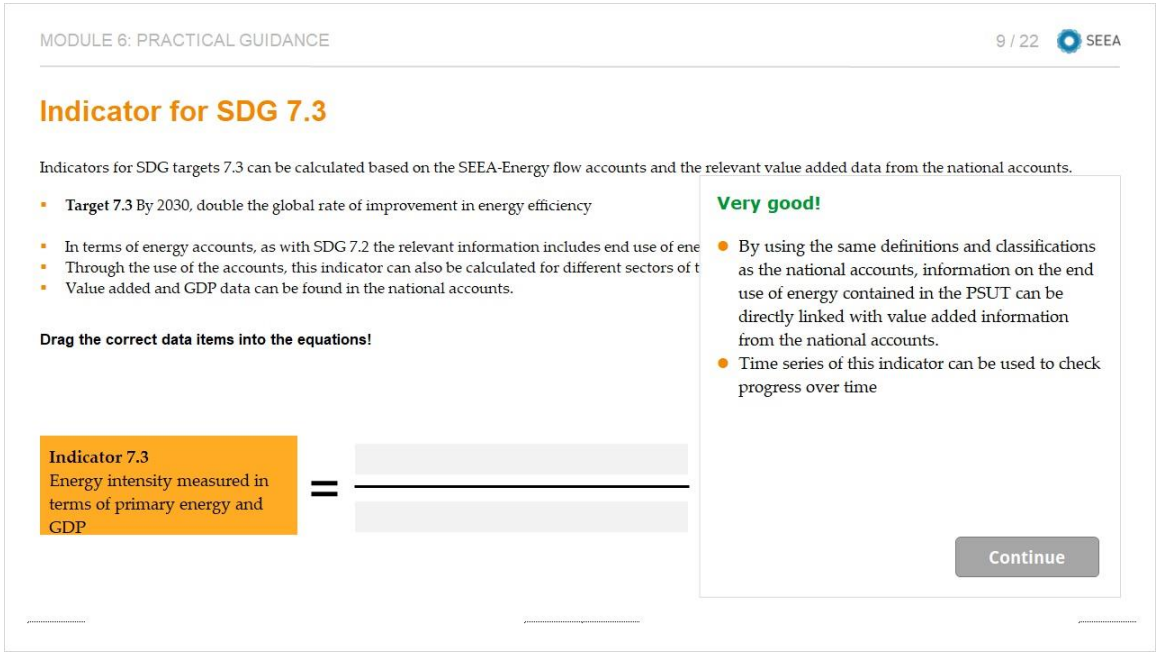
Time series of this indicator can be used to check progress over time

Feedback when incorrect:

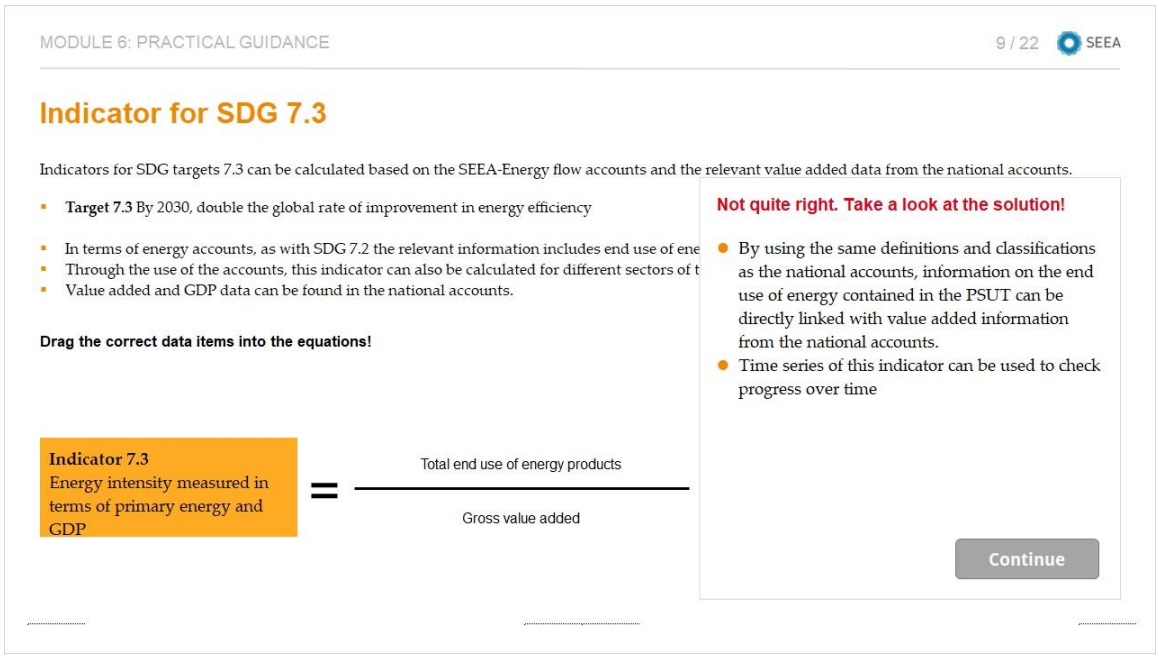
By using the same definitions and classifications as the national accounts, information on the end use of energy contained in the PSUT can be directly linked with value added information from the national accounts.

Time series of this indicator can be used to check progress over time

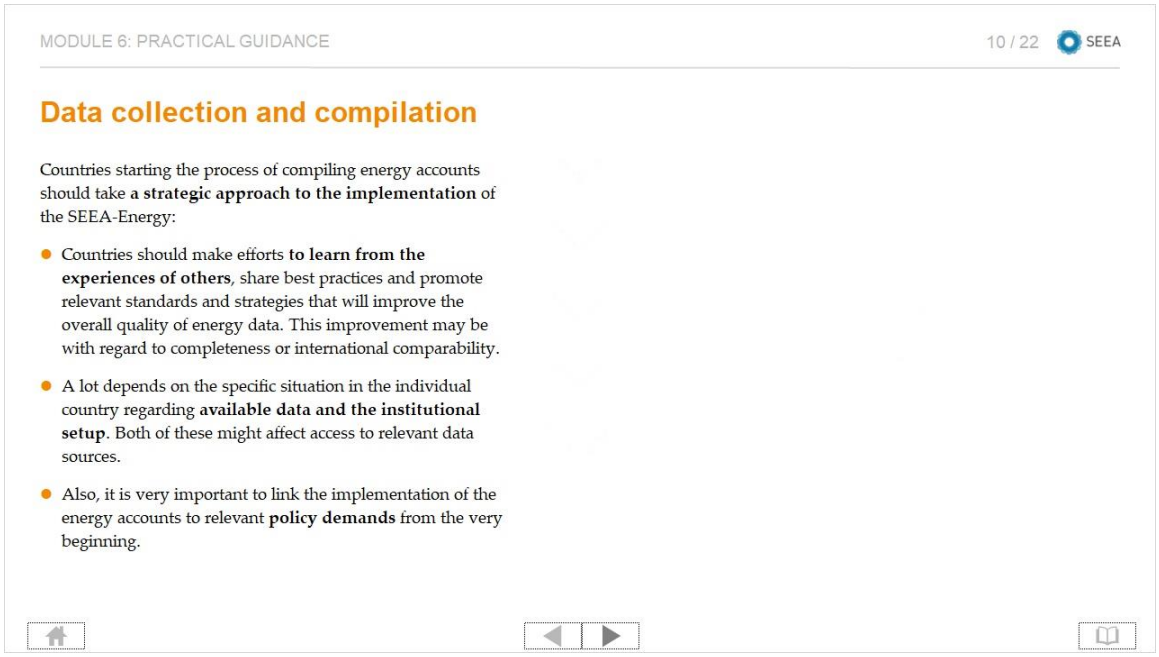
Very good! (Slide Layer)



Not quite right. Take a look at the solution! (Slide Layer)



4.10 Data collection and compilation



4.11 Sustainable Development Goals (SDGs)

4.12 Institutional Arrangements

(Drag and Drop, 10 points, 1 attempt permitted)

Drag Item	Drop Target
Designation of one agency responsible for the dissemination of official energy statistics or agencies responsible for specific data sets	Target 1
Clear definition of roles and responsibilities for relevant agencies and establishment of formal or informal processes that promote collaboration	Target 2
Establishment of working groups for priority setting, harmonization of concepts and data validation and analysis	Target 3

Drag and drop properties
Return item to start point if dropped outside the correct drop target
Snap dropped items to drop target (Snap to center)
Allow only one item in each drop target
Delay item drop states until interaction is submitted

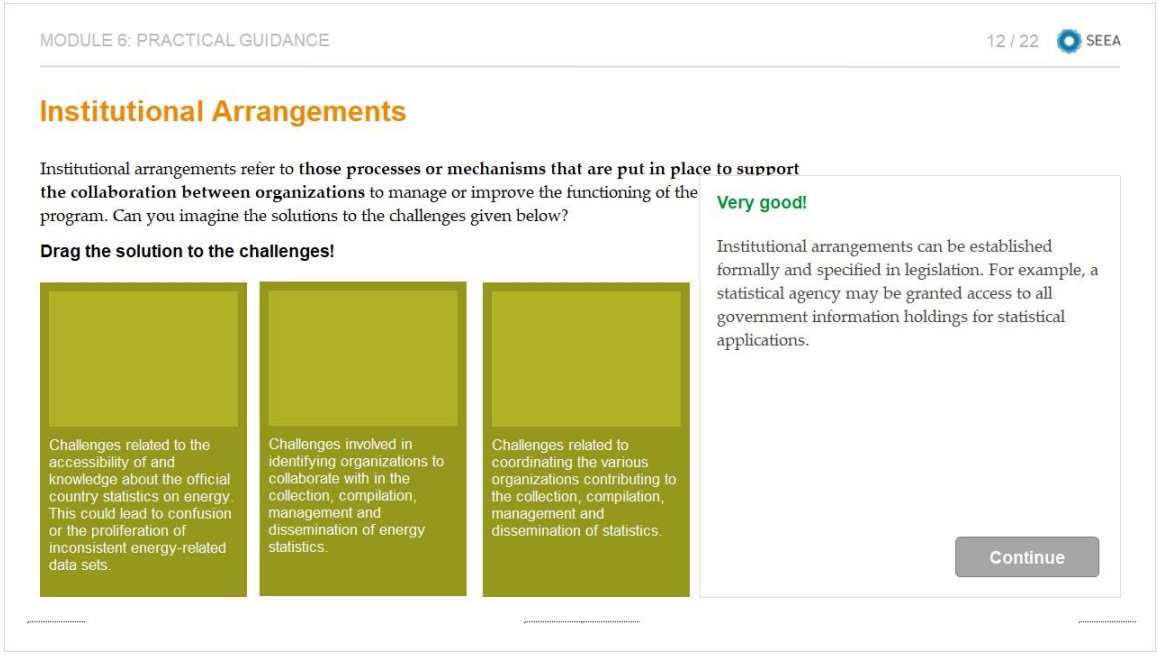
Feedback when correct:

Institutional arrangements can be established formally and specified in legislation. For example, a statistical agency may be granted access to all government information holdings for statistical applications.

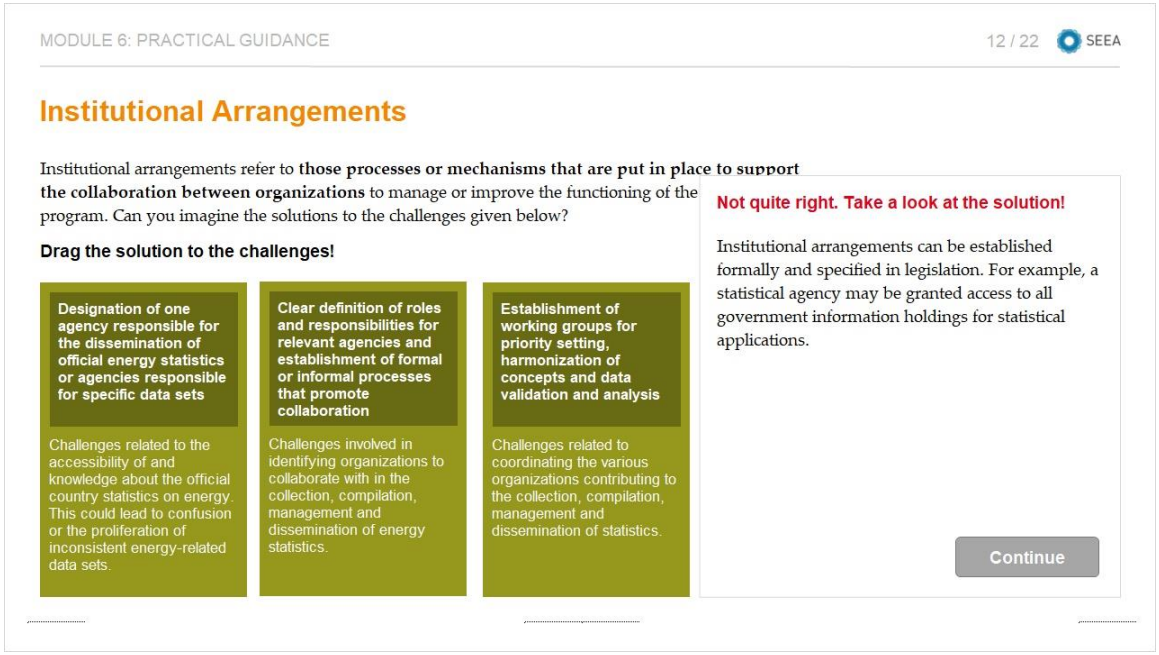
Feedback when incorrect:

Institutional arrangements can be established formally and specified in legislation. For example, a statistical agency may be granted access to all government information holdings for statistical applications.

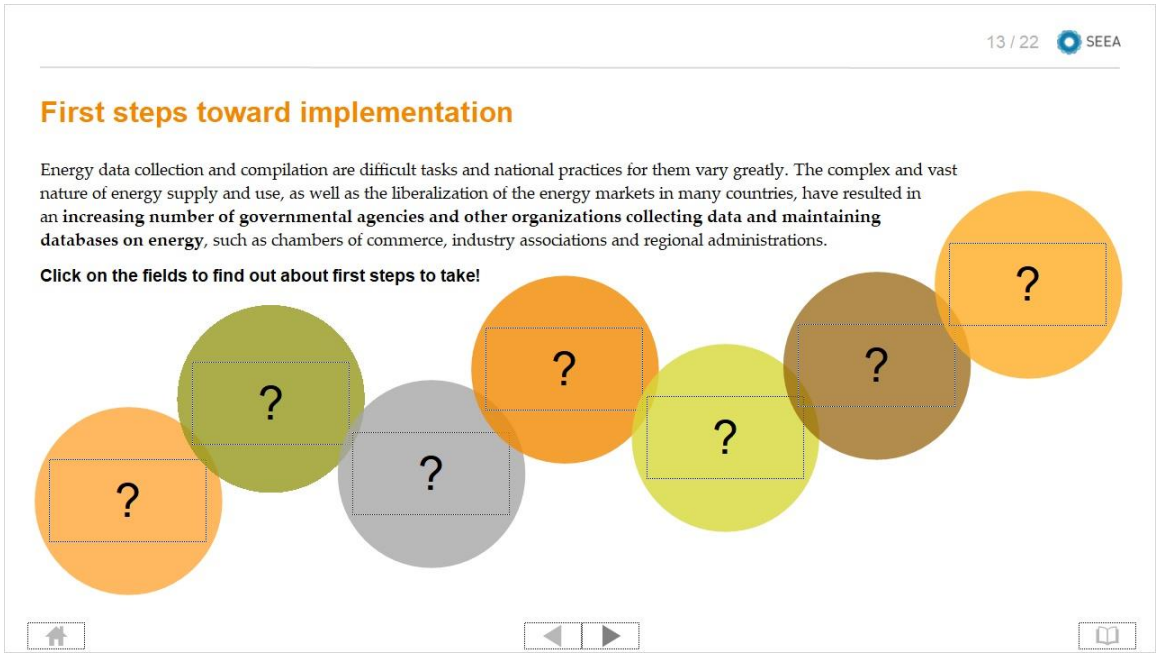
Correct (Slide Layer)



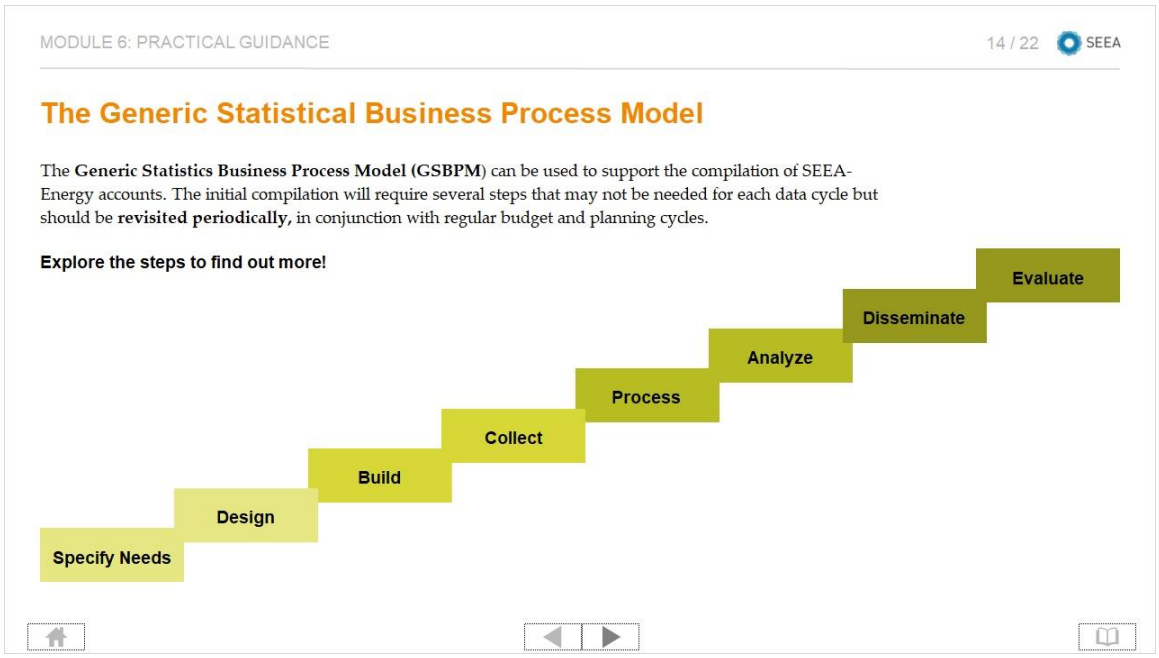
Incorrect (Slide Layer)



4.13 First steps toward implementation

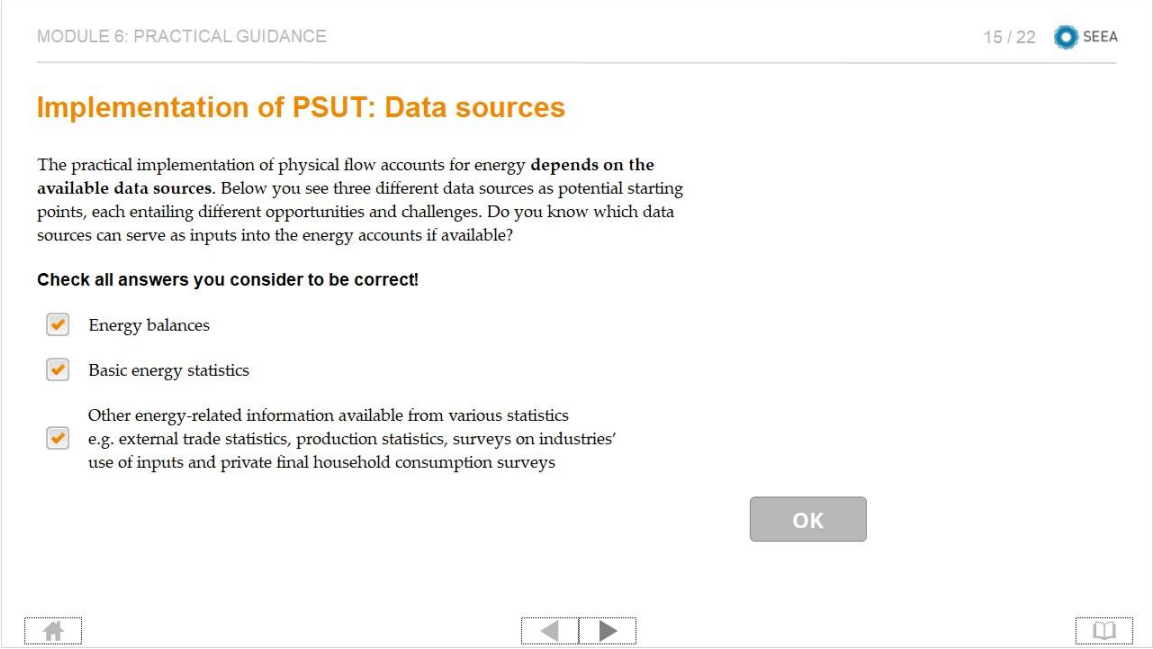


4.14 The Generic Statistical Business Process Model



4.15 Implementation of PSUT: Data sources

(Multiple Response, 10 points, 1 attempt permitted)



Correct	Choice
X	Energy balances
X	Basic energy statistics
X	Other energy-related information available from various statistics e.g. external trade statistics, production statistics, surveys on industries' use of inputs and private final household consumption surveys

Feedback when correct:

Energy balances as a starting point have the most obvious advantage in that every commodity is already balanced. Thus, supply equals use right from the beginning.

Secondly, all the technical internal consistencies, such as conversion losses in the power supply industries, are quality ensured.

The relationship between input and output in the refineries is also quality assured, i.e. there cannot be more output of oil products than input of crude oil.

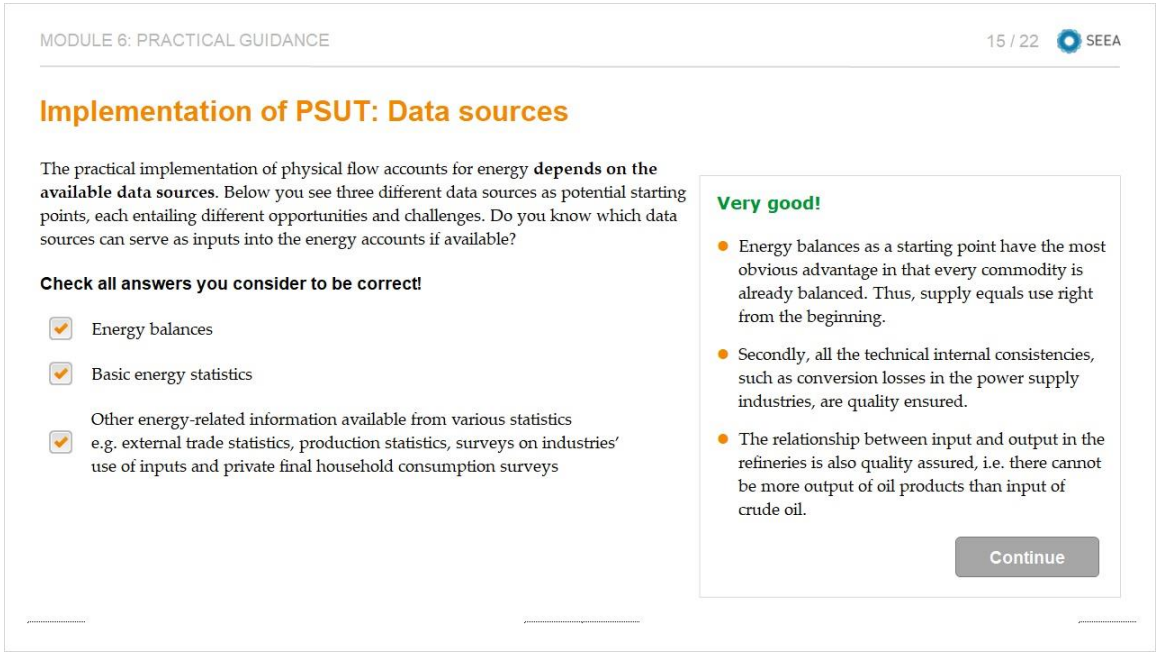
Feedback when incorrect:

Energy balances as a starting point have the most obvious advantage in that every commodity is already balanced. Thus, supply equals use right from the beginning.

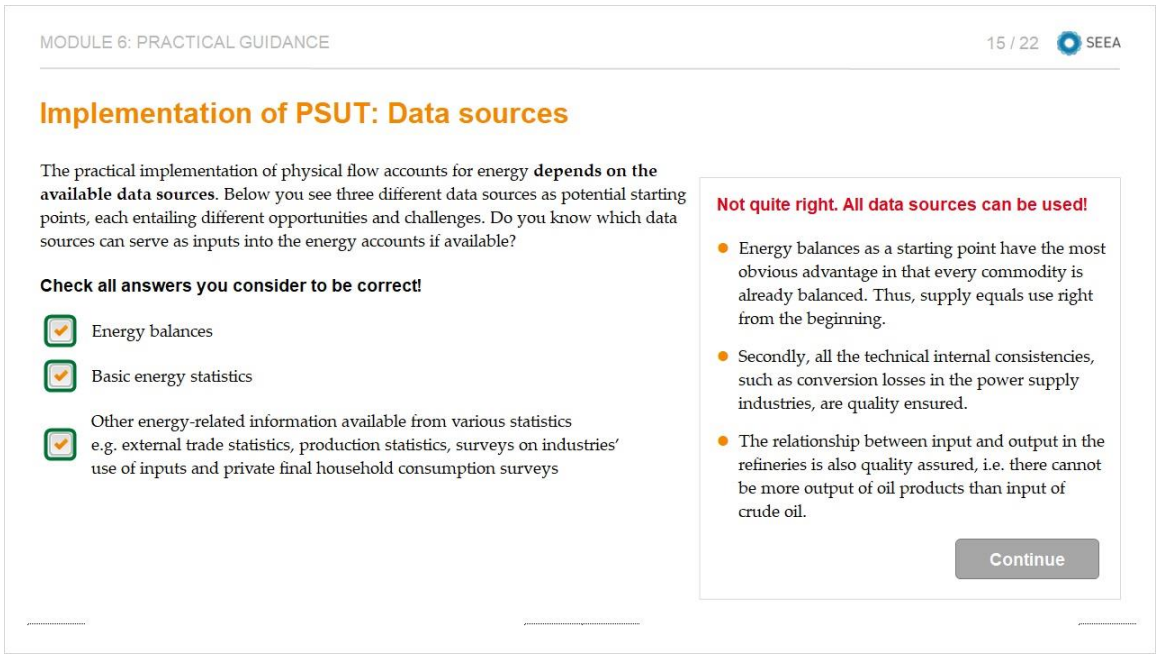
Secondly, all the technical internal consistencies, such as conversion losses in the power supply industries, are quality ensured.

The relationship between input and output in the refineries is also quality assured, i.e. there cannot be more output of oil products than input of crude oil.

Very good! (Slide Layer)

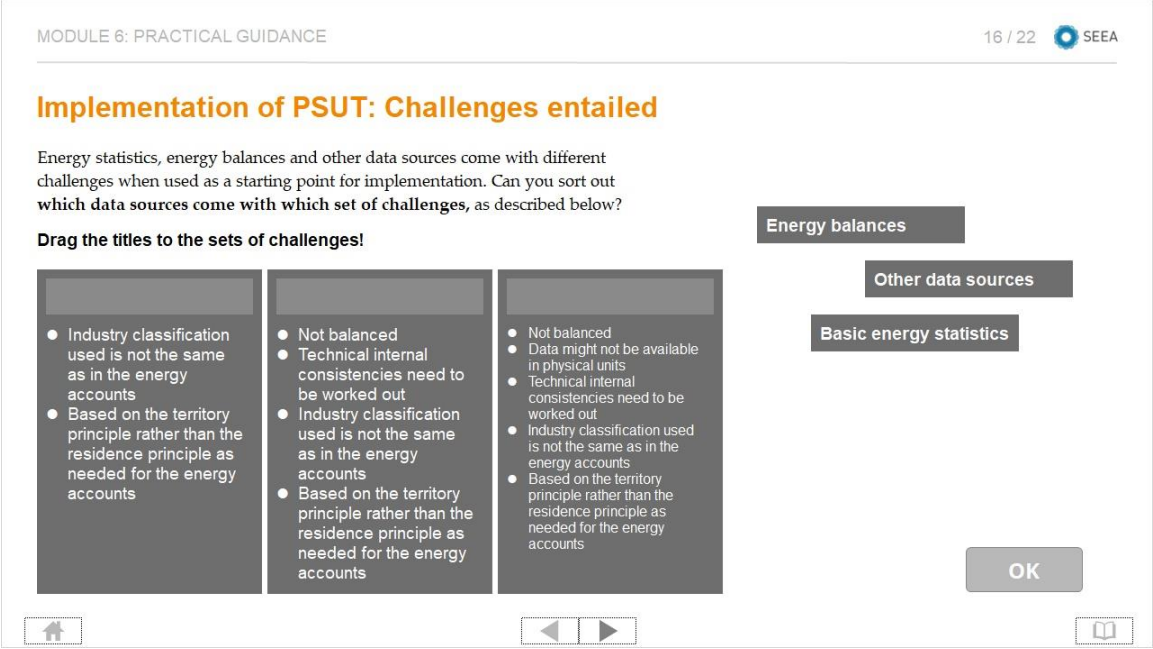


Not quite right. All data sources can be used! (Slide Layer)



4.16 Implementation of PSUT: Challenges entailed

(Drag and Drop, 10 points, 1 attempt permitted)



Drag Item	Drop Target
Energy balances	Tagret 1
Basic energy statistics	Target 2
Other data sources	Target 3

Drag and drop properties
Return item to start point if dropped outside the correct drop target
Snap dropped items to drop target (Snap to center)
Allow only one item in each drop target
Delay item drop states until interaction is submitted

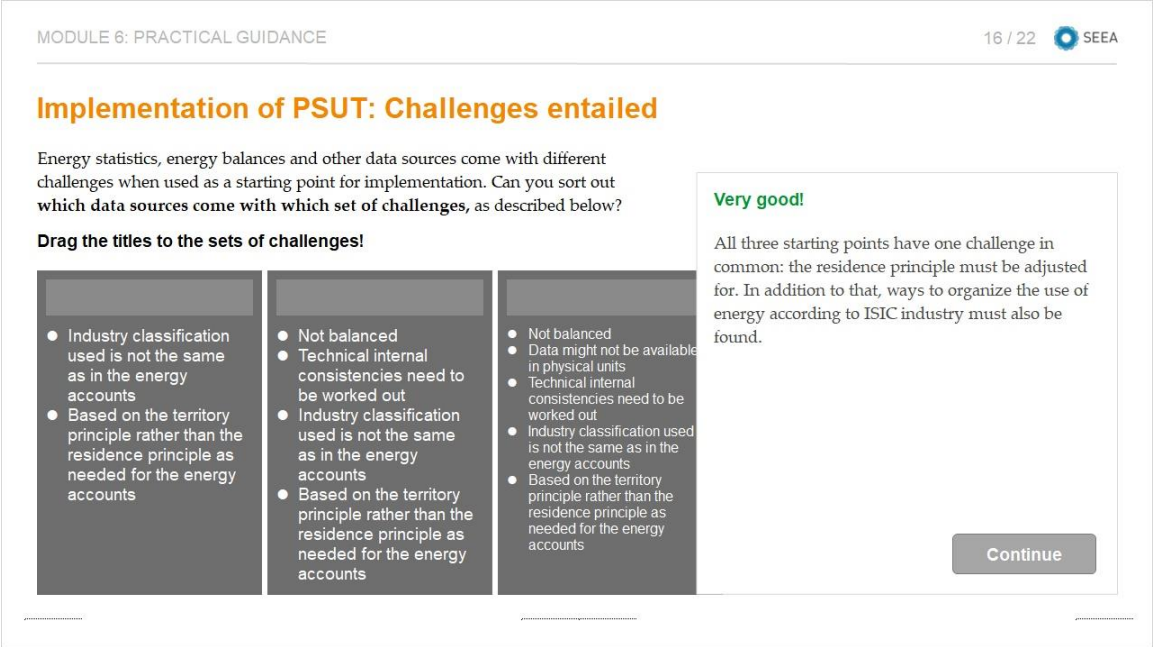
Feedback when correct:

All three starting points have one challenge in common: the residence principle must be adjusted for. In addition to that, ways to organize the use of energy according to ISIC industry must also be found.

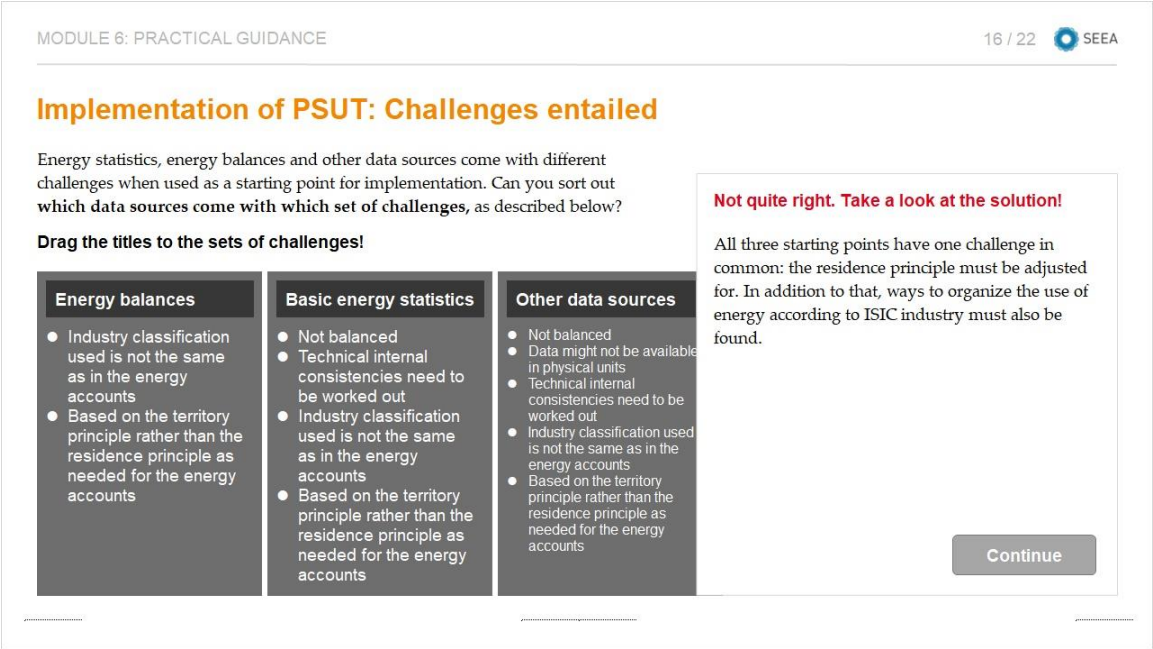
Feedback when incorrect:

All three starting points have one challenge in common: the residence principle must be adjusted for. In addition to that, ways to organize the use of energy according to ISIC industry must also be found.

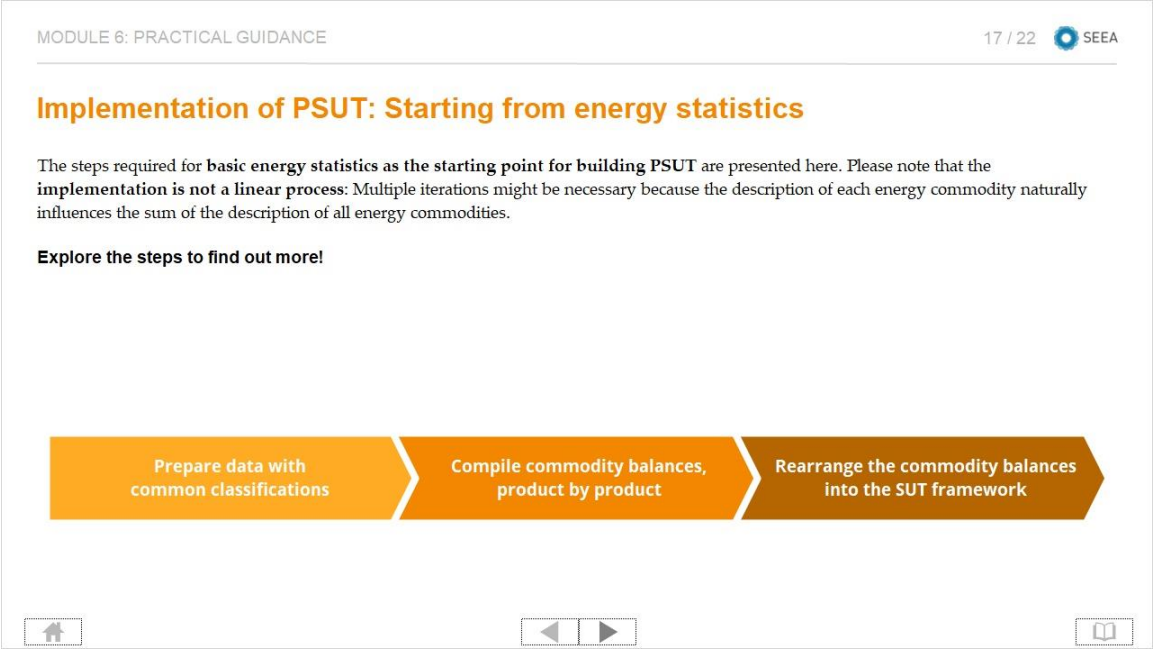
Correct (Slide Layer)



Incorrect (Slide Layer)

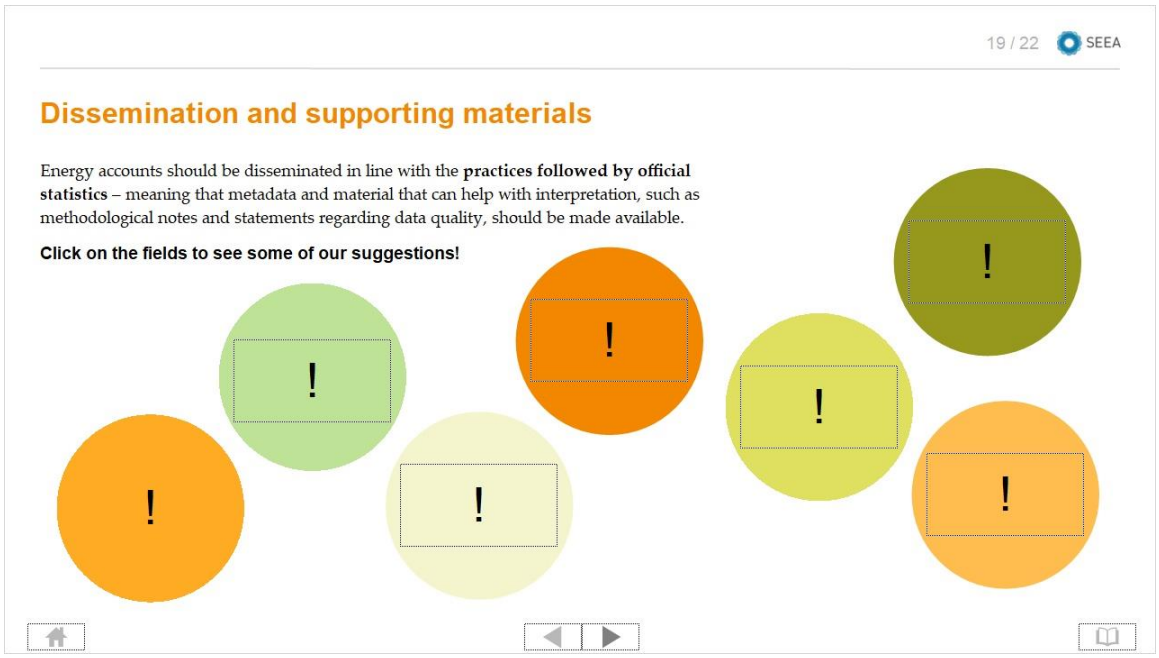


4.17 Implementation of PSUT: Starting from energy statistics

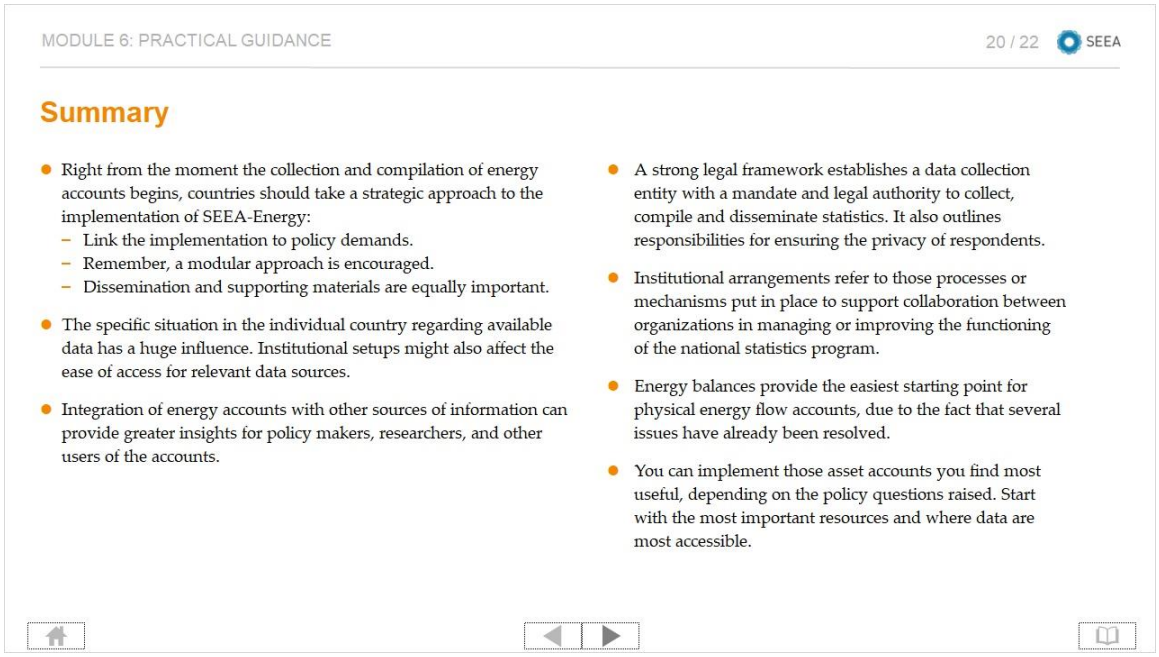


4.18 Implementation of asset accounts

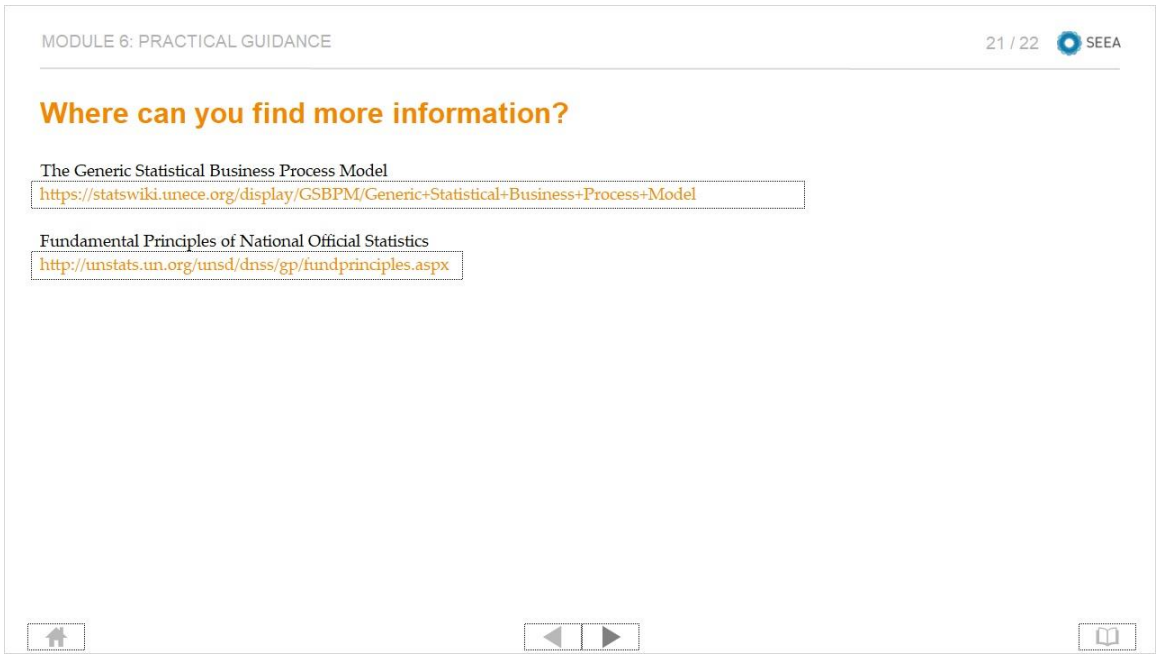
4.19 Dissemination and supporting materials



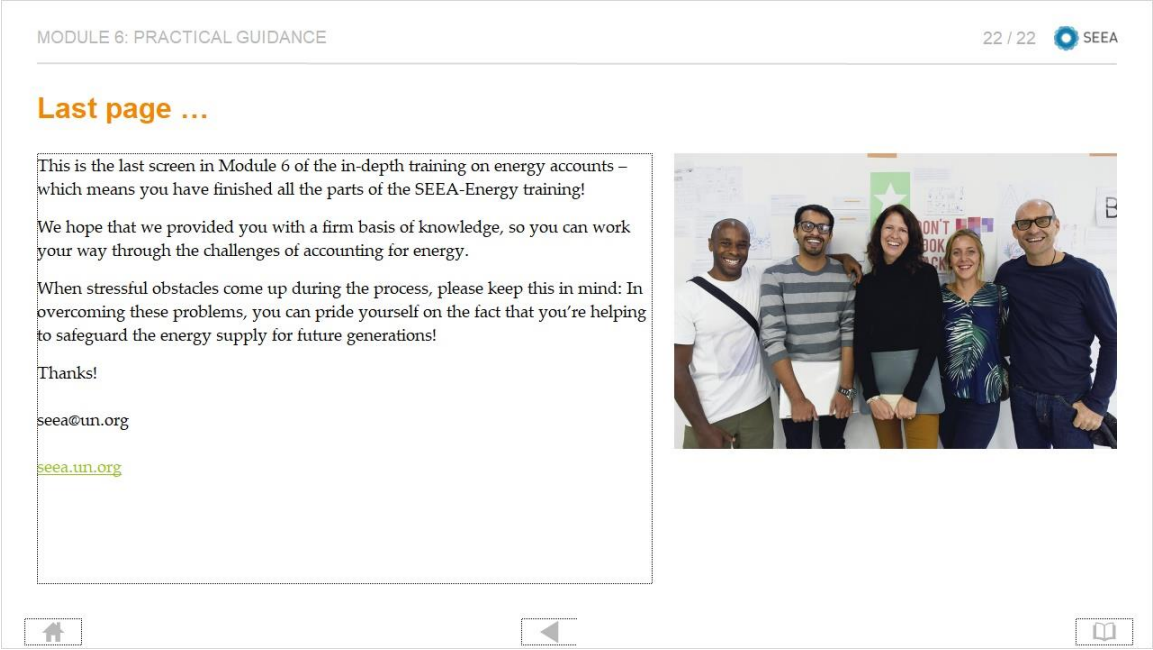
4.20 Summary



4.21 Where can you find more information?

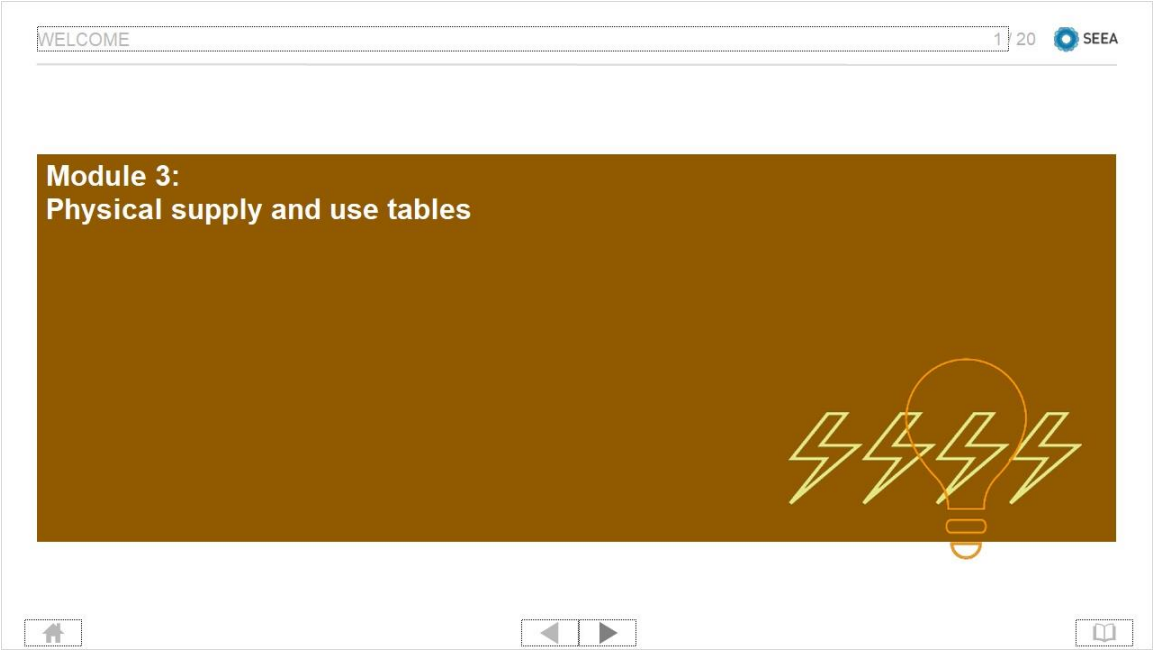


4.22 Last Page



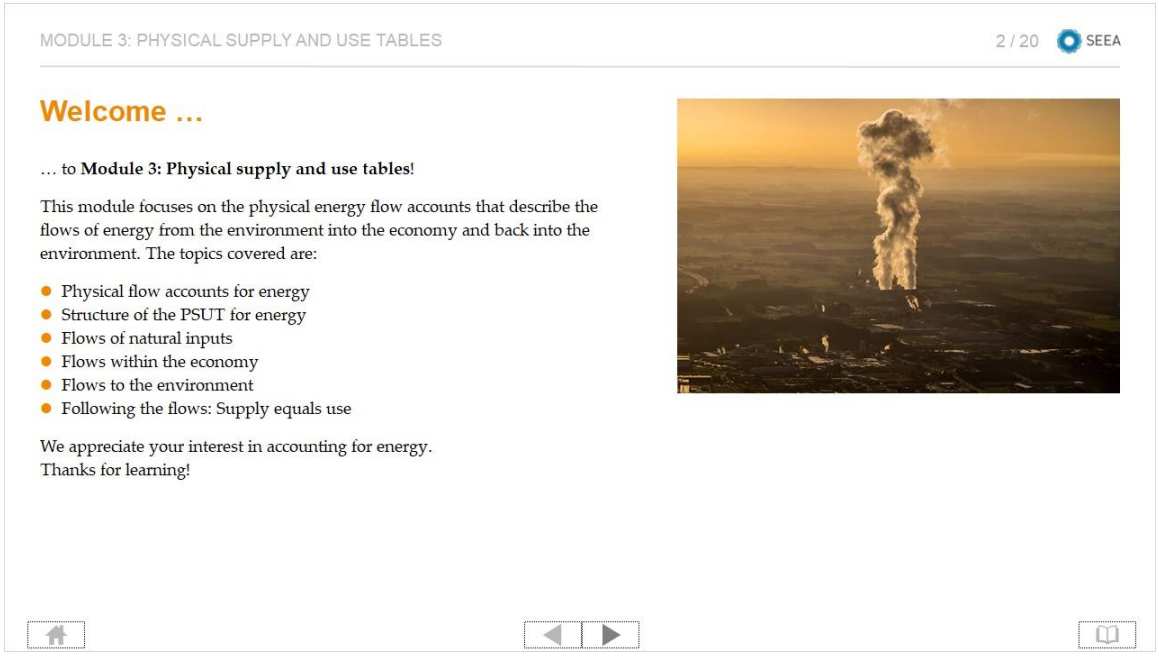
5. Module 3 - Physical supply and use tables

5.1 Welcome

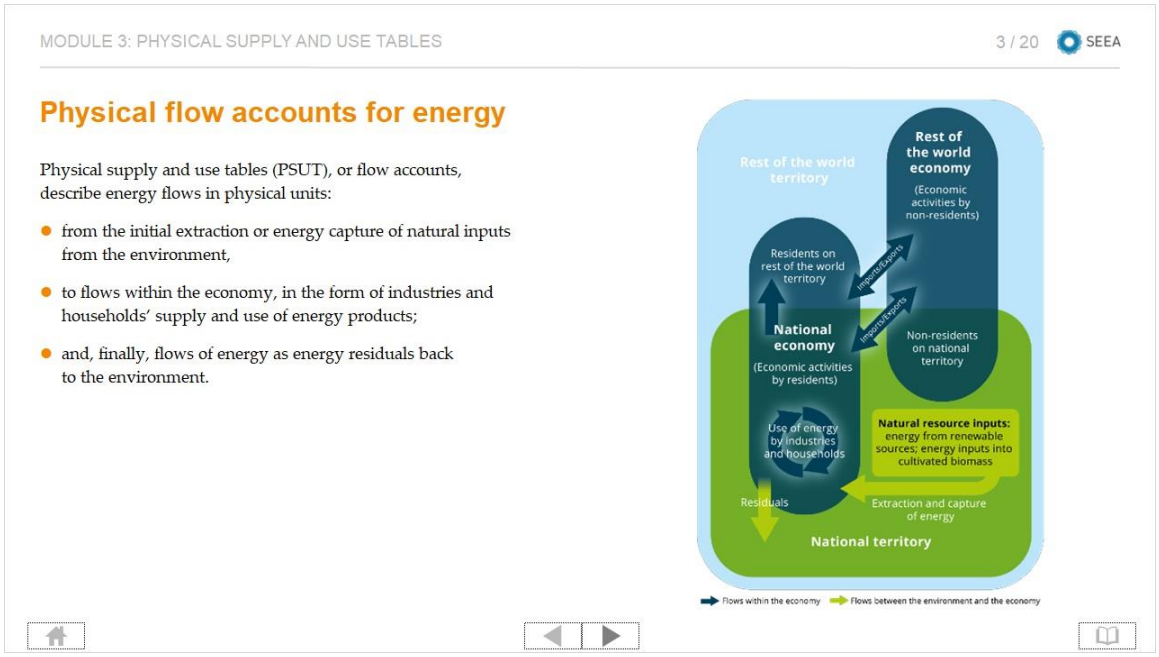


Notes:

5.2 Welcome...

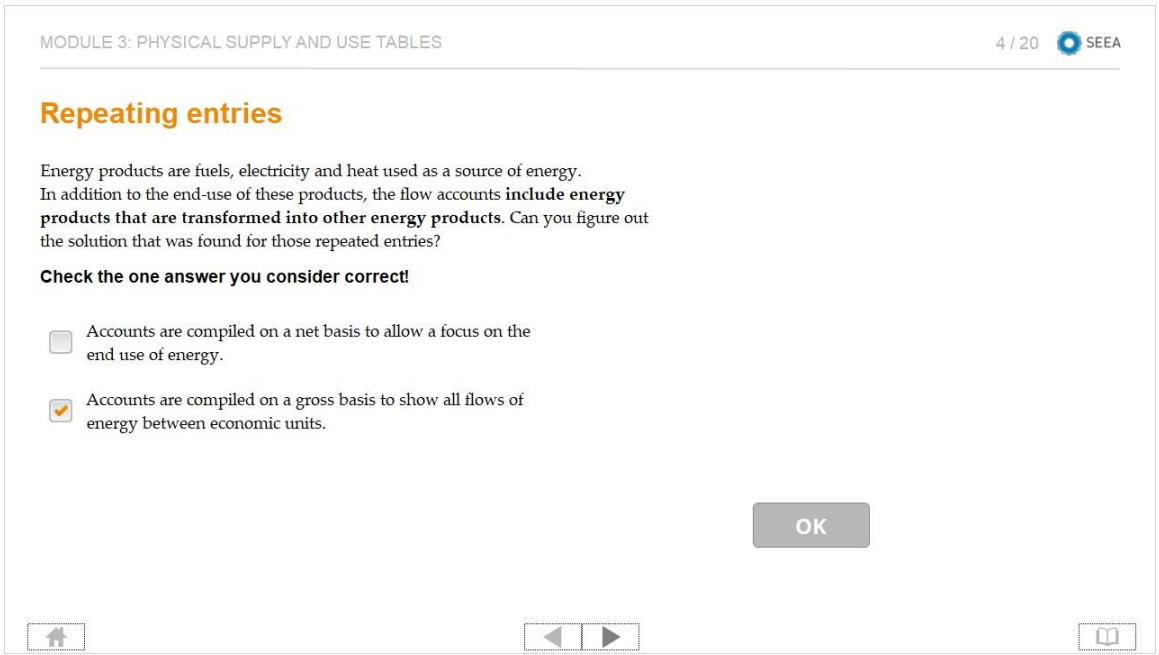


5.3 Physical flow accounts for energy



5.4 Repeating entries

(Multiple Response, 10 points, 1 attempt permitted)



Correct	Choice
	Accounts are compiled on a net basis to allow a focus on the end use of energy.
X	Accounts are compiled on a gross basis to show all flows of energy between economic units.

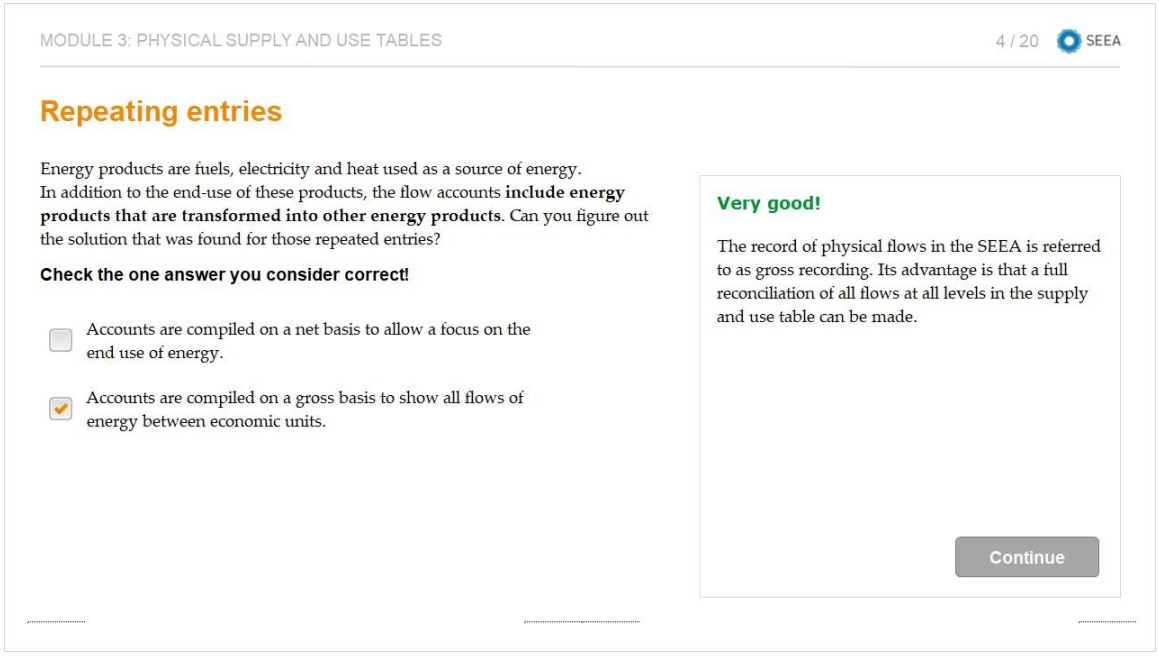
Feedback when correct:

The record of physical flows in the SEEA is referred to as gross recording. Its advantage is that a full reconciliation of all flows at all levels in the supply and use table can be made.

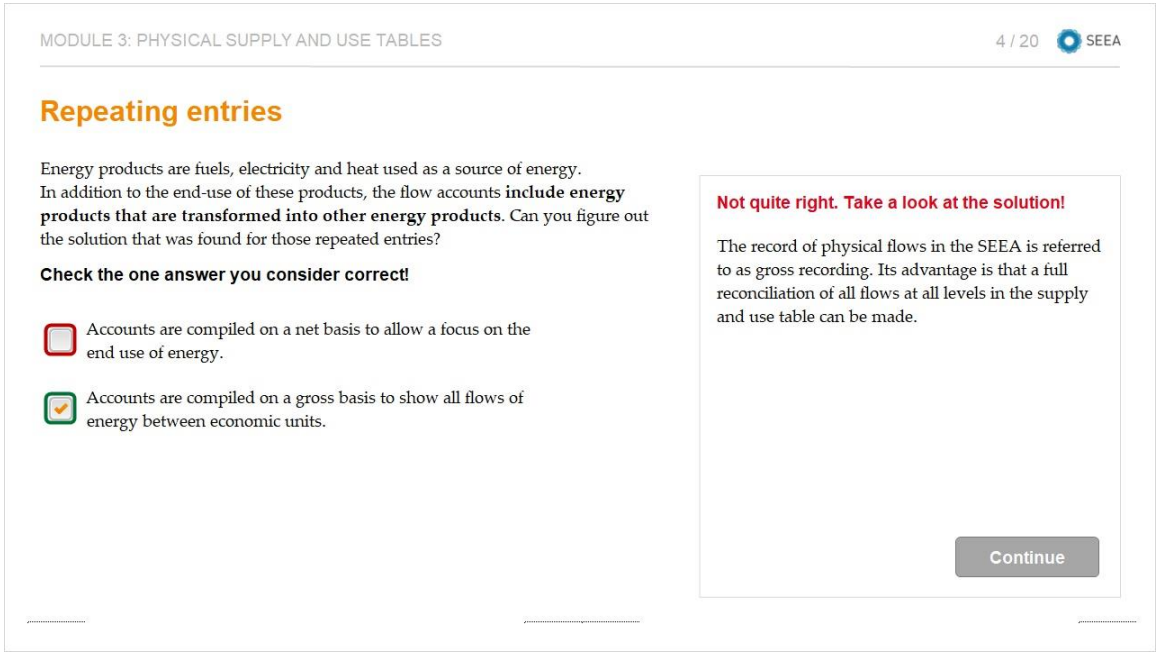
Feedback when incorrect:

The record of physical flows in the SEEA is referred to as gross recording. Its advantage is that a full reconciliation of all flows at all levels in the supply and use table can be made.

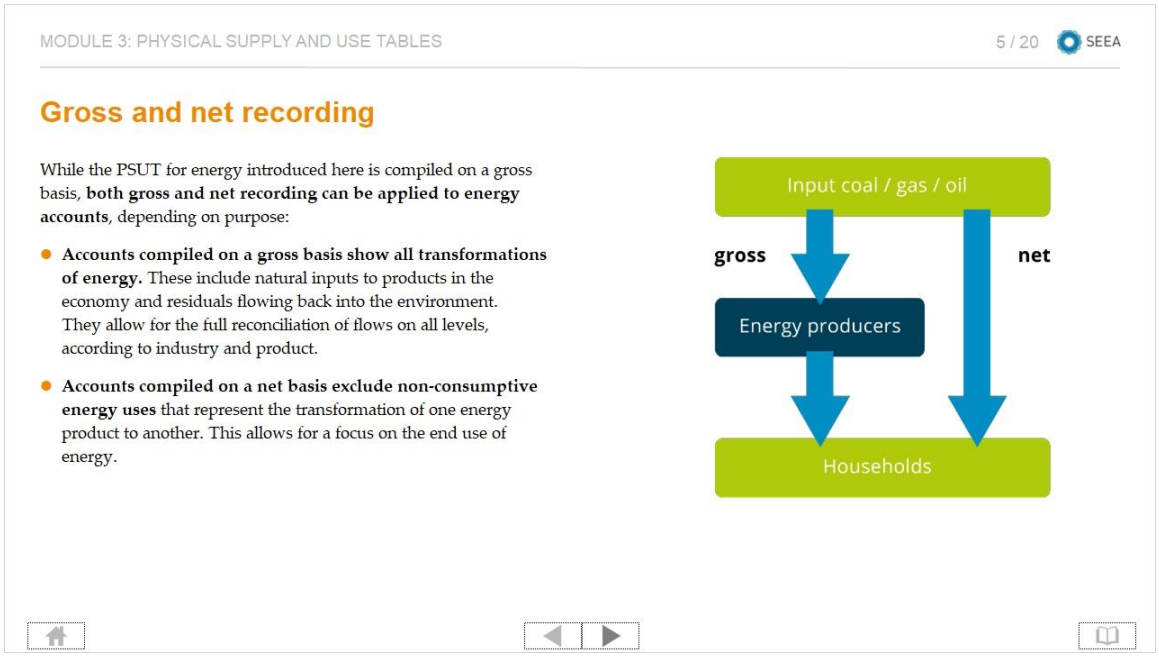
Very good! (Slide Layer)



Not quite right. Take a look at the solution! (Slide Layer)



5.5 Gross and net recording



5.6 Units in flow accounts for energy

Units in flow accounts for energy

Physical flow accounts for energy support a **consistent monitoring of supply and use of energy** according to flow type and industry. They can be compiled using data from energy balances, energy surveys and other sources:

- In principle, all natural units can be used, but the accounts become more meaningful when a **common energy unit** is used.
- The SEEA-Energy uses the **joule** as a common unit, which is consistent with the International Recommendations for Energy Statistics (IRES).
- Together with information on prices, the physical energy flow accounts provide **the basis for monetary energy flow accounts**.
- The monetary supply and use table for energy contains information on the **values of energy products** related to the physical flows.

5.7 Structure of the PSUT for energy

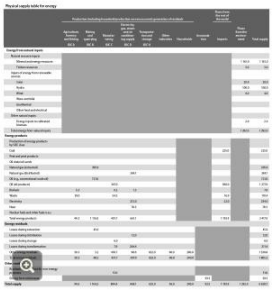
Structure of the PSUT for energy

The PSUT for energy follow the structure of the general PSUT presented in the SEEA:

- While the rows show **types of natural inputs, products and residuals, the columns display both the activity underlying the flows and the economic units** involved.
- Energy products are classified by the **Standard International Energy Product Classification** (SIEC).
- The **level of industry detail** highlights those industries that usually play a significant role, but the amount of detail is not restricted.
- The **accumulation column** records changes in inventories of energy products that can be stored.

Supply table: Production, generation and supply of: natural inputs, products and residuals organized by different economic units or the environment.

Use table: Consumption and use of: natural inputs, products and residuals organized by different economic units or the environment.



5.8 Structure of the PSUT for energy

Flows of natural inputs

The flow of energy from natural inputs describes the extraction or capture of energy from the environment. Such flows include **energy from natural resource inputs, inputs from renewable energy sources**, and **other natural inputs**.

Energy from natural inputs
Natural resource inputs
Mineral and energy resources
Oil resources
Natural gas resources
Coal and peat resources
Uranium and other nuclear fuels
Timber resources
Inputs of energy from renewable sources
Solar
Hydro
Wind
Wave and tidal
Geothermal
Other electricity and heat
Other natural inputs
Energy inputs to cultivated biomass
Total energy from natural inputs

5.9 Energy from renewable sources

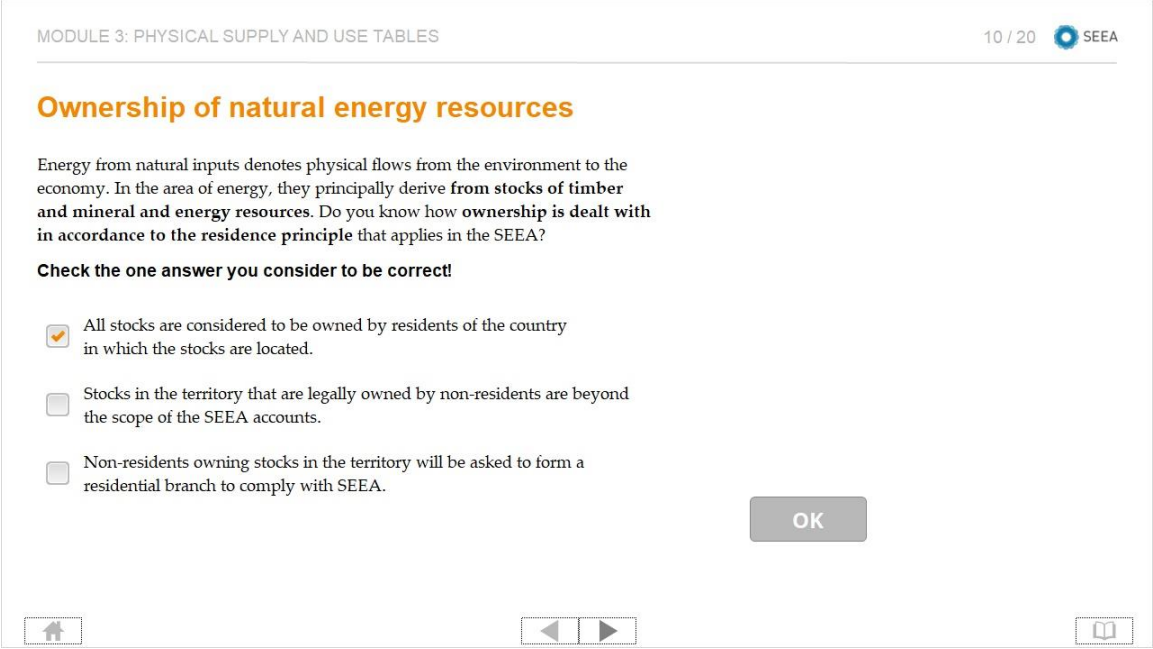
Energy from renewable sources

Inputs of energy from renewable sources are **non-fuel sources of energy** provided by the environment and include solar, hydro, wind, wave and tidal, geothermal, other renewable sources of electricity and heat:

- It is essential that natural inputs used in the generation of electricity are recorded so the **balance of flows** of energy between the environment and the economy is **complete**.
- The amount of electricity/heat produced from renewable sources must be shown as a **corresponding (and equal) natural input of energy** from the environment to the economy.
- Inputs of energy sourced from natural resources, energy inputs from cultivated timber resources, other cultivated biomass, or from solid waste are **not included in this part of the PSUT**.

5.10 Ownership of natural energy resources

(Multiple Response, 10 points, 1 attempt permitted)



Correct	Choice
X	All stocks are considered to be owned by residents of the country in which the stocks are located.
	Stocks in the territory that are legally owned by non-residents are beyond the scope of the SEEA accounts.
	Non-residents owning stocks in the territory will be asked to form a residential branch to comply with SEEA.

Feedback when correct:

By convention, even where these stocks are legally owned by non-residents, they are considered to be owned by a national resident unit and the non-resident legal owner is shown as the financial owner of the national resident unit.

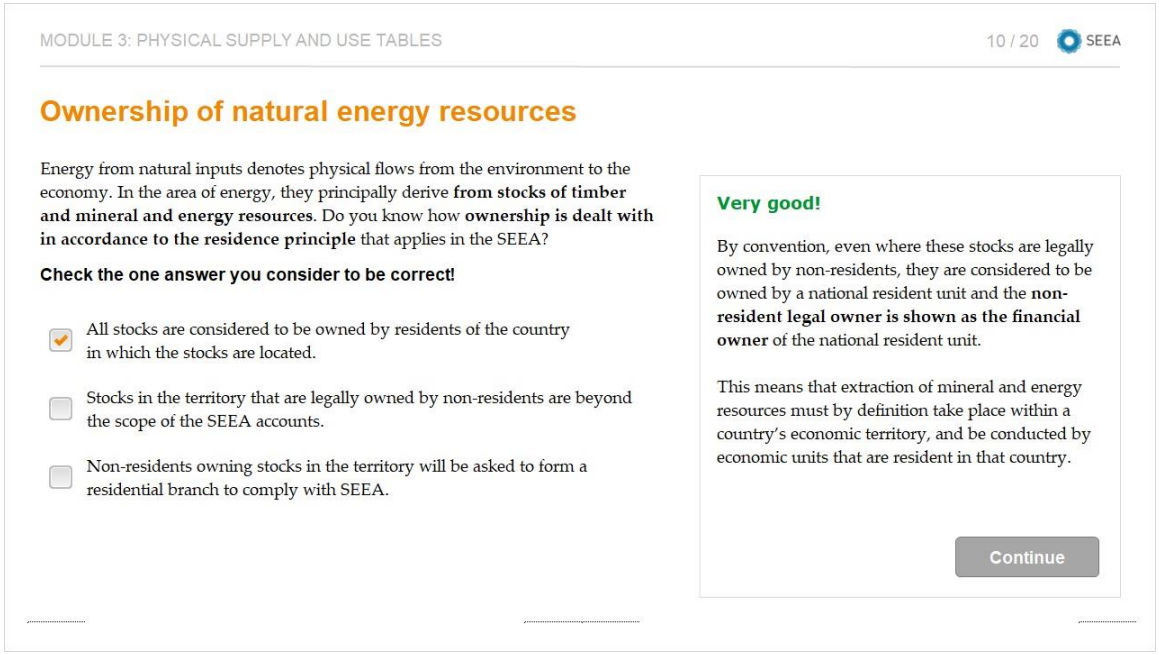
This means that extraction of mineral and energy resources must by definition take place within a country's economic territory, and be conducted by economic units that are resident in that country.

Feedback when incorrect:

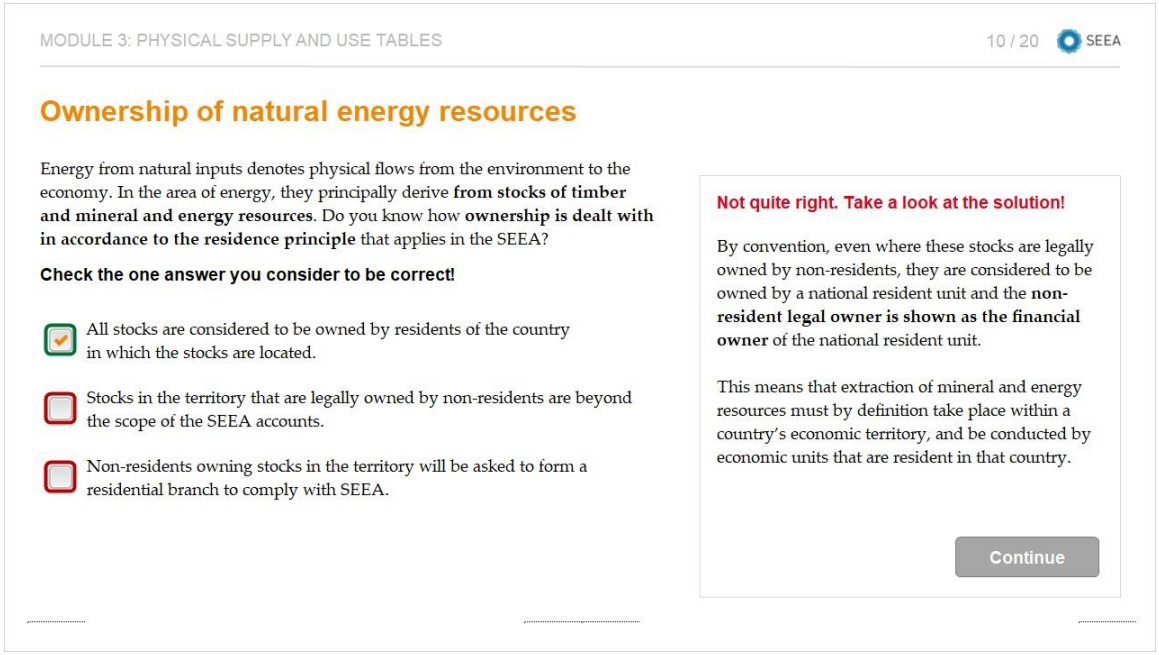
By convention, even where these stocks are legally owned by non-residents, they are considered to be owned by a national resident unit and the non-resident legal owner is shown as the financial owner of the national resident unit.

This means that extraction of mineral and energy resources must by definition take place within a country's economic territory, and be conducted by economic units that are resident in that country.

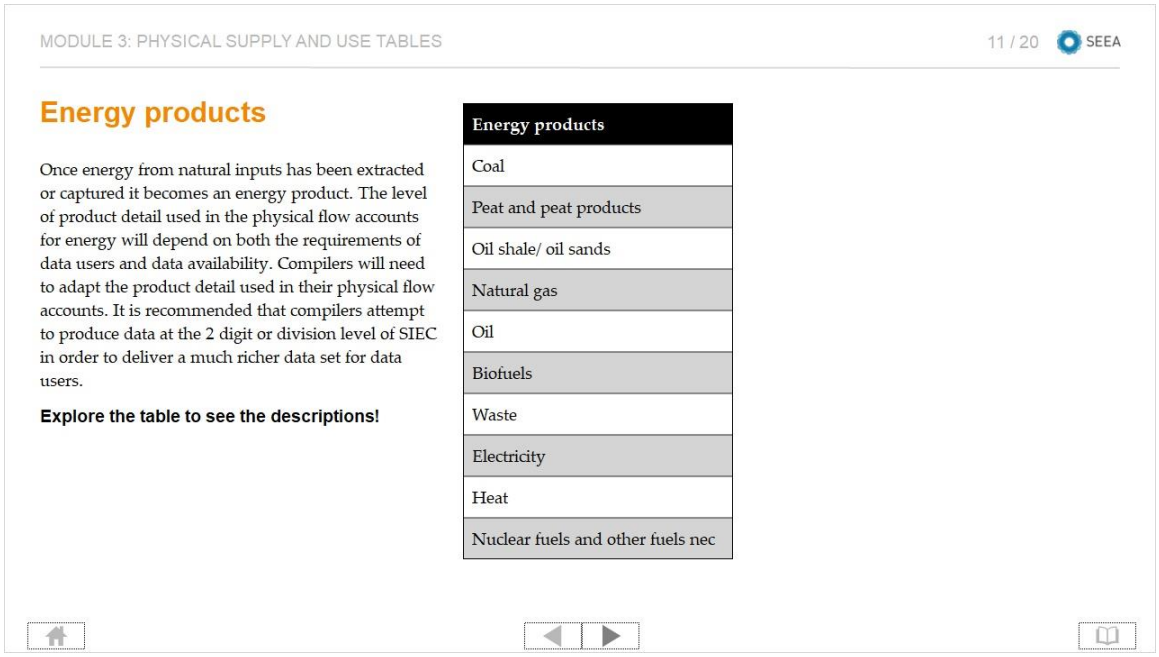
Very good! (Slide Layer)



Not quite right. Take a look at the solution! (Slide Layer)



5.11 Energy products



5.12 Flows within the economy

(Drag and Drop, 10 points, 1 attempt permitted)

Drag Item	Drop Target
Extraction of crude oil by mining industry	Target Supply
Imports of fuel oil	Target Supply
Production of electricity	Target Supply
Gasoline sold to tourists	Target Use
Storage of natural gas for later	Target Use
Use of gasoline for private cars	Target Use

Drag and drop properties
Return item to start point if dropped outside the correct drop target
Snap dropped items to drop target (Free)
Delay item drop states until interaction is submitted

Feedback when correct:

Gasoline sold to tourists is an export and is included in the use table. Imports of fuels on the other hand are a supply of energy from outside the territory of reference.

SEEA-Energy provides more information on the role of energy within the economy, the state of mineral and energy resources and energy-related transactions.

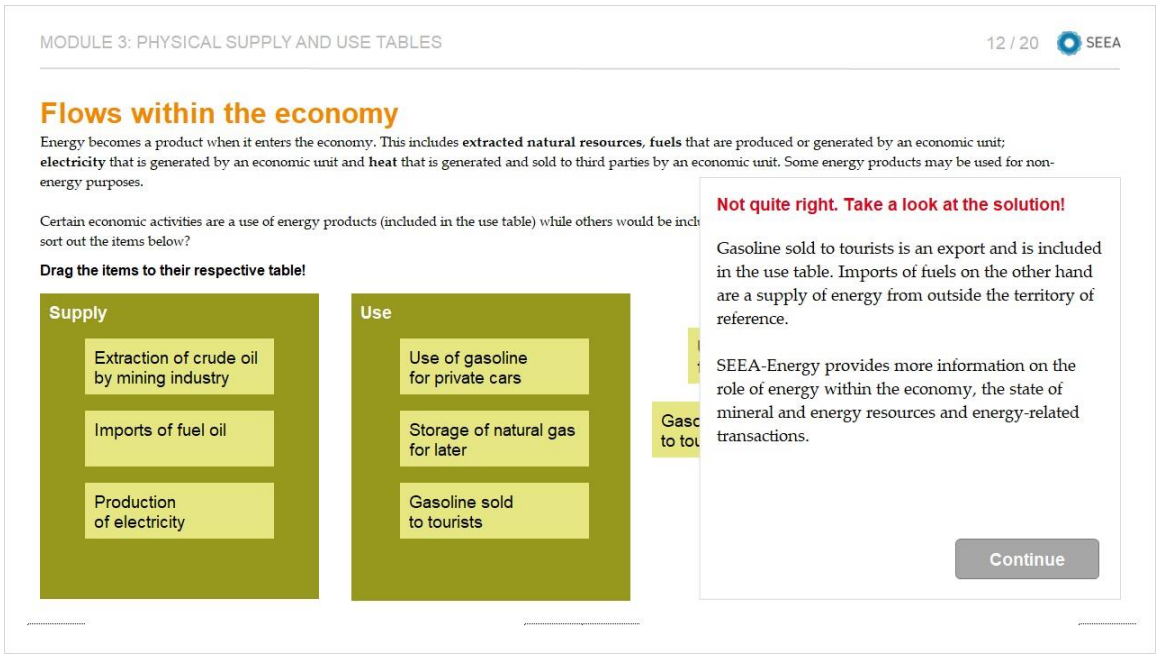
Feedback when incorrect:

Gasoline sold to tourists is an export and is included in the use table. Imports of fuels on the other hand are a supply of energy from outside the territory of reference.

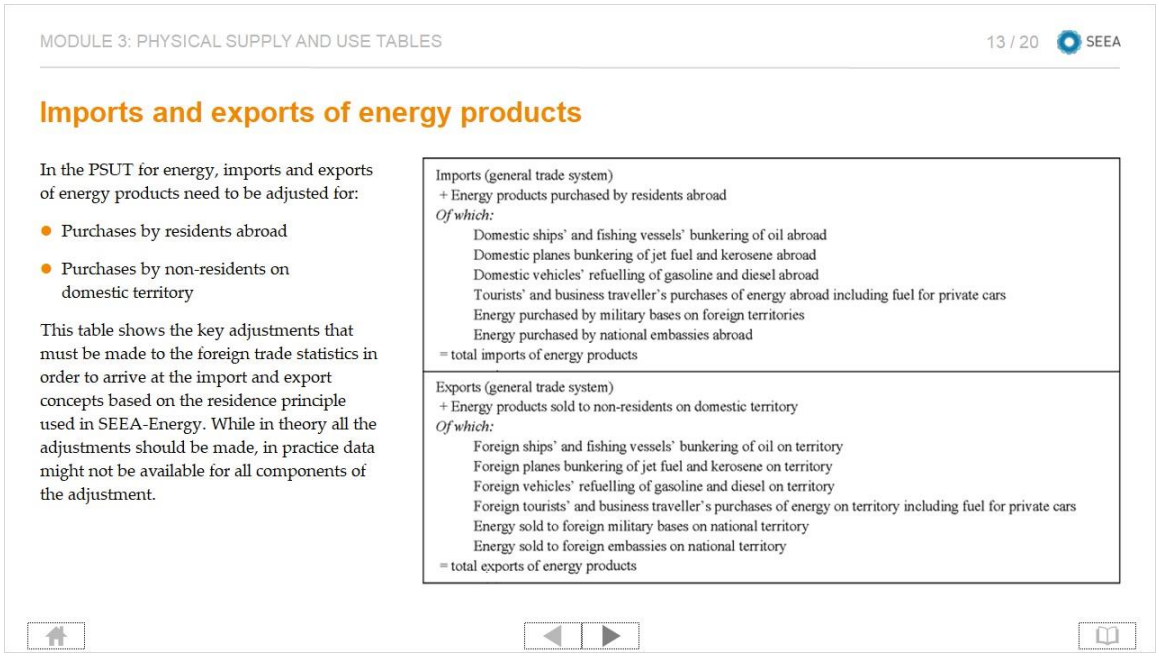
SEEA-Energy provides more information on the role of energy within the economy, the state of mineral and energy resources and energy-related transactions.

Correct (Slide Layer)

Incorrect (Slide Layer)

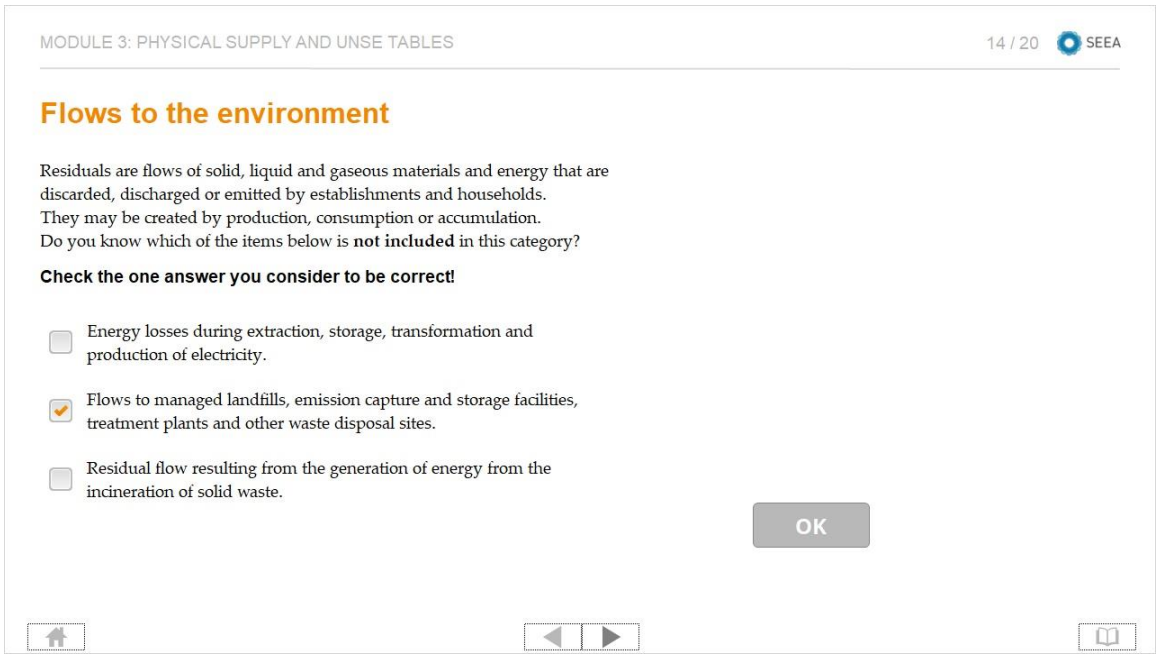


5.13 Imports and exports of energy products



5.14 Flows to the environment

(Multiple Response, 10 points, 1 attempt permitted)



Correct	Choice
	Energy losses during extraction, storage, transformation and production of electricity.
X	Flows to managed landfills, emission capture and storage facilities, treatment plants and other waste disposal sites.
	Residual flow resulting from the generation of energy from the incineration of solid waste.

Feedback when correct:

Controlled and managed waste disposal sites are not considered part of the environment. Flows of residuals into these facilities are therefore regarded as flows within the economy.

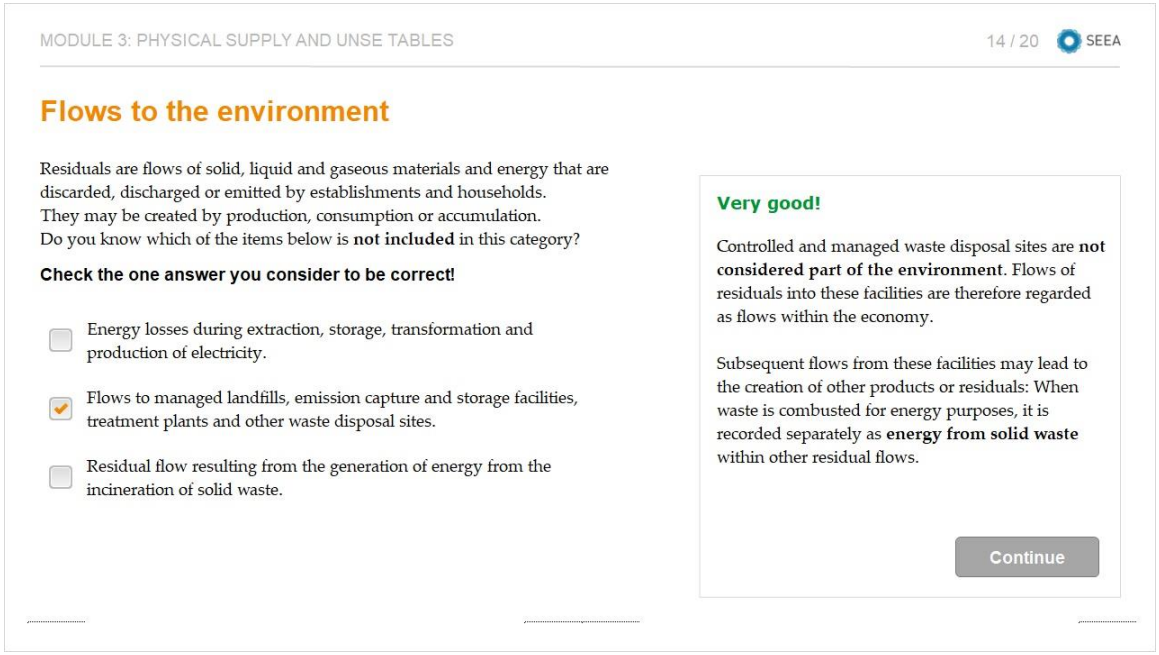
Subsequent flows from these facilities may lead to the creation of other products or residuals: When waste is combusted for energy purposes, it is recorded separately as energy from solid waste within other residual flows.

Feedback when incorrect:

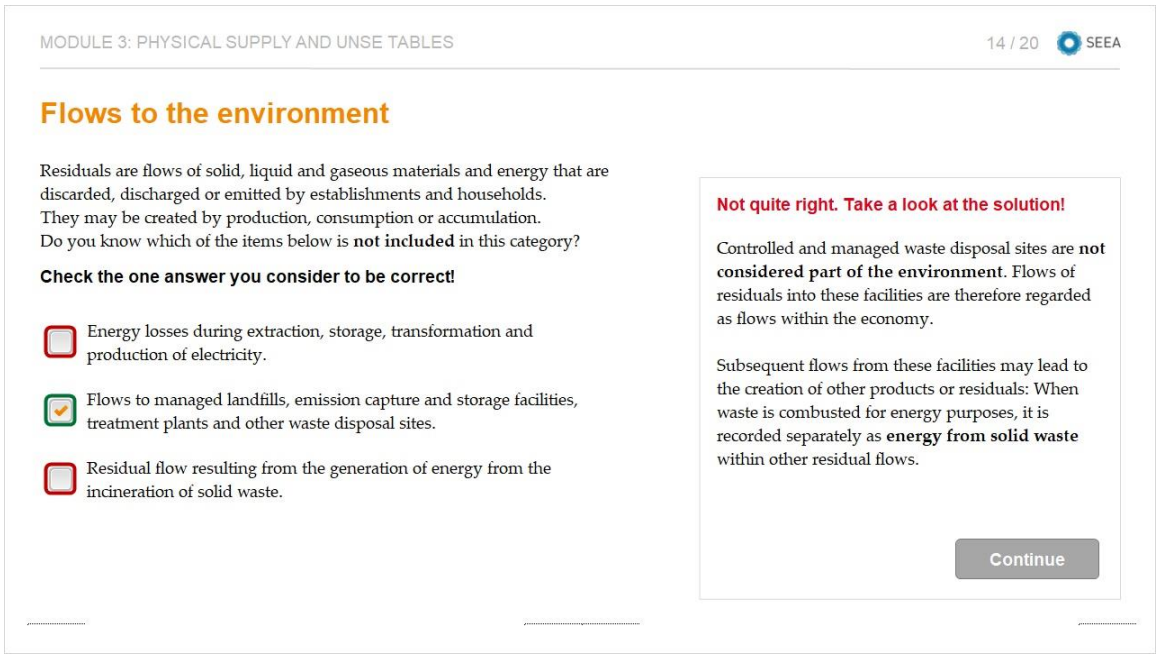
Controlled and managed waste disposal sites are not considered part of the environment. Flows of residuals into these facilities are therefore regarded as flows within the economy.

Subsequent flows from these facilities may lead to the creation of other products or residuals: When waste is combusted for energy purposes, it is recorded separately as energy from solid waste within other residual flows.

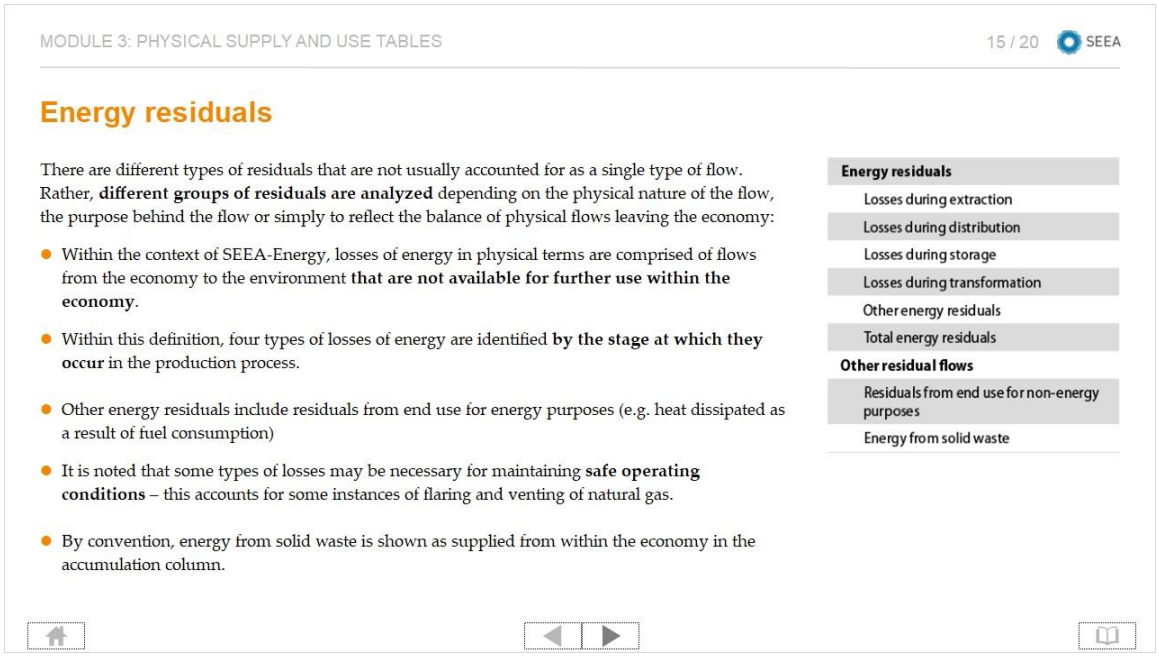
Very good! (Slide Layer)



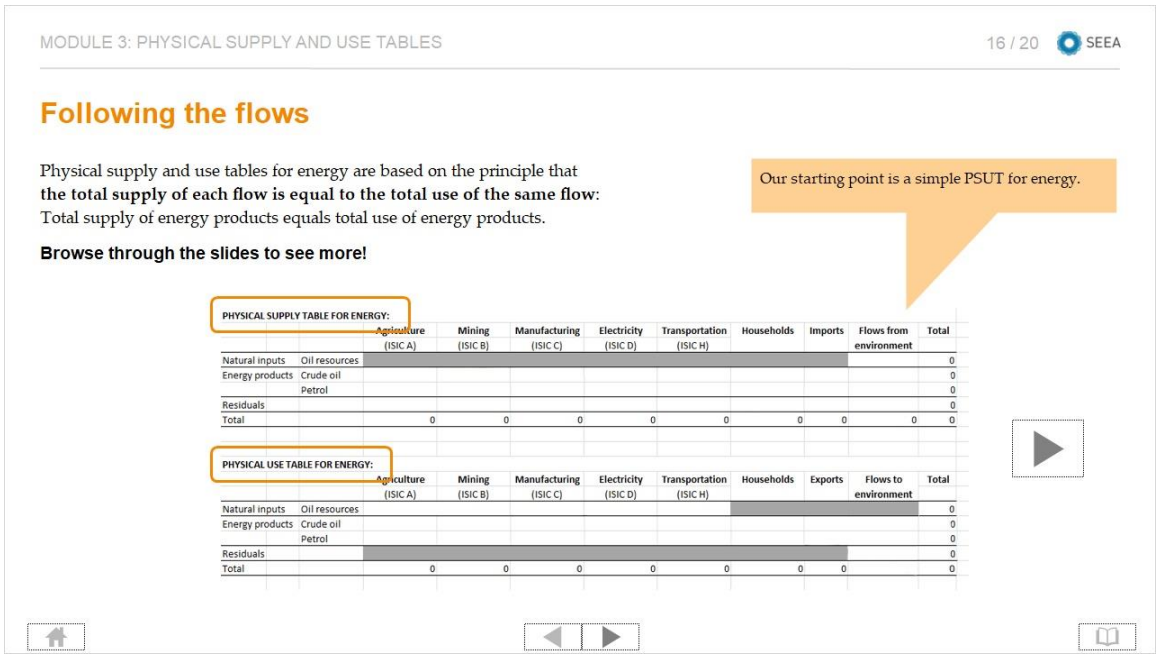
Not quite right. Take a look at the solution! (Slide Layer)



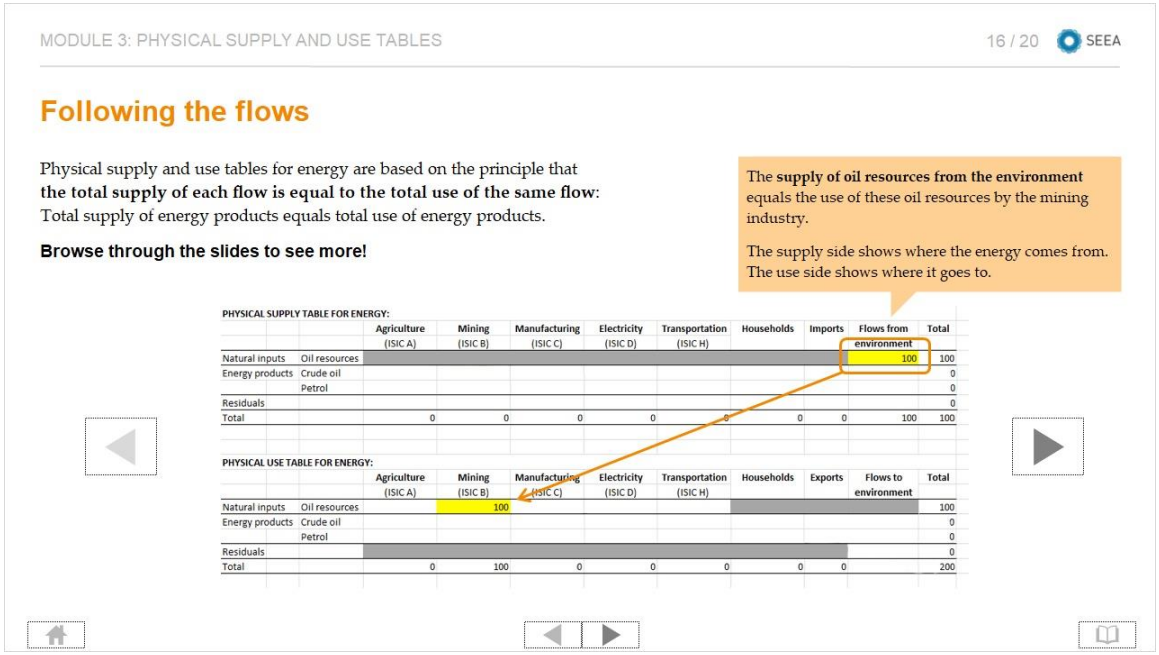
5.15 Energy residuals



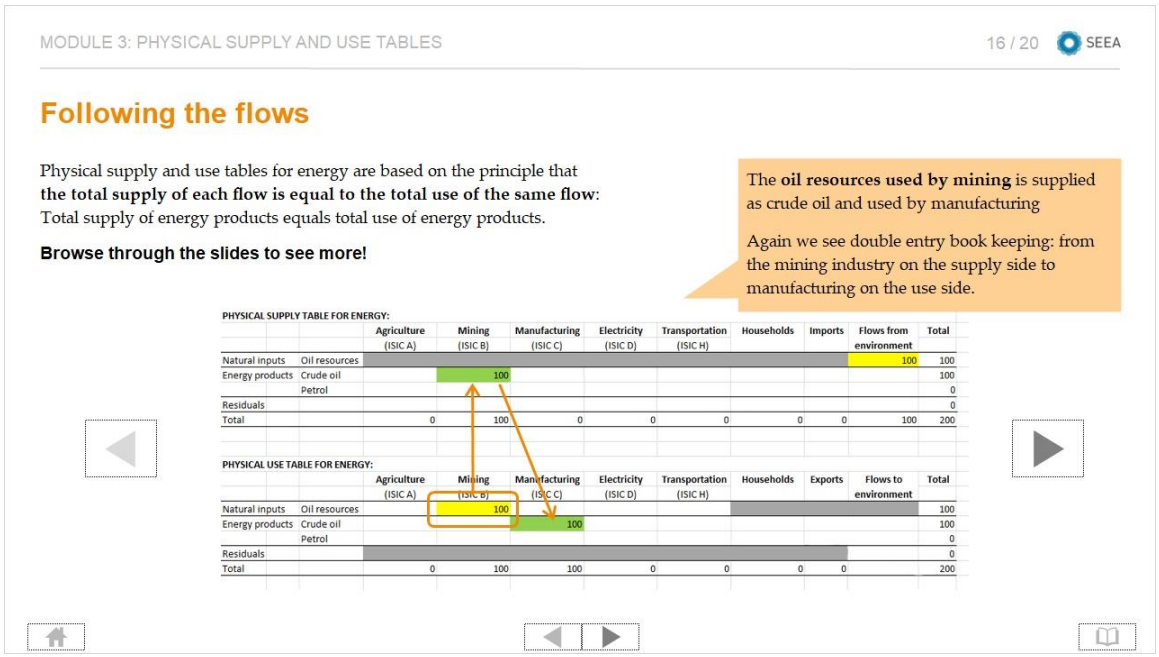
5.16 Welcome...



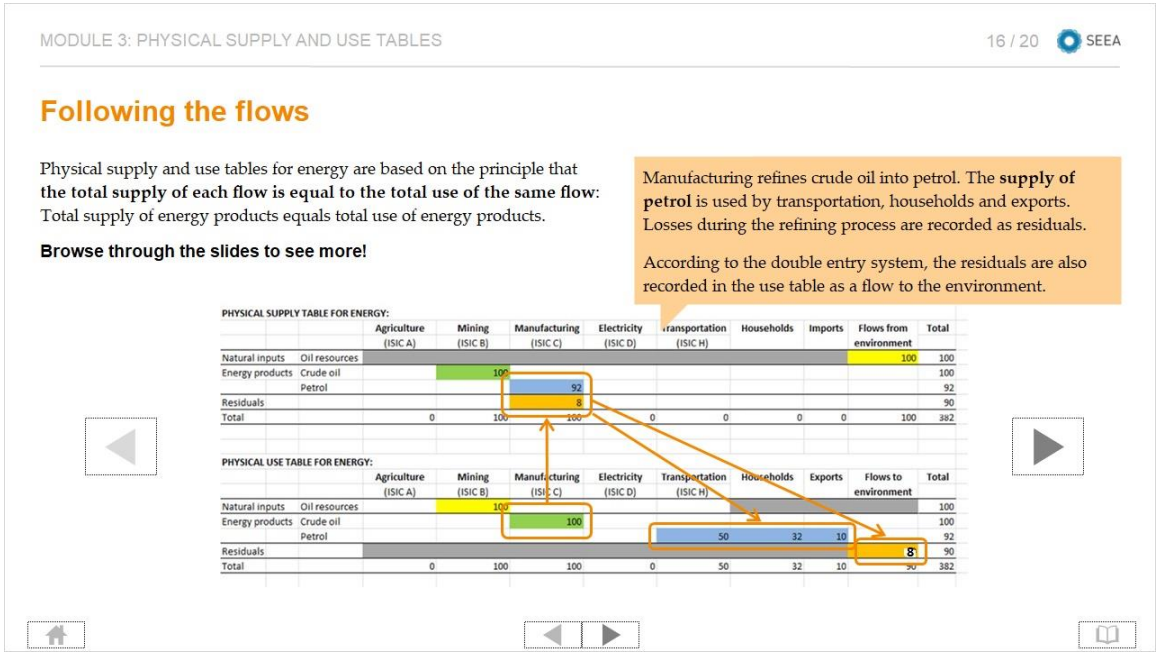
Slide 2 (Slide Layer)



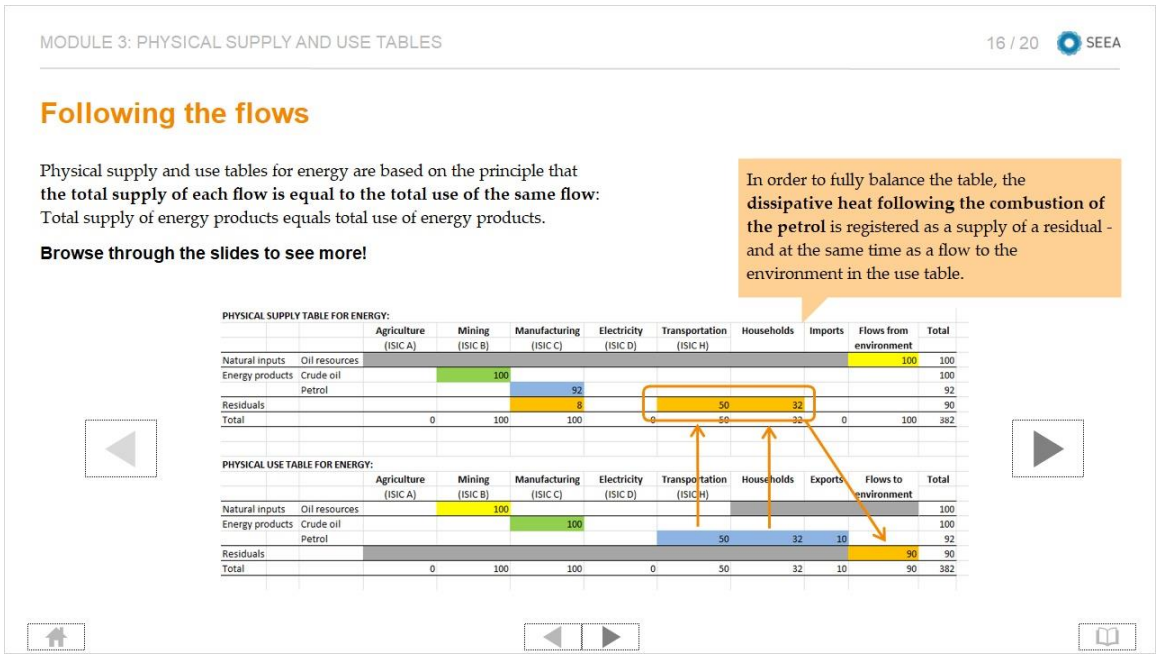
Slide 3 (Slide Layer)



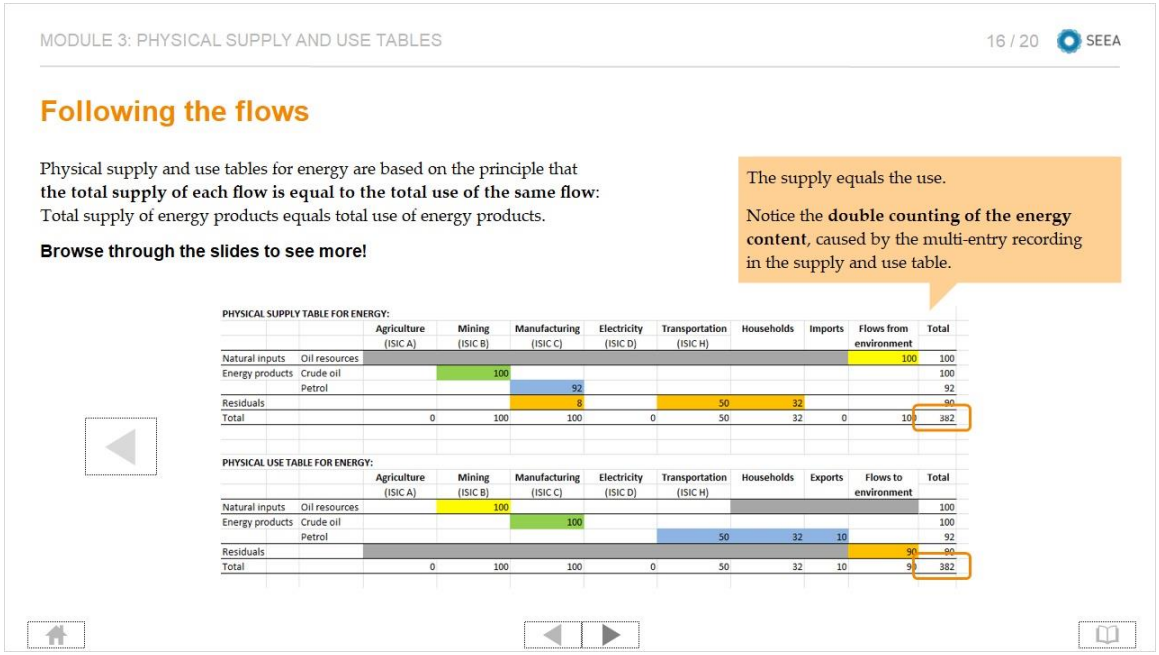
Slide 4 (Slide Layer)



Slide 5 (Slide Layer)

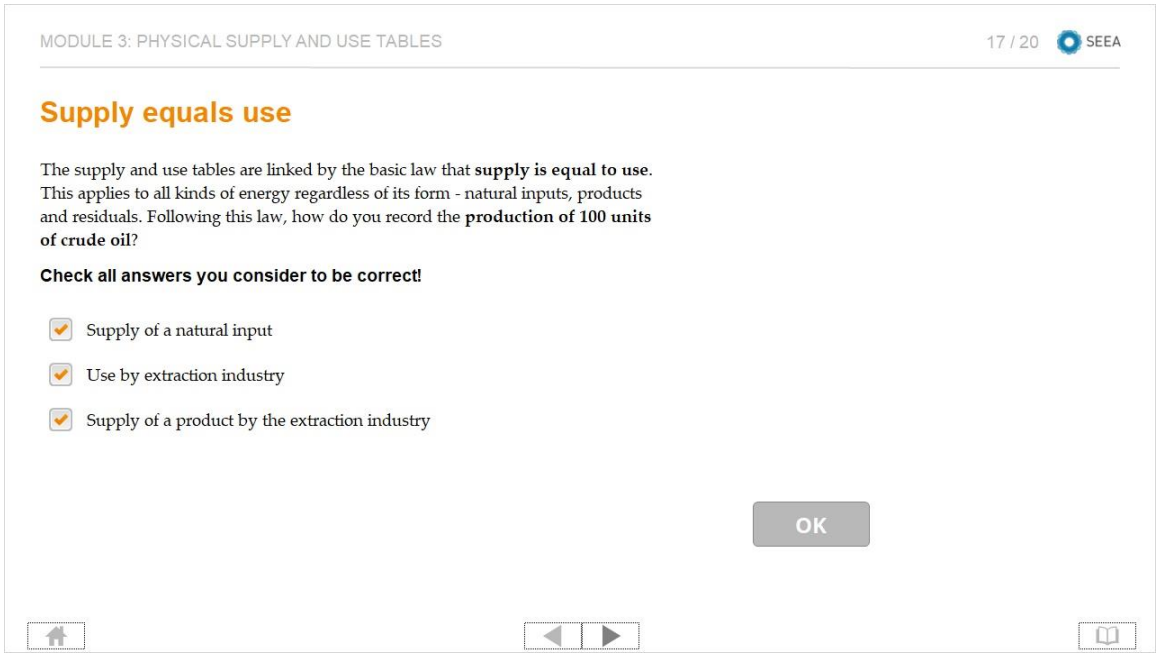


Slide 6 (Slide Layer)



5.17 Supply equals use

(Multiple Response, 10 points, 1 attempt permitted)



Correct	Choice
X	Supply of a natural input
X	Use by extraction industry
X	Supply of a product by the extraction industry

Feedback when correct:

All energy supplied from one unit to another (including between units of a single enterprise) is included in the flow accounts. This includes energy products that are sold, exchanged as part of a barter and provided free of charge.

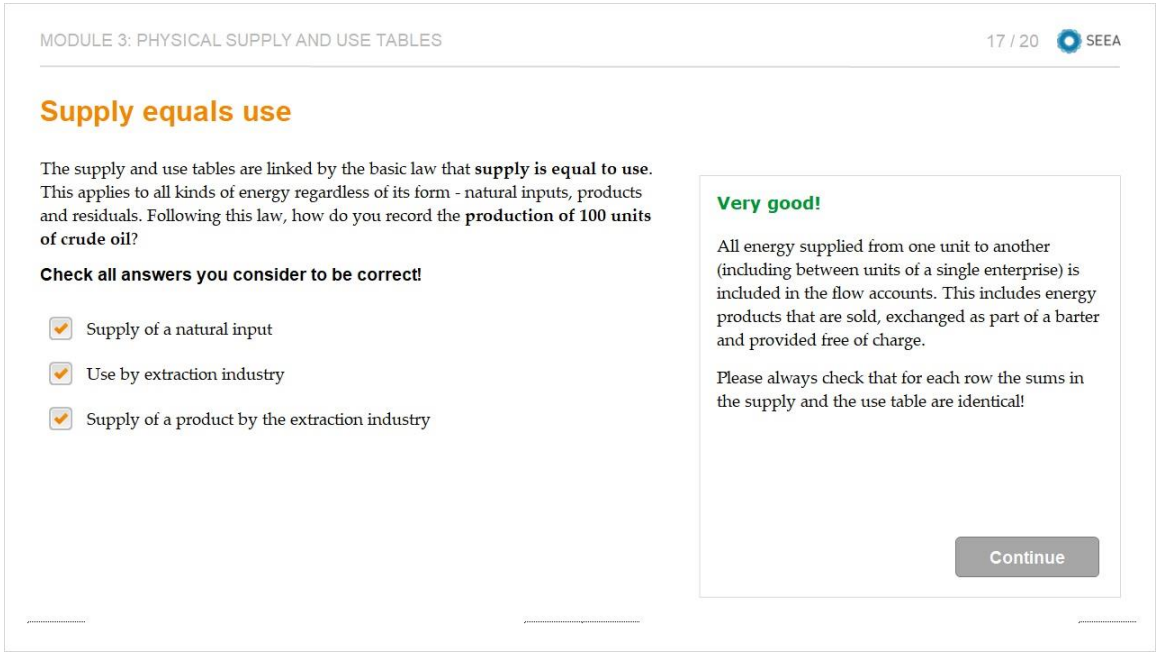
Please always check that for each row the sums in the supply and the use table are identical!

Feedback when incorrect:

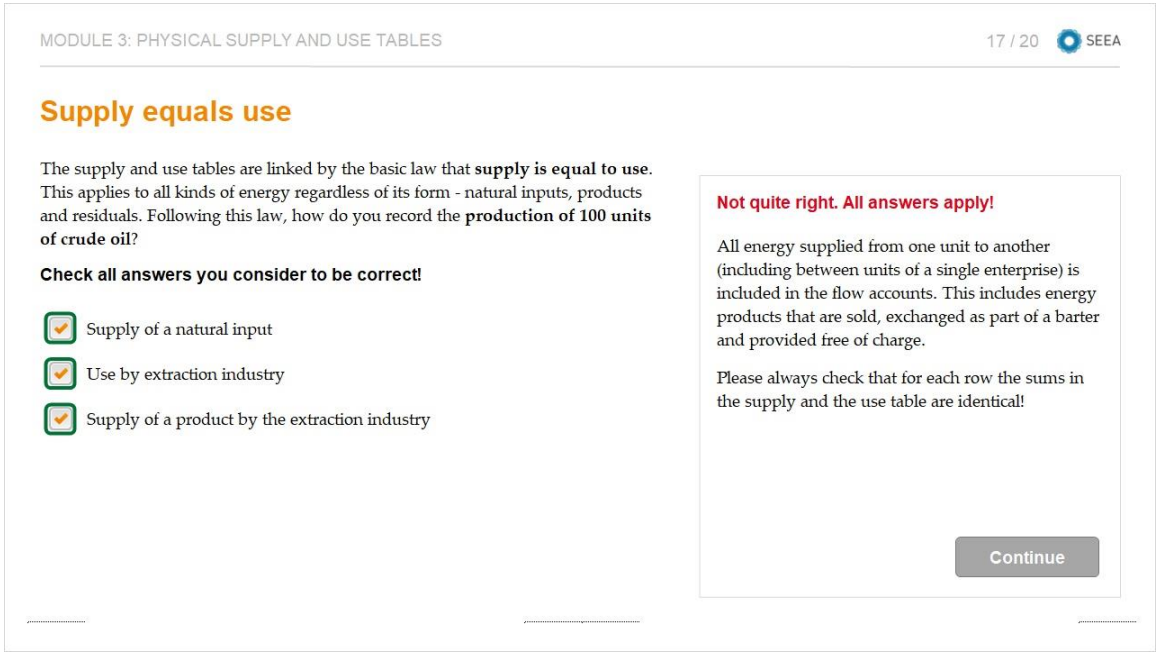
All energy supplied from one unit to another (including between units of a single enterprise) is included in the flow accounts. This includes energy products that are sold, exchanged as part of a barter and provided free of charge.

Please always check that for each row the sums in the supply and the use table are identical!

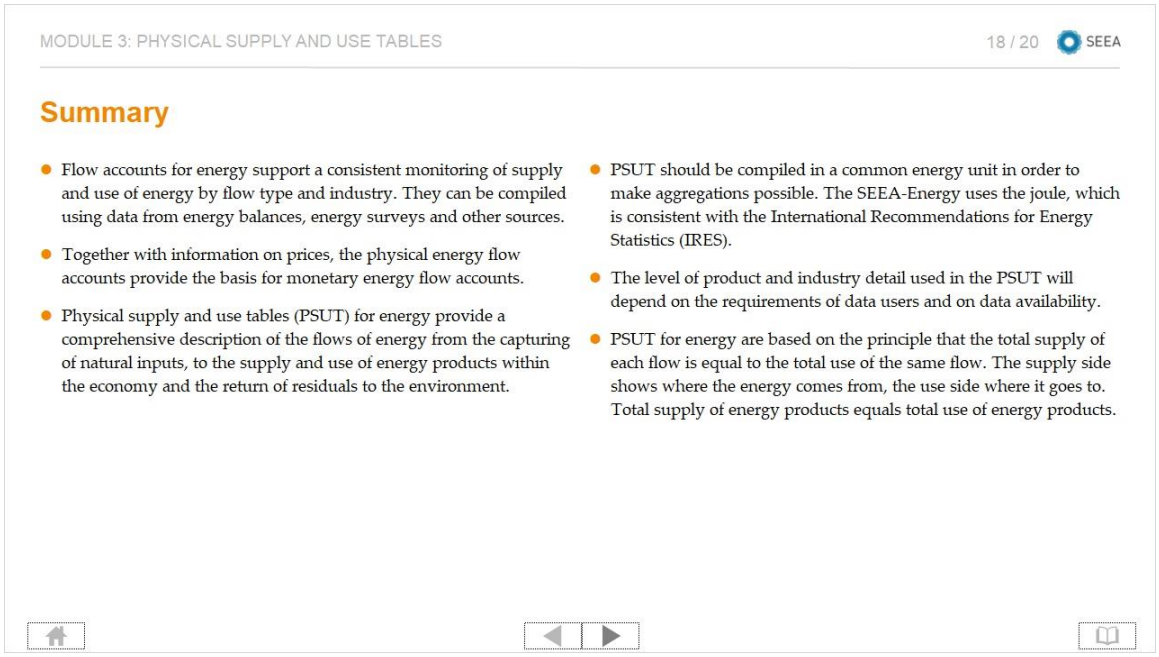
Very good! (Slide Layer)



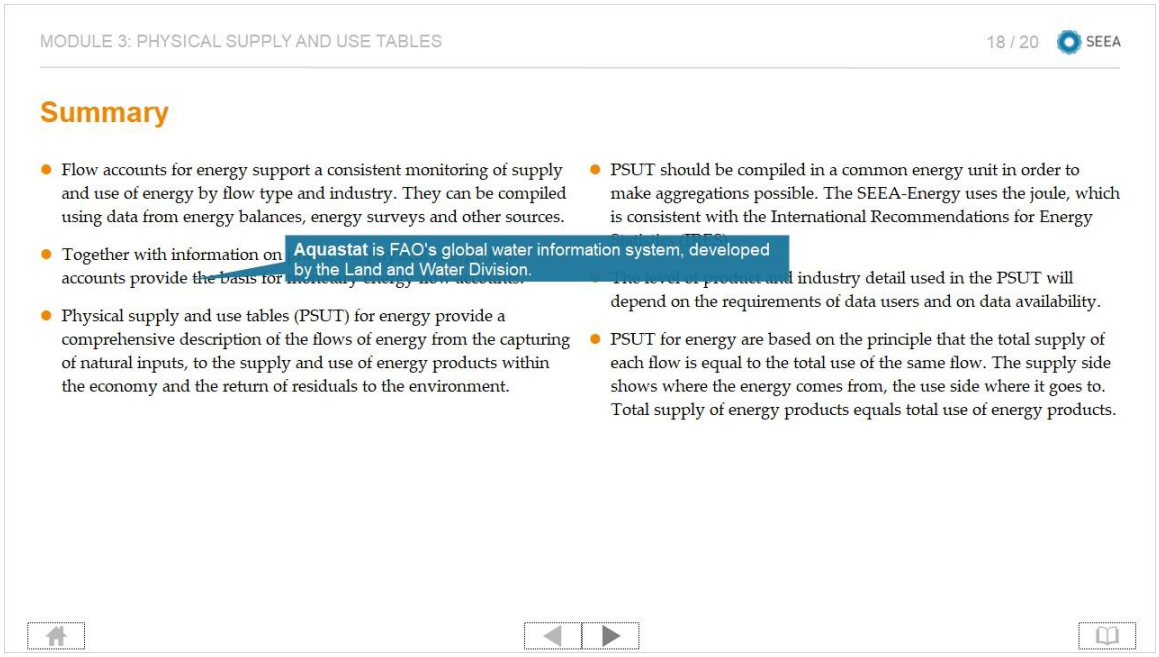
Not quite right. All answers apply! (Slide Layer)



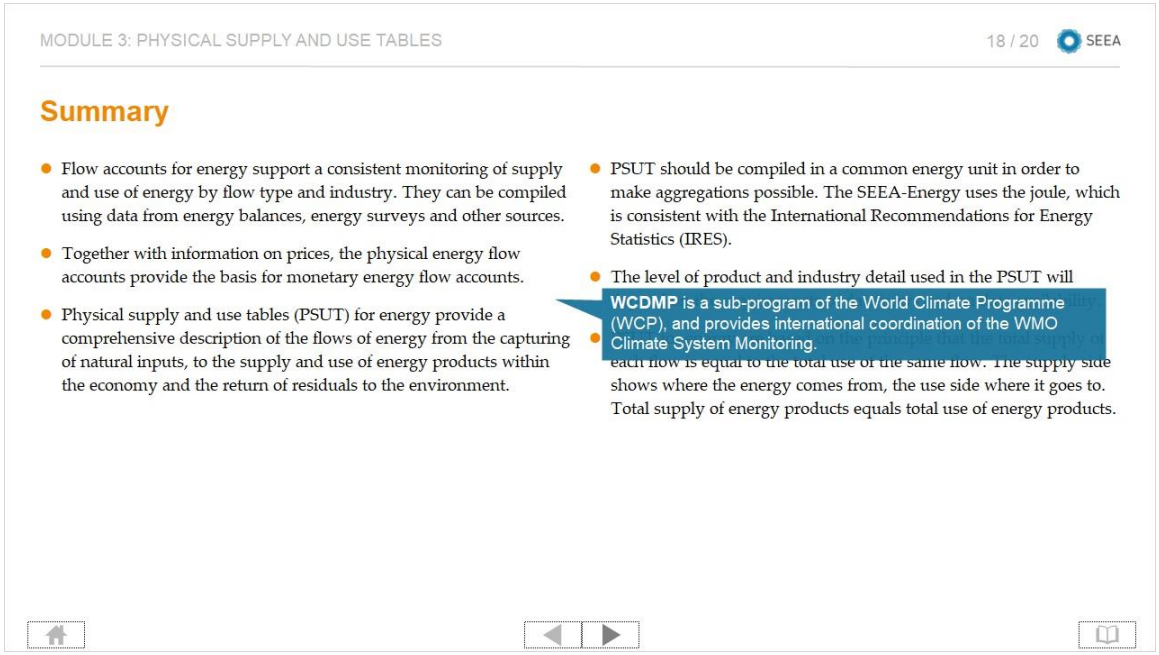
5.18 Summary



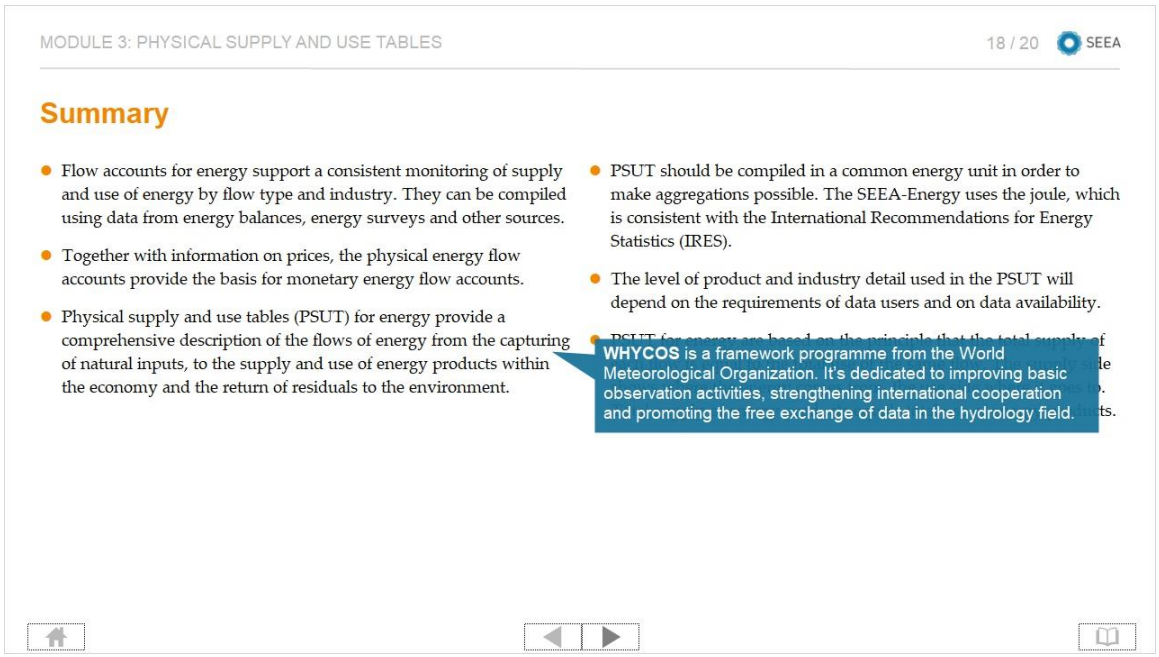
Explanation 1 (Slide Layer)



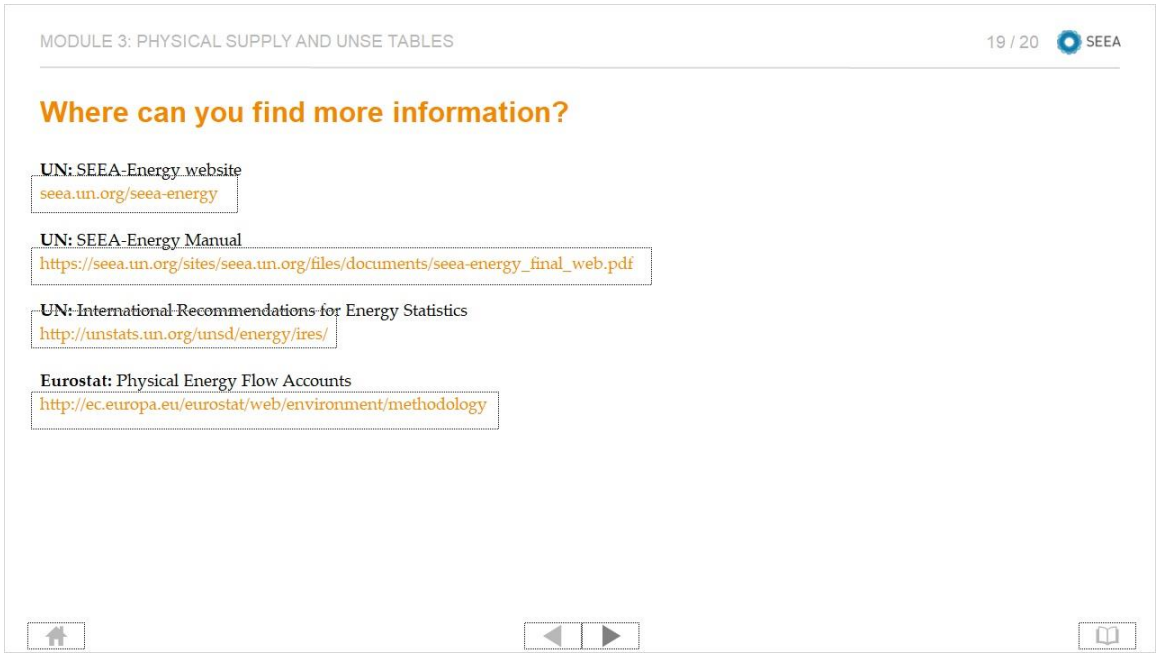
Explanation 2 (Slide Layer)



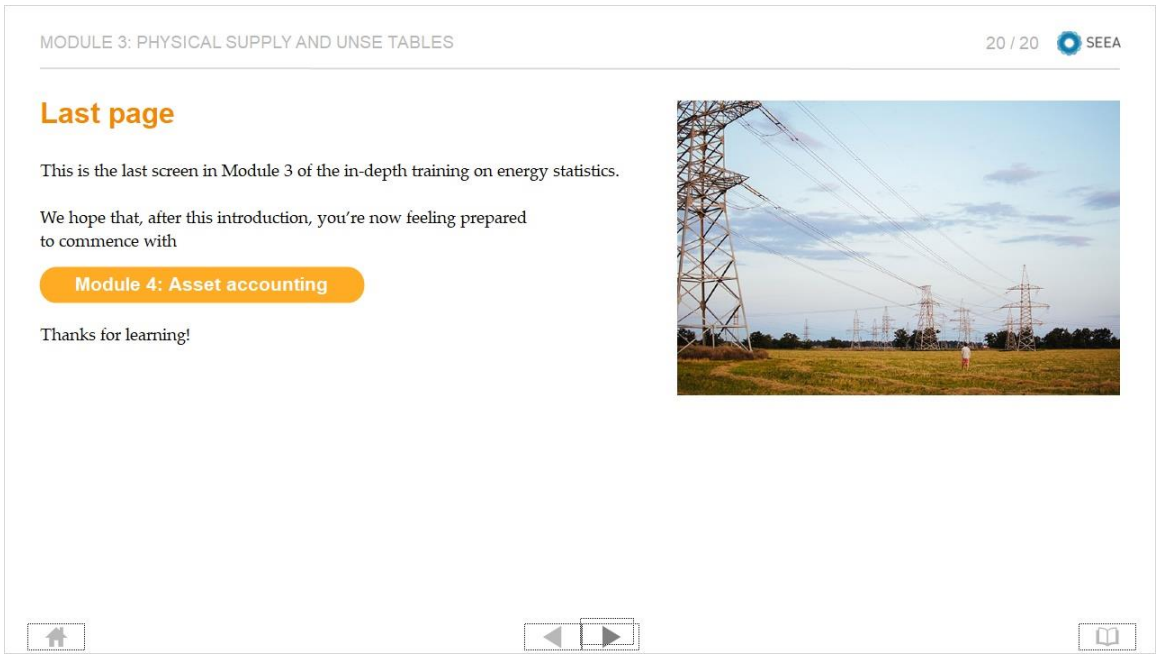
Explanation 3 (Slide Layer)



5.19 Where can you find more information?

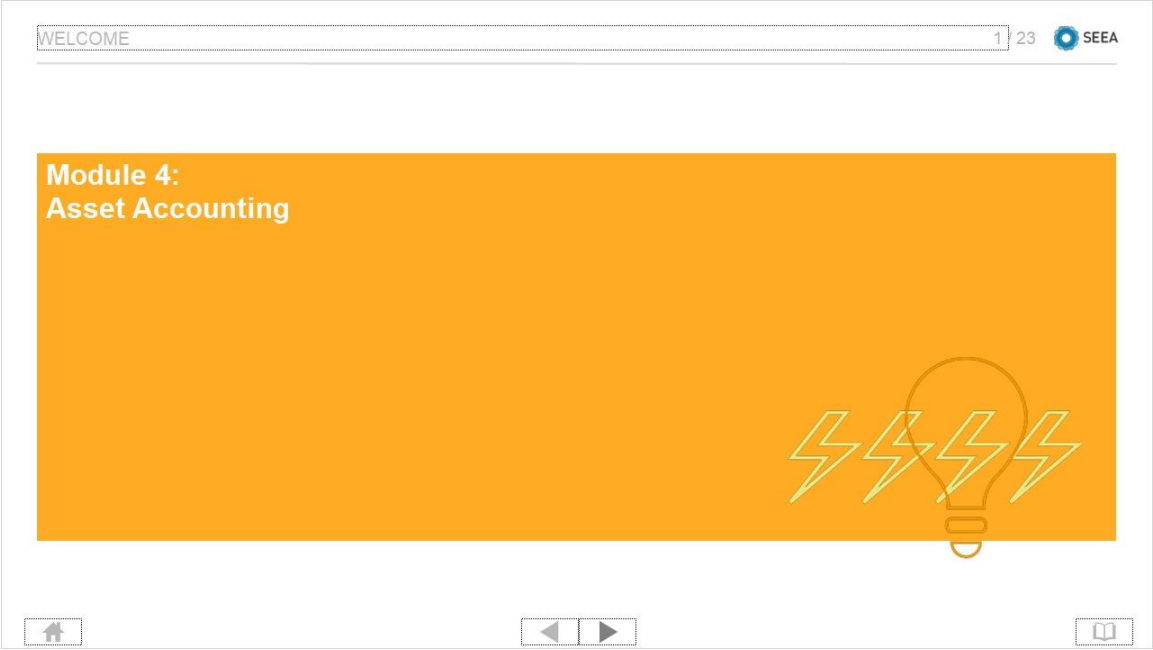


5.20 Last page



6. Module 4 - Asset accounting

6.1 Welcome



Notes:

6.2 Welcome...

Welcome...

… to **Module 4: Asset accounting**!

This module discusses accounting for energy resources and products and describes the relevant categorization of these inputs according to their physical characteristics and criteria related to the extraction of these inputs. The topics covered are:

- Physical assets in SEEA and SNA
- Scope of the physical asset accounts
- Classes of viability
- Categorization of quantity and quality
- Quantification of stocks of energy resources
- Inventories of energy products
- Valuation and the NPV approach

We appreciate your interest in accounting for energy.

Thanks for learning!

6.3 Physical asset accounts for energy

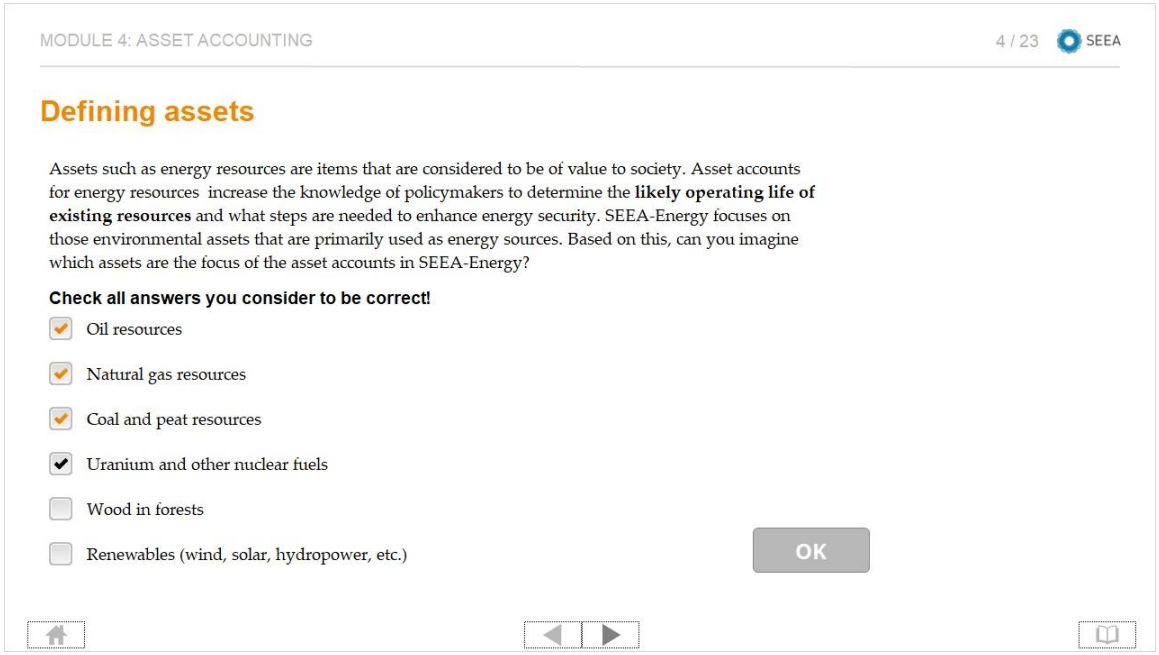
Physical asset accounts for energy

There has been increasing awareness of the value inherent in the **components that comprise the environment** and the inputs the environment provides to society. The term environmental asset has been used to denote the source of these inputs:

- Asset accounts for energy resources organize relevant information including the **levels and values of stocks of the natural inputs** and the changes in these stocks over time.
- **Extractions reducing resources** and **additions to resources via new discoveries** are central to the asset accounts, providing valuable information about energy resources that an economy relies upon.
- The amount of energy resources held and, over time, the type and extent of changes to these levels, provide an indication of **future requirements for energy imports**, and **threats to national energy security**.

6.4 Defining assets

(Multiple Response, 10 points, 1 attempt permitted)



Correct	Choice
X	Oil resources
X	Natural gas resources
X	Coal and peat resources
X	Uranium and other nuclear fuels
	Wood in forests
	Renewables (wind, solar, hydropower, etc.)

Feedback when correct:

While firewood in forests and other stocks of biomass in nature can be used for energy purposes, no energy asset accounts are compiled for such wood because, overall, these assets are not

primarily used for energy purposes. Asset accounts for timber are discussed in SEEA CF and SEEA Agriculture, Forestry and Fisheries.

Renewable sources of energy are not considered physical assets in SEEA-Energy. With the exemption

of biomass, renewable sources of energy cannot be exhausted, in contrast to mineral and energy resources. Thus in an accounting sense there is no physical stock of these types of renewable sources of energy that can be used up or sold.

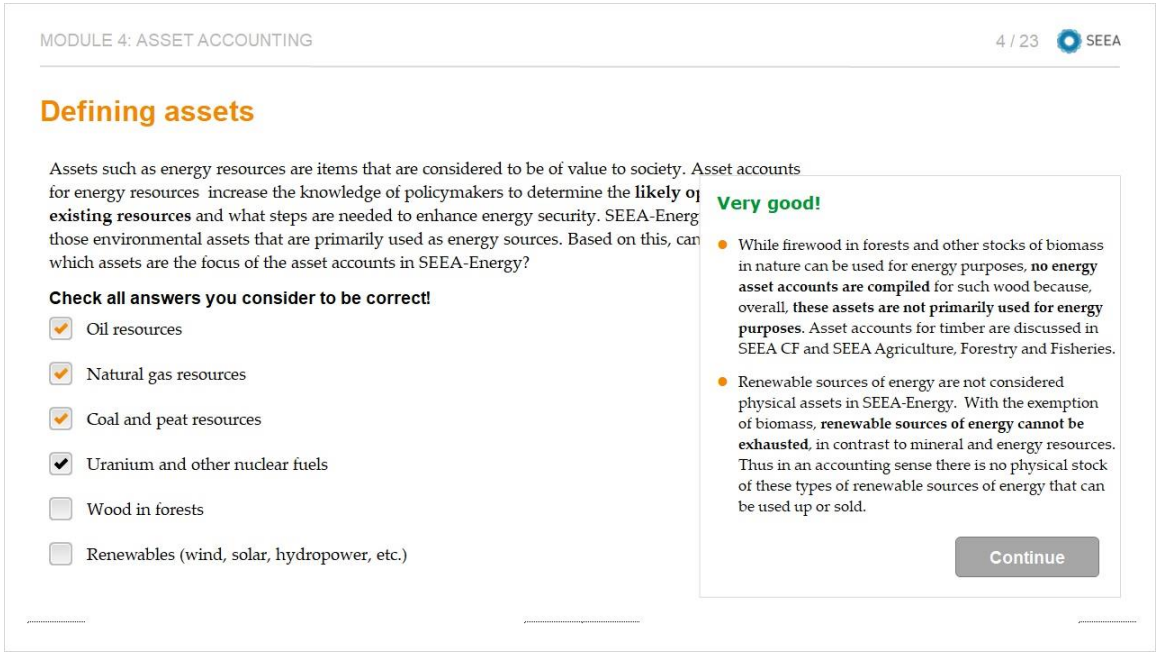
Feedback when incorrect:

While firewood in forests and other stocks of biomass in nature can be used for energy purposes, no energy asset accounts are compiled for such wood because, overall, these assets are not primarily used for energy purposes. Asset accounts for timber are discussed in SEEA CF and SEEA Agriculture, Forestry and Fisheries.

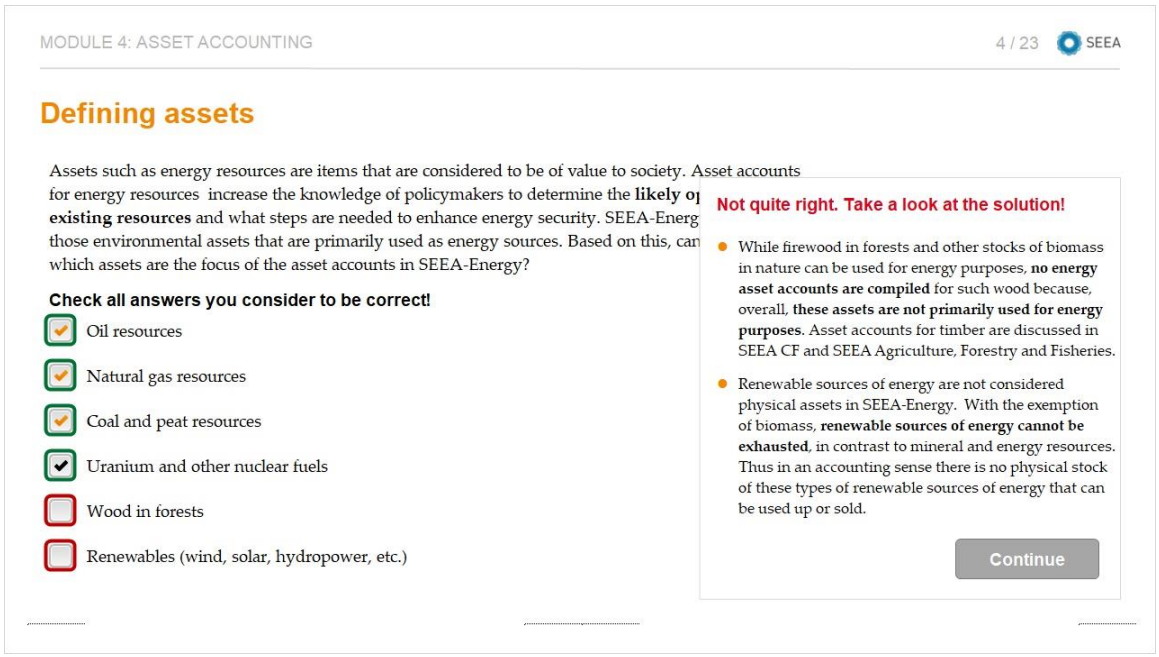
Renewable sources of energy are not considered physical assets in SEEA-Energy. With the exemption

of biomass, renewable sources of energy cannot be exhausted, in contrast to mineral and energy resources. Thus in an accounting sense there is no physical stock of these types of renewable sources of energy that can be used up or sold.

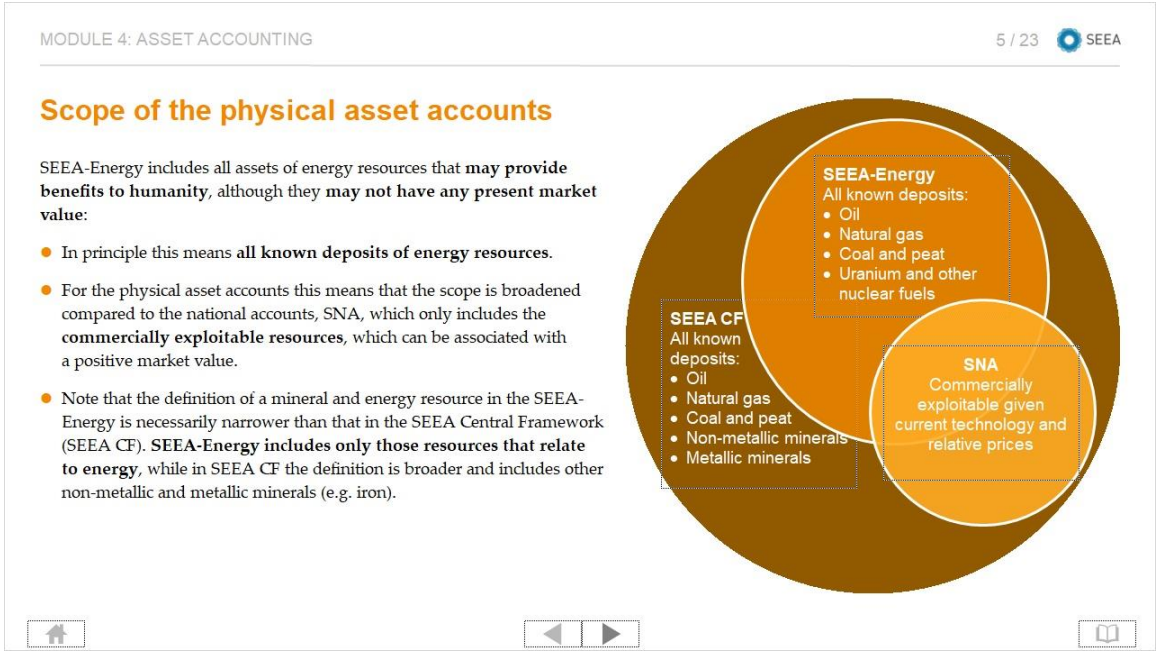
Very good! (Slide Layer)



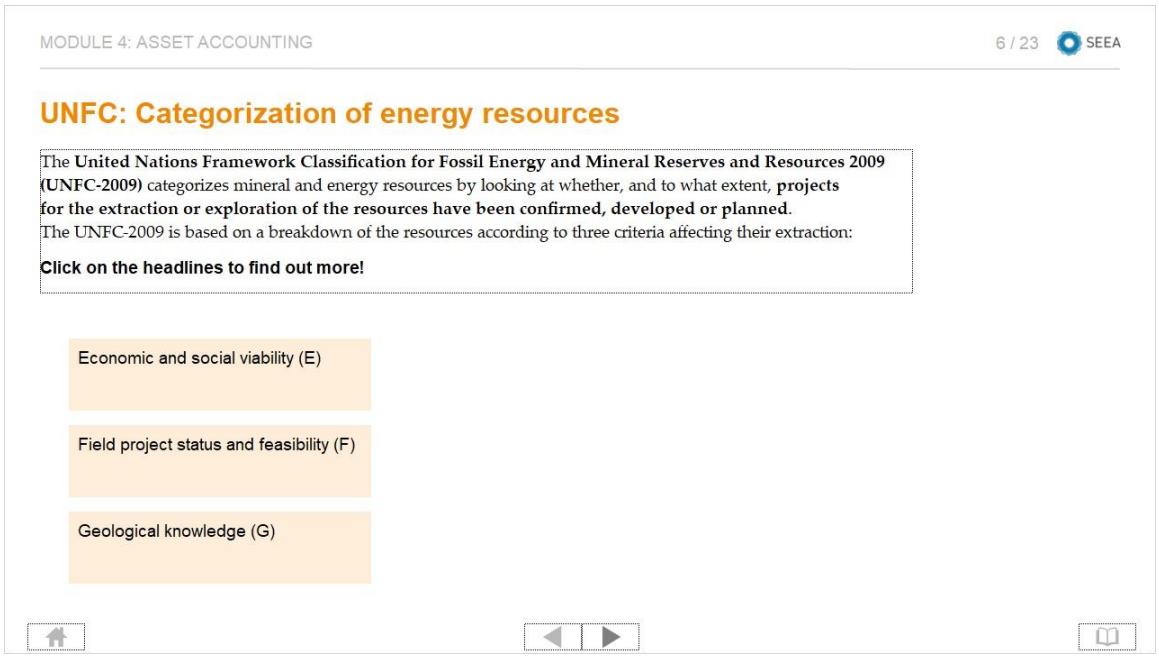
Not quite right. Take a look at the solution! (Slide Layer)



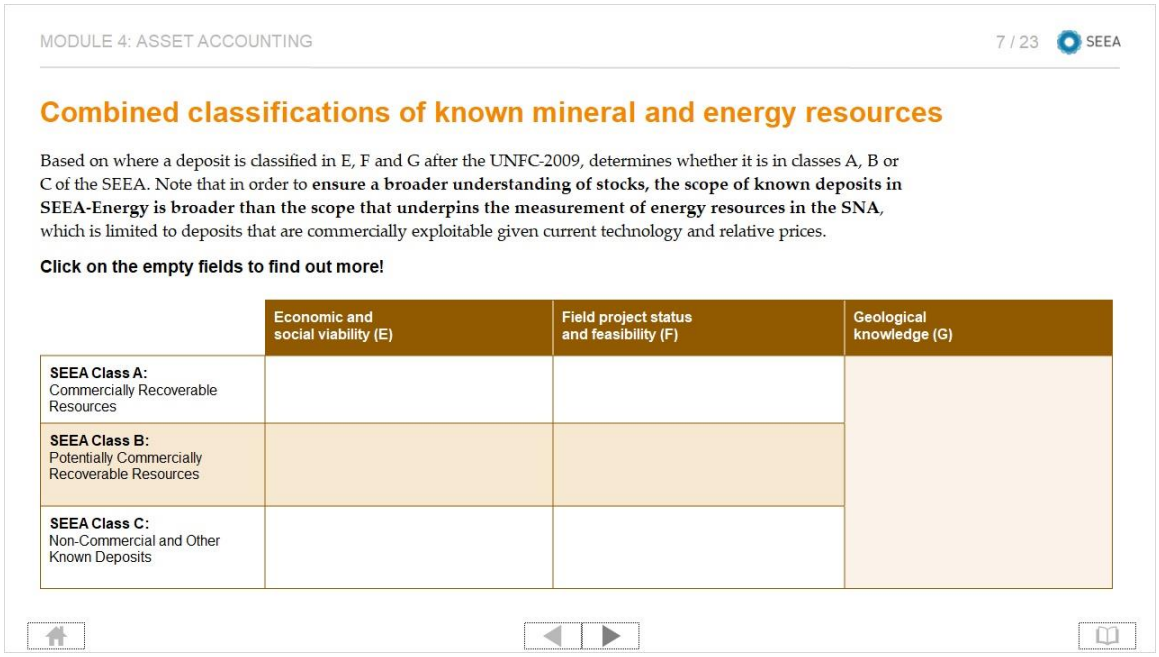
6.5 Scope of the physical asset accounts



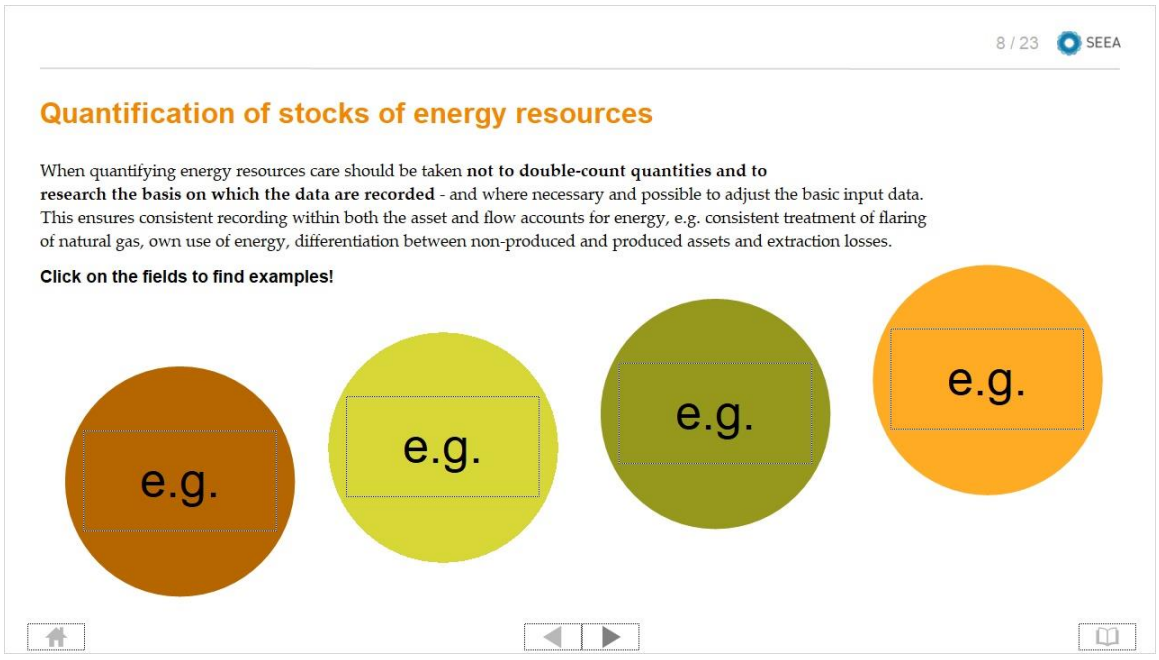
6.6 UNFC: Categorization of energy resources



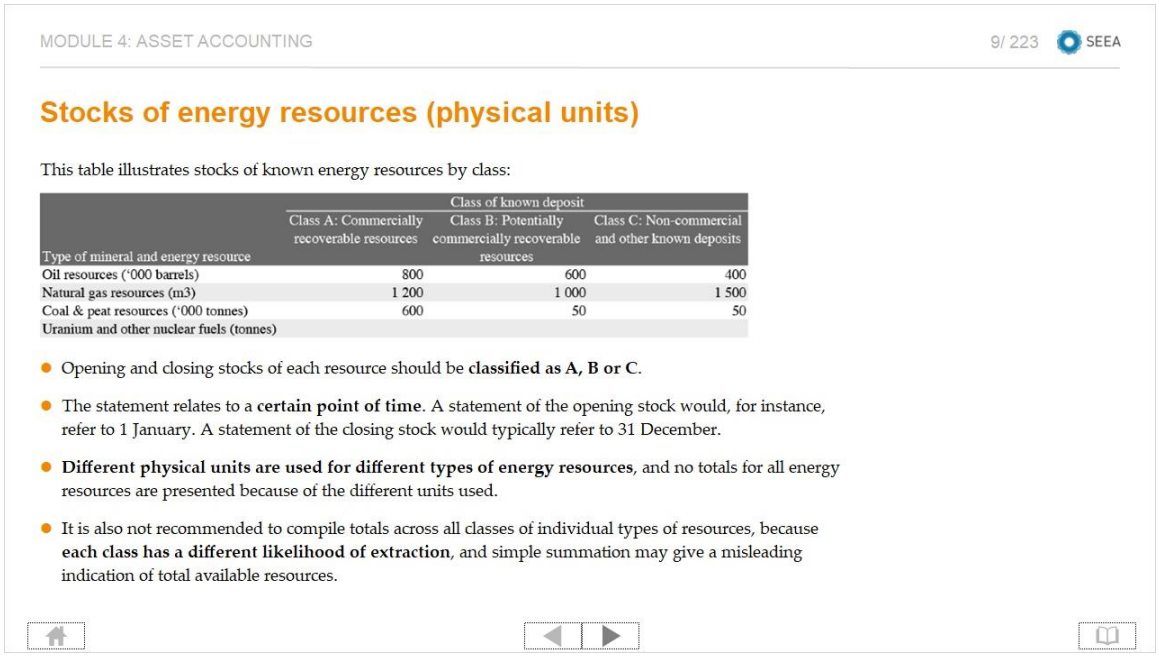
6.7 Combined classifications of known ...



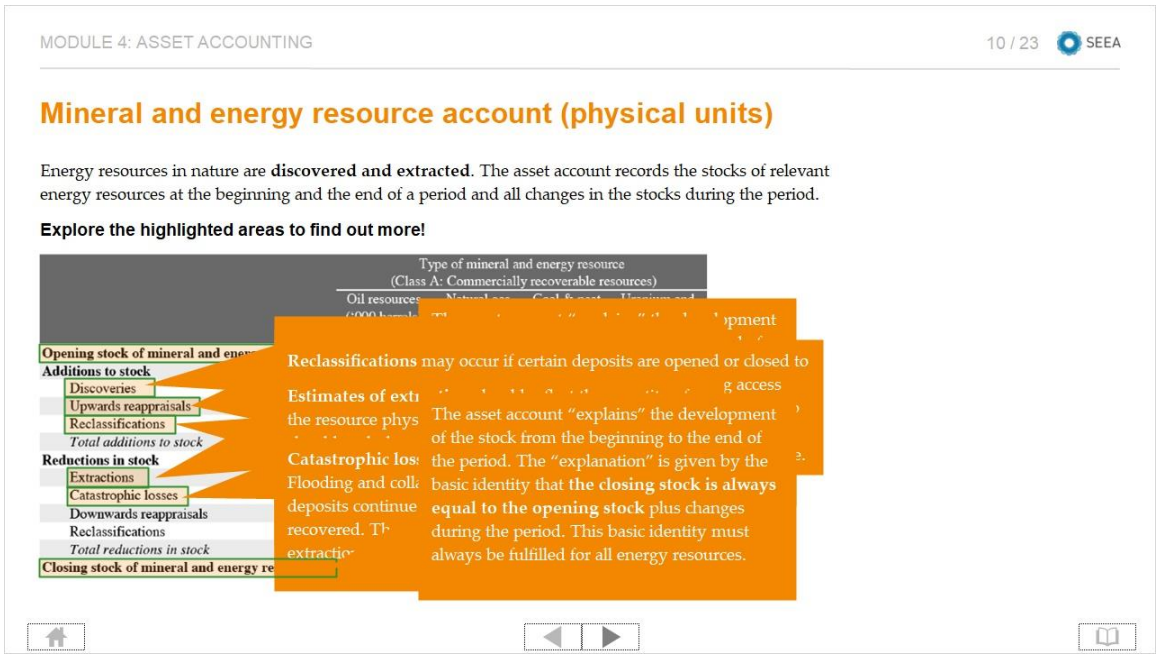
6.8 Quantification of stocks of energy resources



6.9 Stocks of mineral and energy resources (physical units)

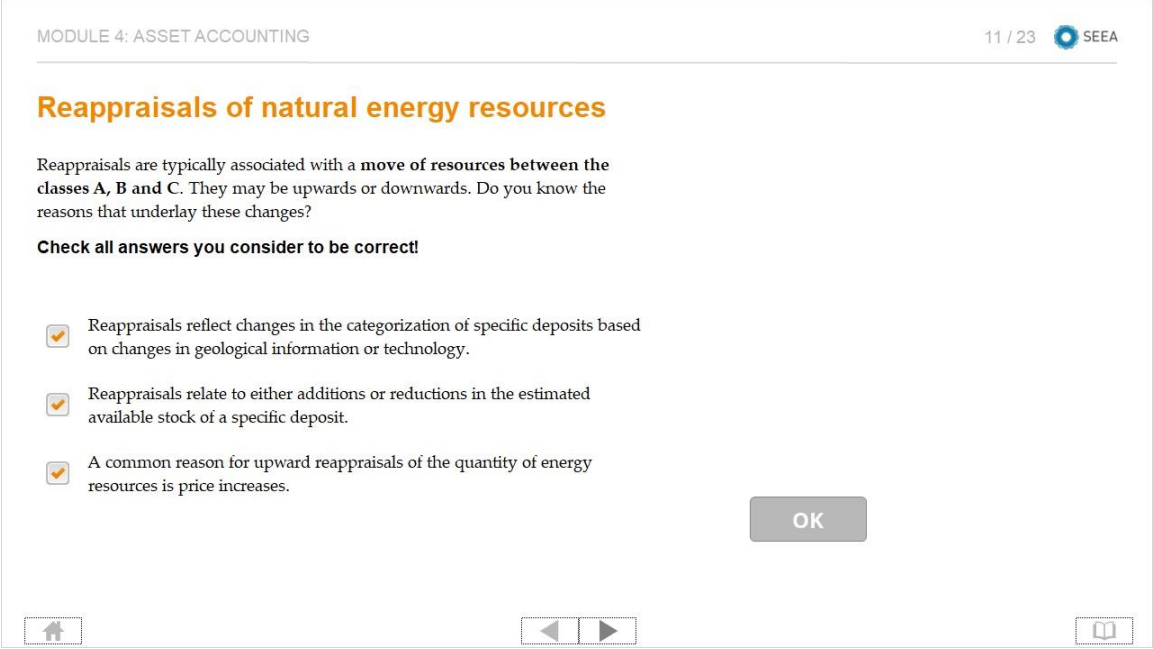


6.10 The SEEA Central Framework



6.11 Reappraisals of natural energy resources

(Multiple Response, 10 points, 1 attempt permitted)



Correct	Choice
X	Reappraisals reflect changes in the categorization of specific deposits based on changes in geological information or technology.
X	Reappraisals relate to either additions or reductions in the estimated available stock of a specific deposit.
X	A common reason for upward reappraisals of the quantity of energy resources is price increases.

Feedback when correct:

Reappraisals pertain to the estimated available stock of a specific deposit and occur with changes in the geological information, technology or prices.

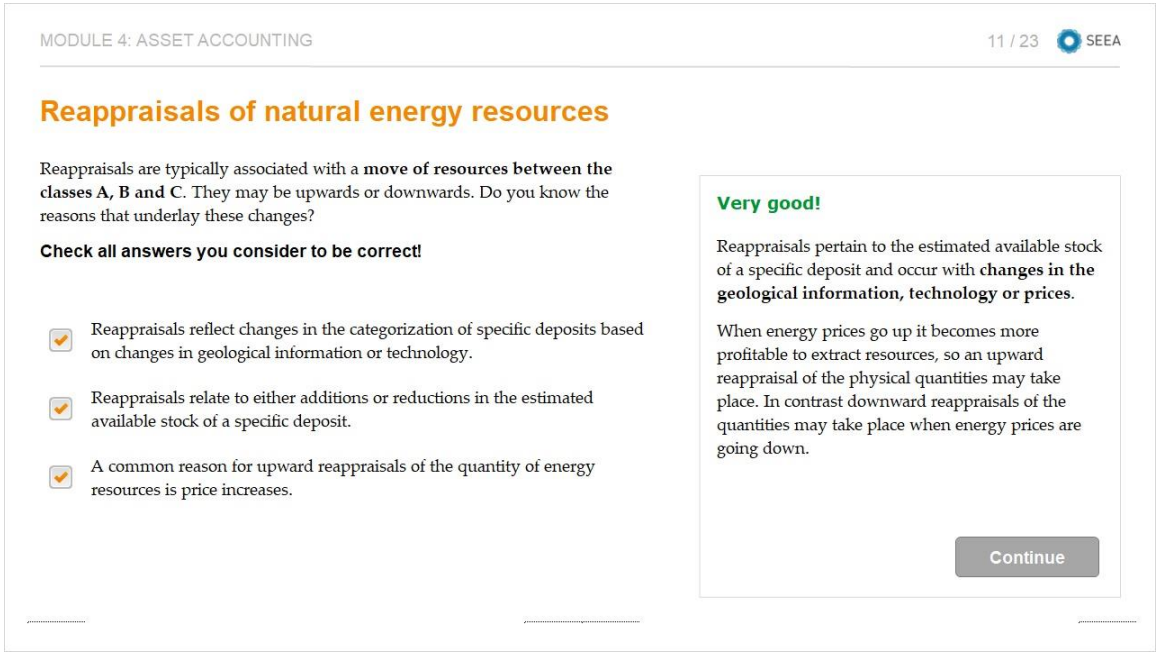
When energy prices go up it becomes more profitable to extract resources, so an upward reappraisal of the physical quantities may take place. In contrast downward reappraisals of the quantities may take place when energy prices are going down.

Feedback when incorrect:

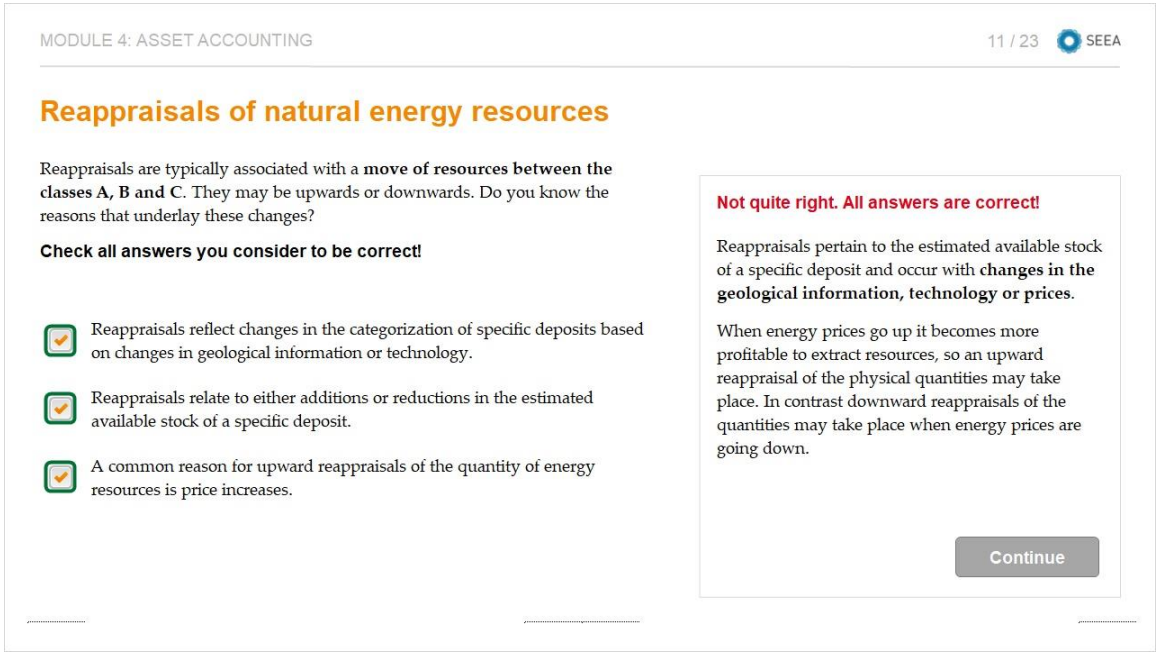
Reappraisals pertain to the estimated available stock of a specific deposit and occur with changes in the geological information, technology or prices.

When energy prices go up it becomes more profitable to extract resources, so an upward reappraisal of the physical quantities may take place. In contrast downward reappraisals of the quantities may take place when energy prices are going down.

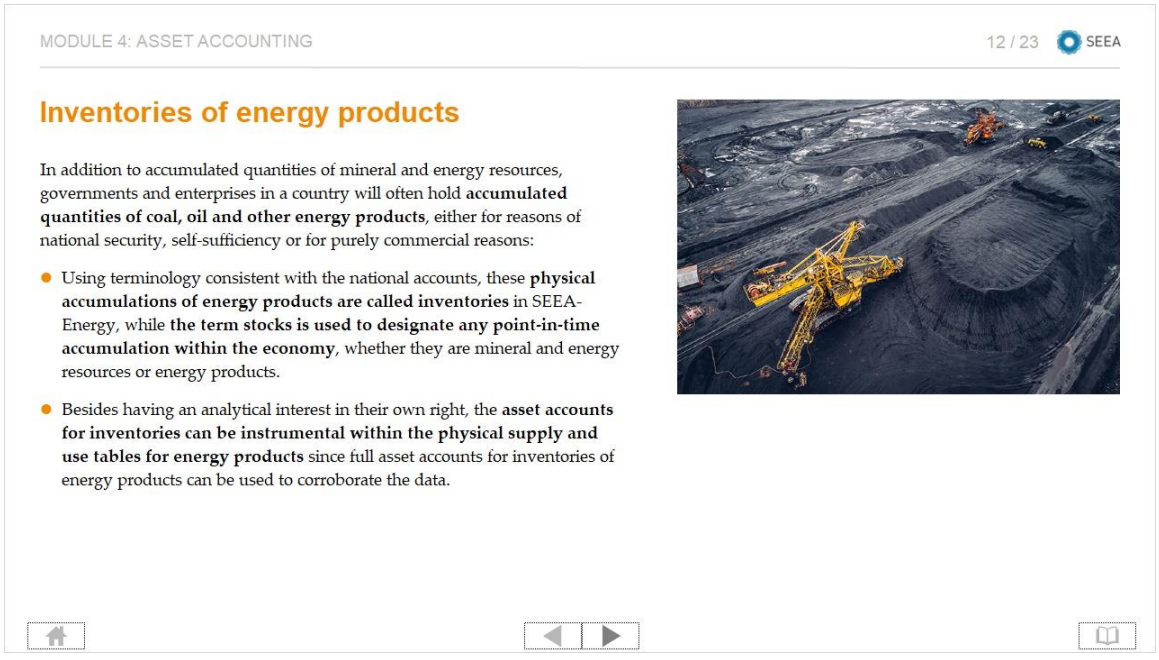
Very good! (Slide Layer)



Not quite right. All answers are correct! (Slide Layer)

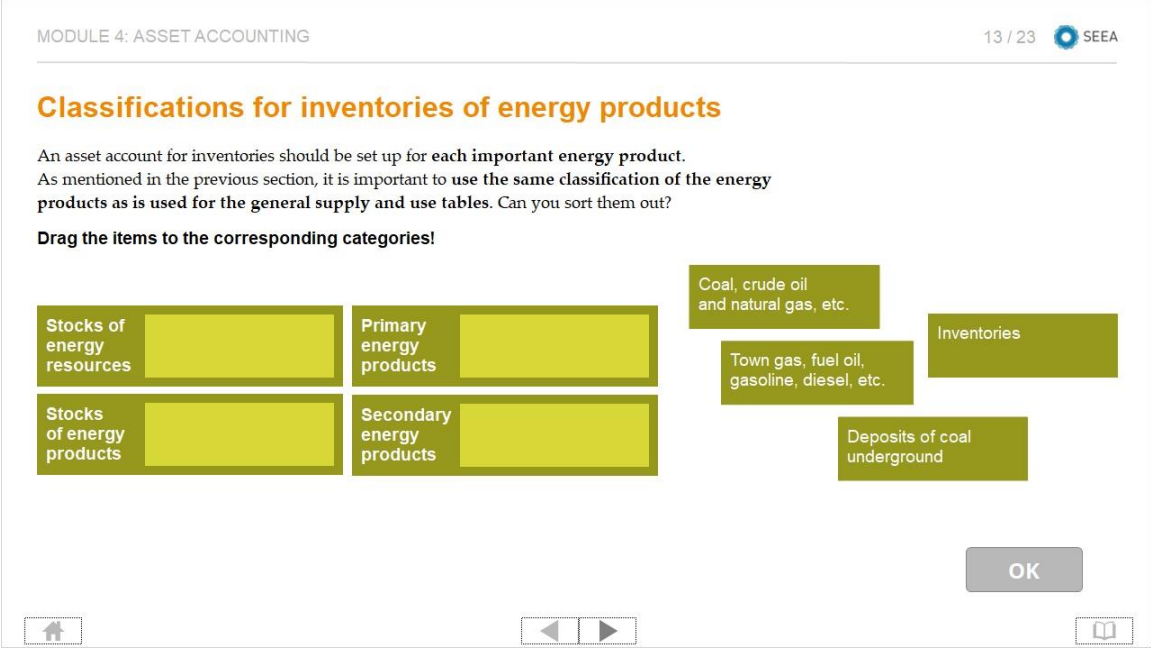


6.12 Inventories of energy products



6.13 SEEA: Classes of viability

(Drag and Drop, 10 points, 1 attempt permitted)



Drag Item	Drop Target
Deposits of coal underground	Target 1
Inventories	Target 2
Coal, crude oil and natural gas, etc.	Target 3
Town gas, fuel oil, gasoline, diesel, etc.	Target 4

Drag and drop properties
Return item to start point if dropped outside the correct drop target
Snap dropped items to drop target (Snap to center)

Allow only one item in each drop target
Delay item drop states until interaction is submitted

Feedback when correct:

In SEEA-Energy and the SNA stocks of energy products are called inventories.

The range of energy products includes primary energy products which are being accumulated after extraction and before processing takes place, as well as secondary energy products which are the result of further processing.

Due to the non-material characteristics of electricity and heat, it is not possible to put these energy products into inventories and thus asset accounts are not applicable for electricity and heat.

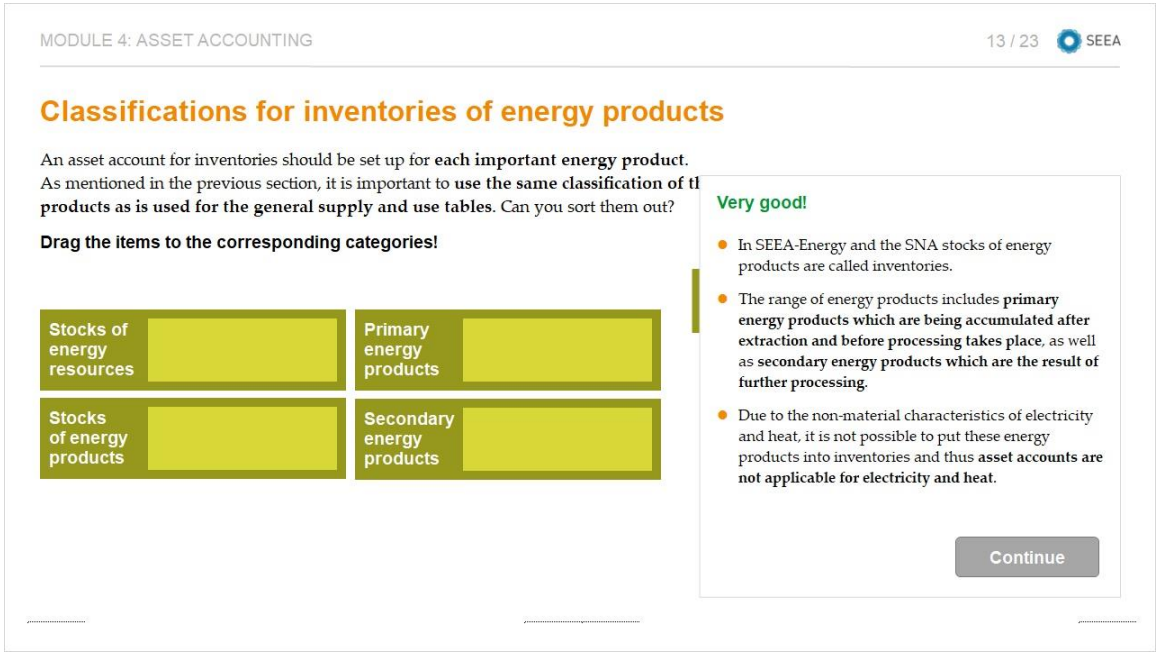
Feedback when incorrect:

In SEEA-Energy and the SNA stocks of energy products are called inventories.

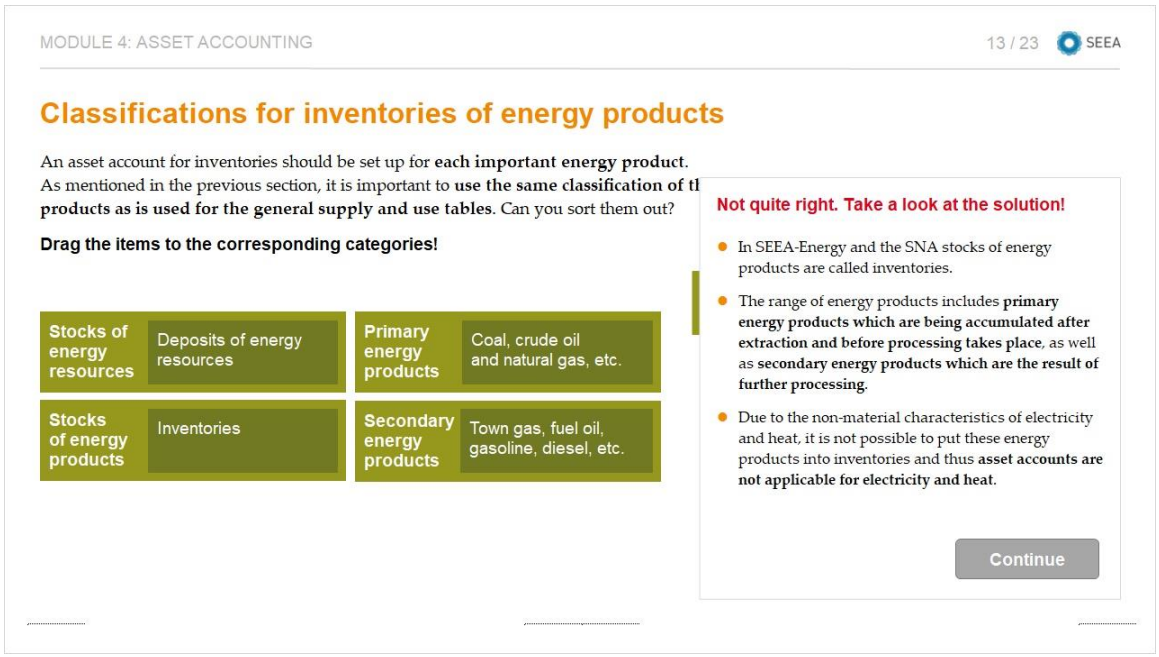
The range of energy products includes primary energy products which are being accumulated after extraction and before processing takes place, as well as secondary energy products which are the result of further processing.

Due to the non-material characteristics of electricity and heat, it is not possible to put these energy products into inventories and thus asset accounts are not applicable for electricity and heat.

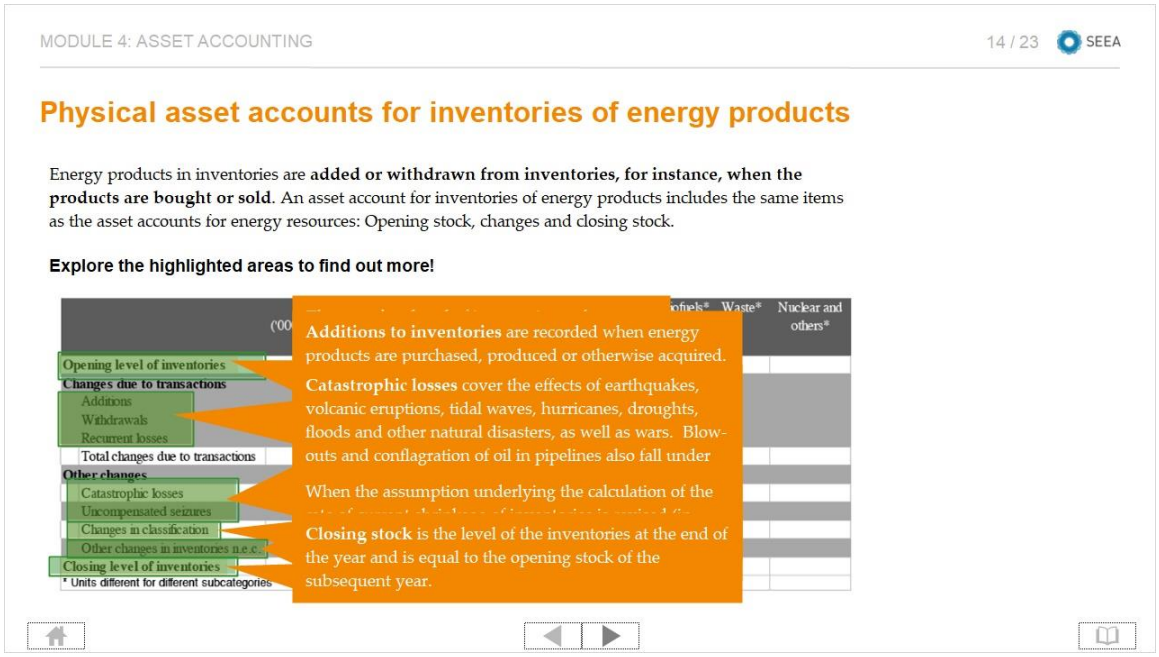
Correct (Slide Layer)



Incorrect (Slide Layer)

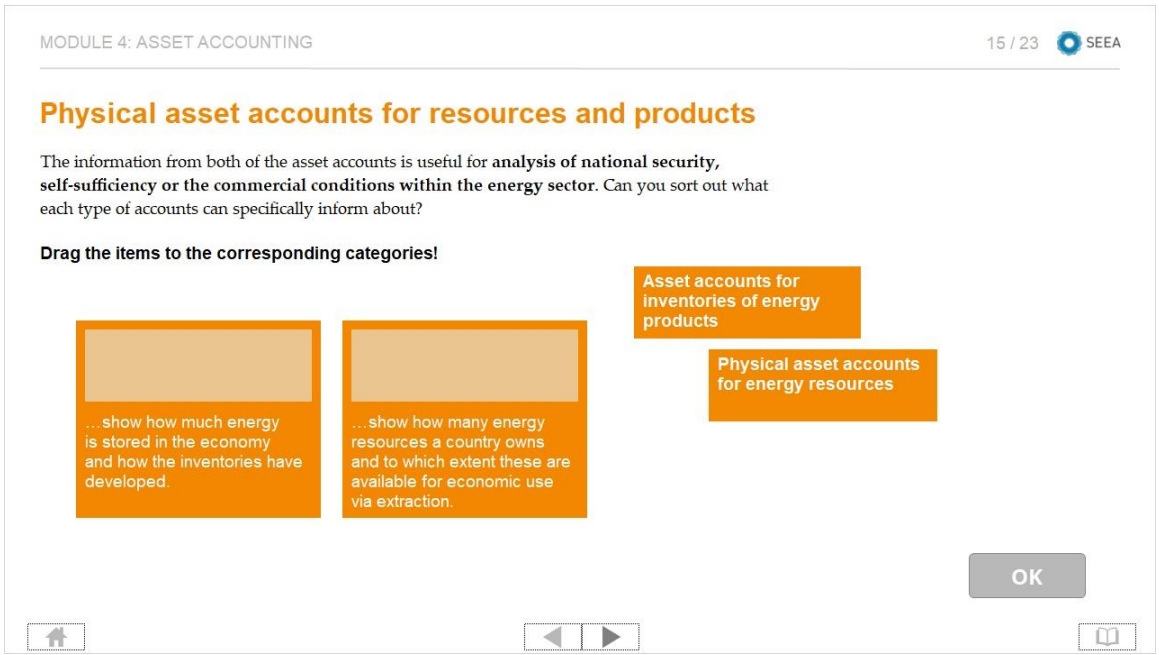


6.14 Physical asset accounts for inventories of energy products



6.15 Physical asset accounts for resources and products

(Drag and Drop, 10 points, 1 attempt permitted)



Drag Item	Drop Target
Asset accounts for inventories of energy products	Target 1
Physical asset accounts for energy resources	Target 2

Drag and drop properties
Return item to start point if dropped outside the correct drop target
Snap dropped items to drop target (Snap to center)
Allow only one item in each drop target
Delay item drop states until interaction is submitted

Feedback when correct:

Physical asset accounts for energy resources also show how the stocks have developed over time, and how the development has been affected by the economic activities, for instance, how much has been extracted and how much has been added to the available stocks by new discoveries.

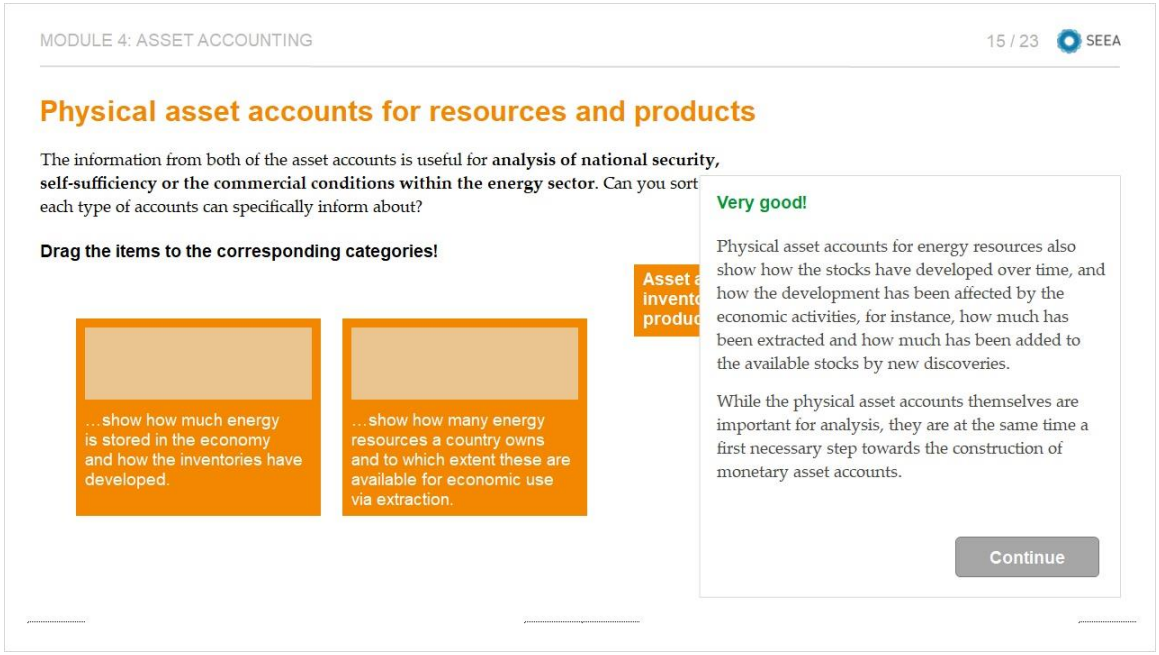
While the physical asset accounts themselves are important for analysis, they are at the same time a first necessary step towards the construction of monetary asset accounts.

Feedback when incorrect:

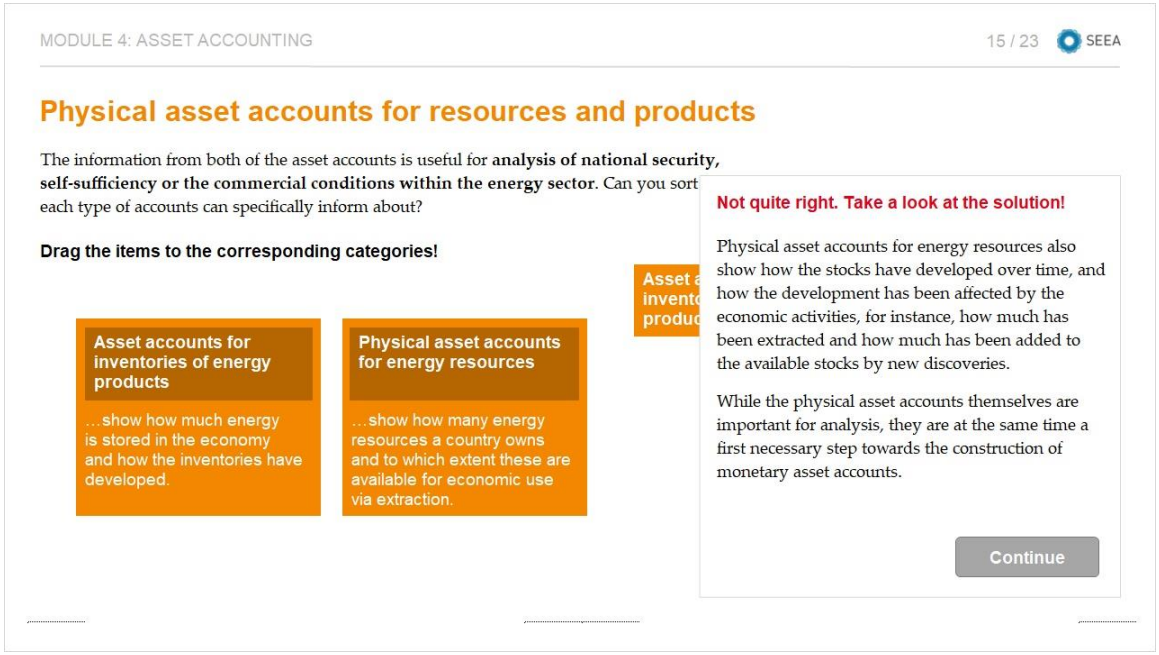
Physical asset accounts for energy resources also show how the stocks have developed over time, and how the development has been affected by the economic activities, for instance, how much has been extracted and how much has been added to the available stocks by new discoveries.

While the physical asset accounts themselves are important for analysis, they are at the same time a first necessary step towards the construction of monetary asset accounts.

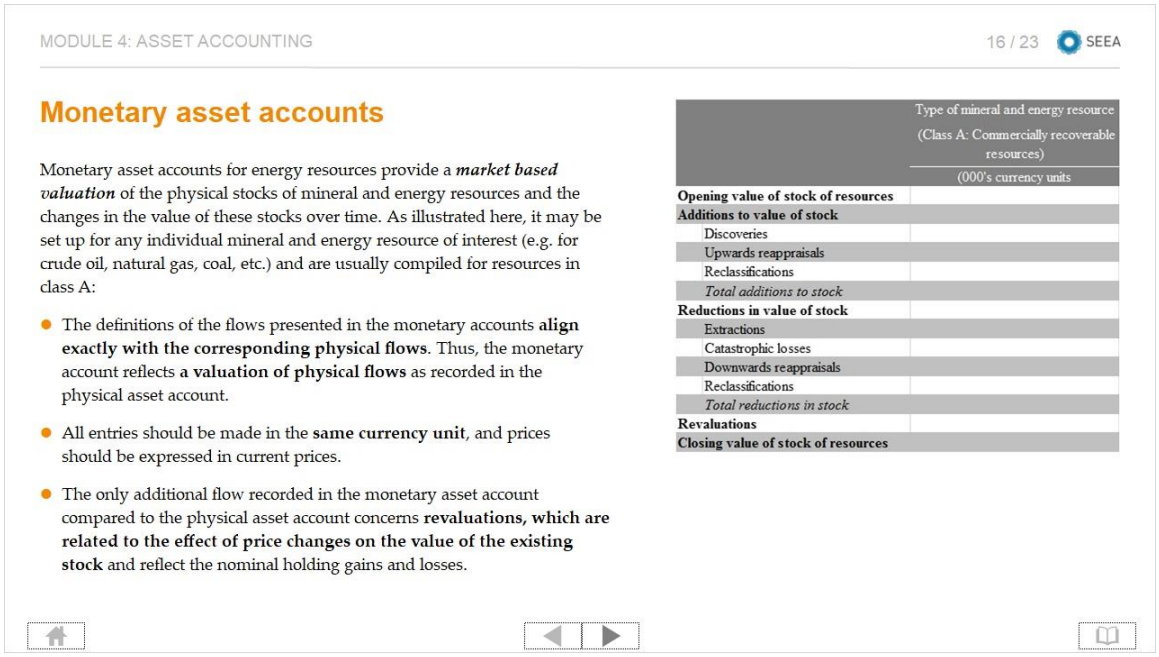
Correct (Slide Layer)



Incorrect (Slide Layer)

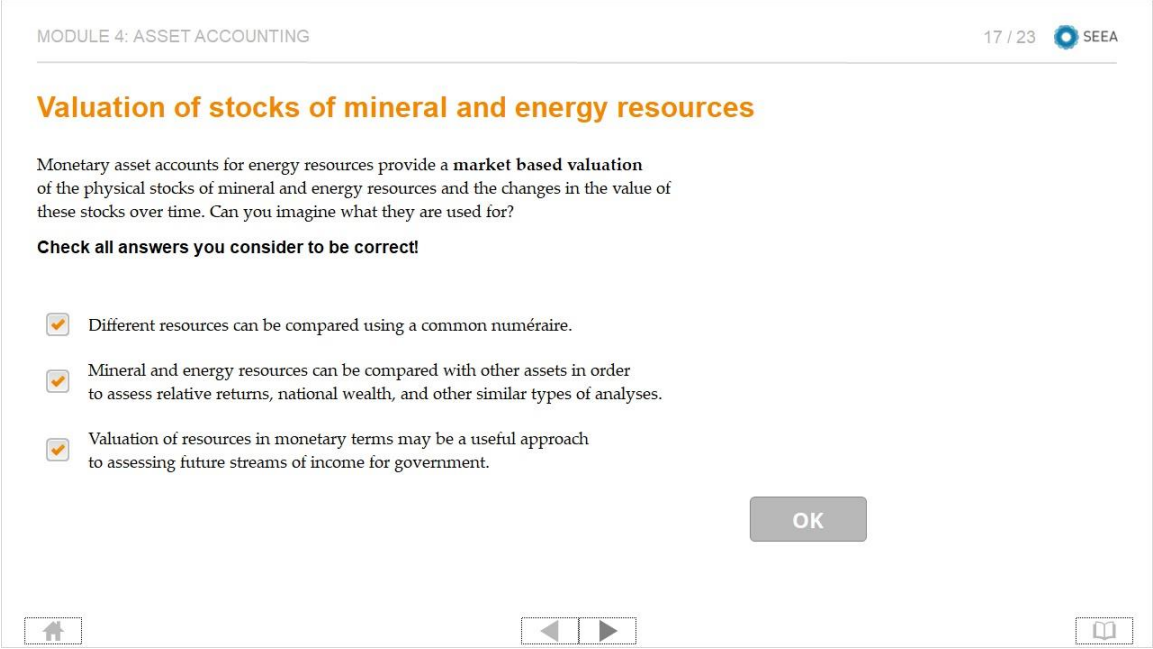


6.16 Monetary asset accounts



6.17 Valuation of stocks of mineral and energy resources

(Multiple Response, 10 points, 1 attempt permitted)



Correct	Choice
X	Different resources can be compared using a common numéraire.
X	Mineral and energy resources can be compared with other assets in order to assess relative returns, national wealth, and other similar types of analyses.
X	Valuation of resources in monetary terms may be a useful approach to assessing future streams of income for government.

Feedback when correct:

It is also the case that in business accounts, enterprises involved in extraction make assessments in terms of their future income streams and it is useful to be able to place these individual enterprise based valuations into a broader, national perspective.

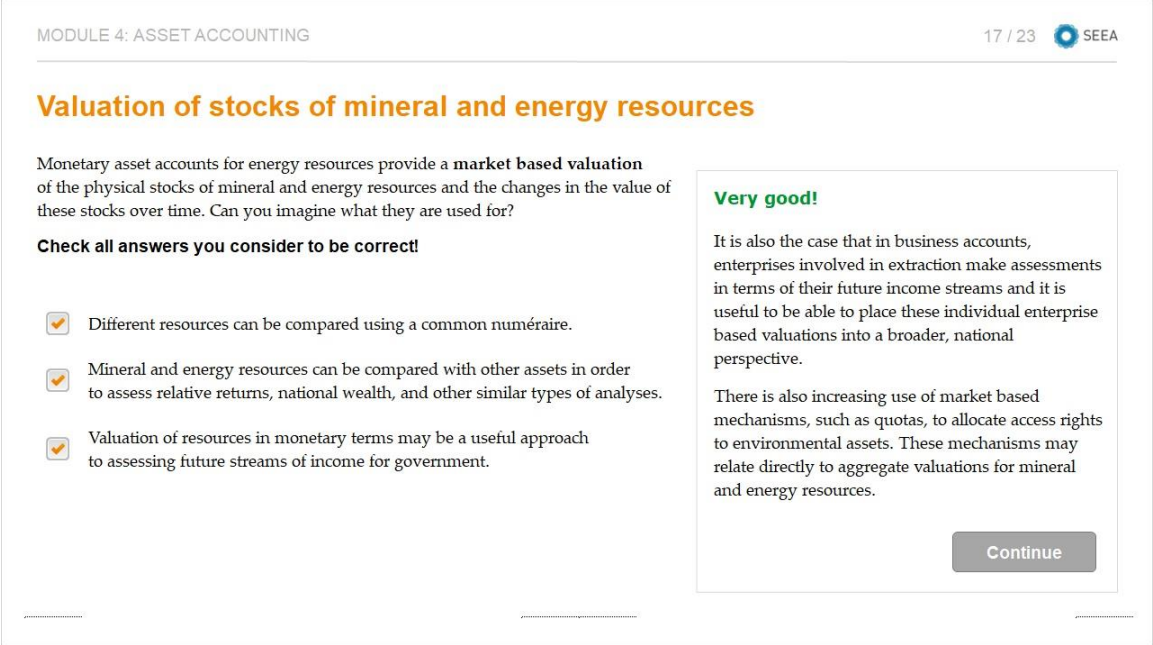
There is also increasing use of market based mechanisms, such as quotas, to allocate access rights to environmental assets. These mechanisms may relate directly to aggregate valuations for mineral and energy resources.

Feedback when incorrect:

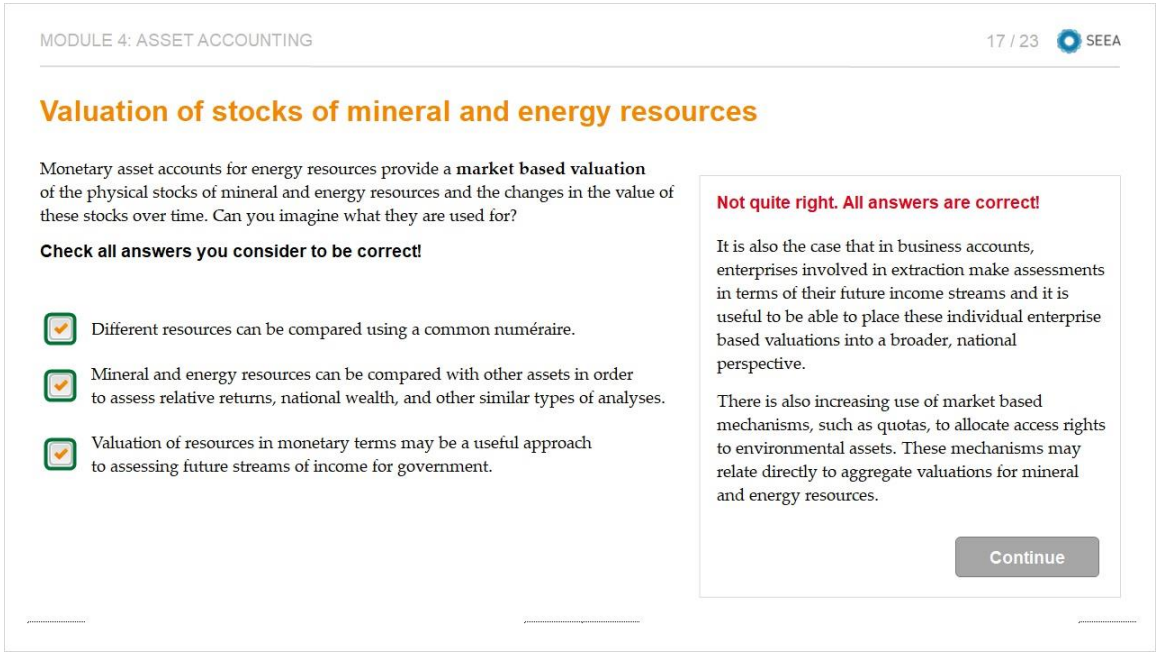
It is also the case that in business accounts, enterprises involved in extraction make assessments in terms of their future income streams and it is useful to be able to place these individual enterprise based valuations into a broader, national perspective.

There is also increasing use of market based mechanisms, such as quotas, to allocate access rights to environmental assets. These mechanisms may relate directly to aggregate valuations for mineral and energy resources.

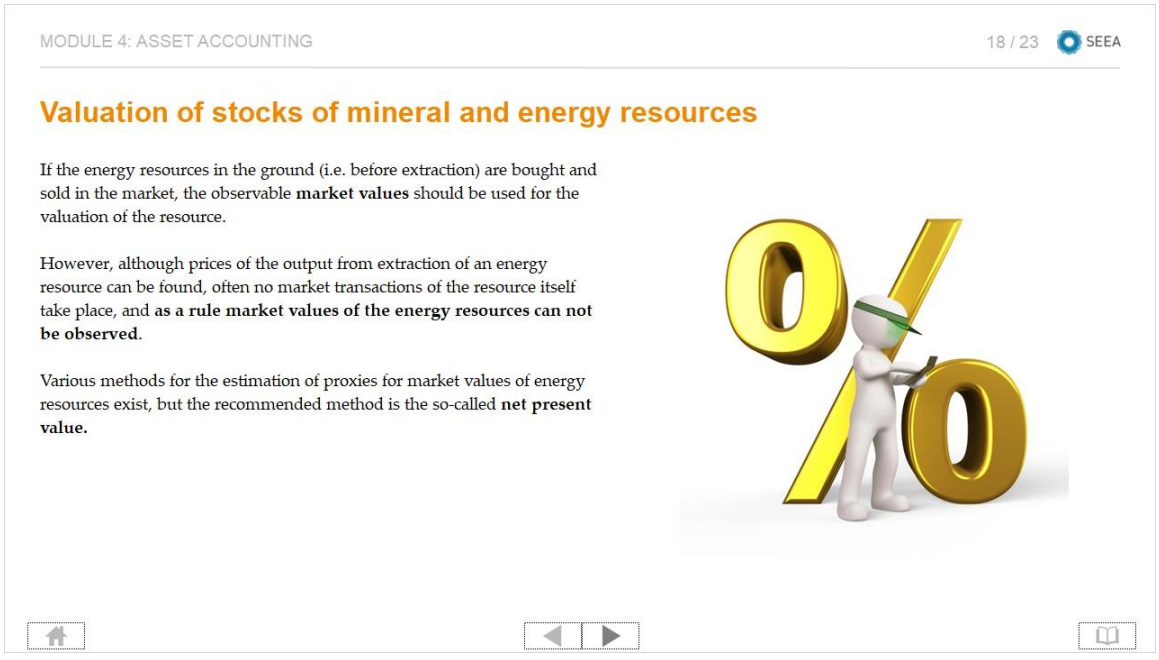
Very good! (Slide Layer)



Not quite right. All answers are correct! (Slide Layer)



6.18 Monetary asset accounts



6.19 Monetary asset accounts

MODULE 4: ASSET ACCOUNTING 19 / 23 SEEA

The net present value (NPV)

- This approach is based on the assumption that the market value is equal to the sum of **expected future earnings (resource rent)** from the use of the resource.
- But: Future earnings are assumed to be of **less value today** than earnings accruing presently.
- Therefore future earnings have to be **multiplied by a discount factor** to estimate the present value of the future earnings.

For details on the general NPV approach including potential uses and limitations see **SEEA-Energy and SEEA CF Chapter 5**.

Year of extraction	Physical extraction Million m^3	Unit resource rent, current prices	Resource rent, current prices	Discount factor (6 percent)	Discounted resource rents
t	37	2 148	79 476	0,94	74 977
t+1	37	2 212	81 860	0,89	72 855
t+2	41	2 279	93 431	0,84	78 447
t+3	41	2 347	96 234	0,79	76 227
t+4	41	2 418	99 121	0,75	74 069
t+5	41	2 490	102 095	0,70	71 973
...	...	...	...	...	...

Discount factor (6 percent) = 1/(1+0.06)^t

Discounted resource rents = Resource rents multiplied by the discount factor

6.20 Steps of the NPV approach

MODULE 4: ASSET ACCOUNTING 20 / 23 SEEA

Steps of the NPV approach

The NPV for stocks of energy resources is based on estimates of future physical extractions. If such **future extraction profiles** are available from energy agencies or geological institutes, they should be used. If such data are not available, compilers should assume that extractions will **continue at the current level until the resource is exhausted**.

Click on the fields to see the next steps!

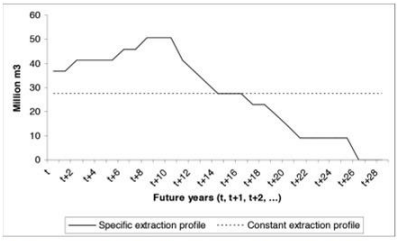
1

2

3

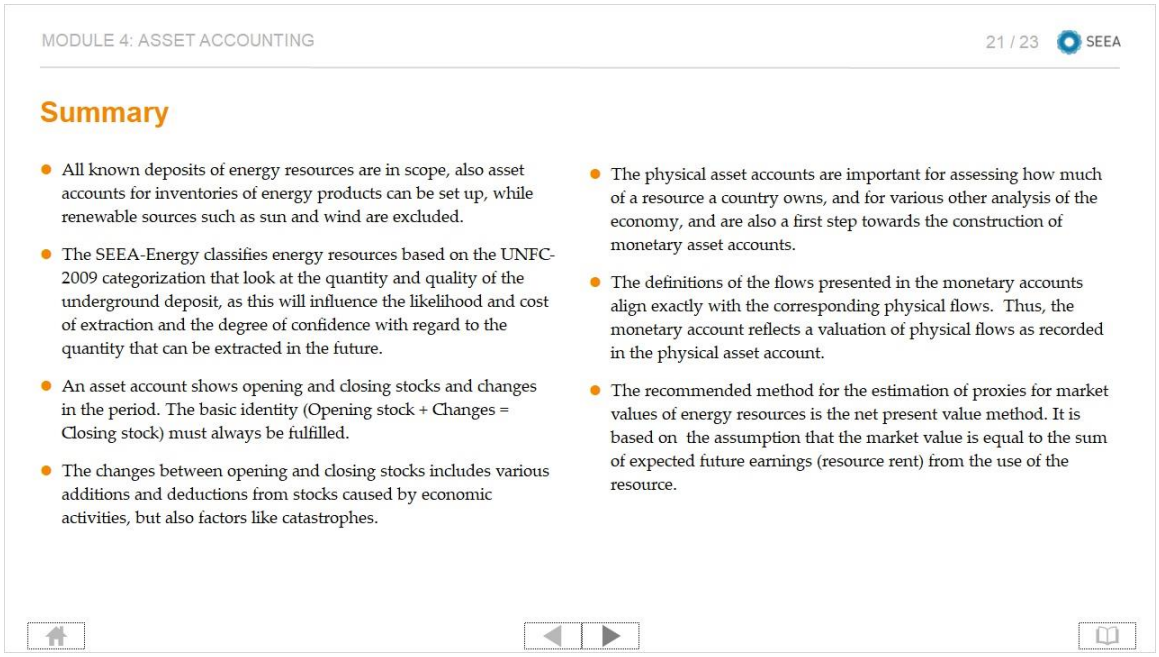
4

5

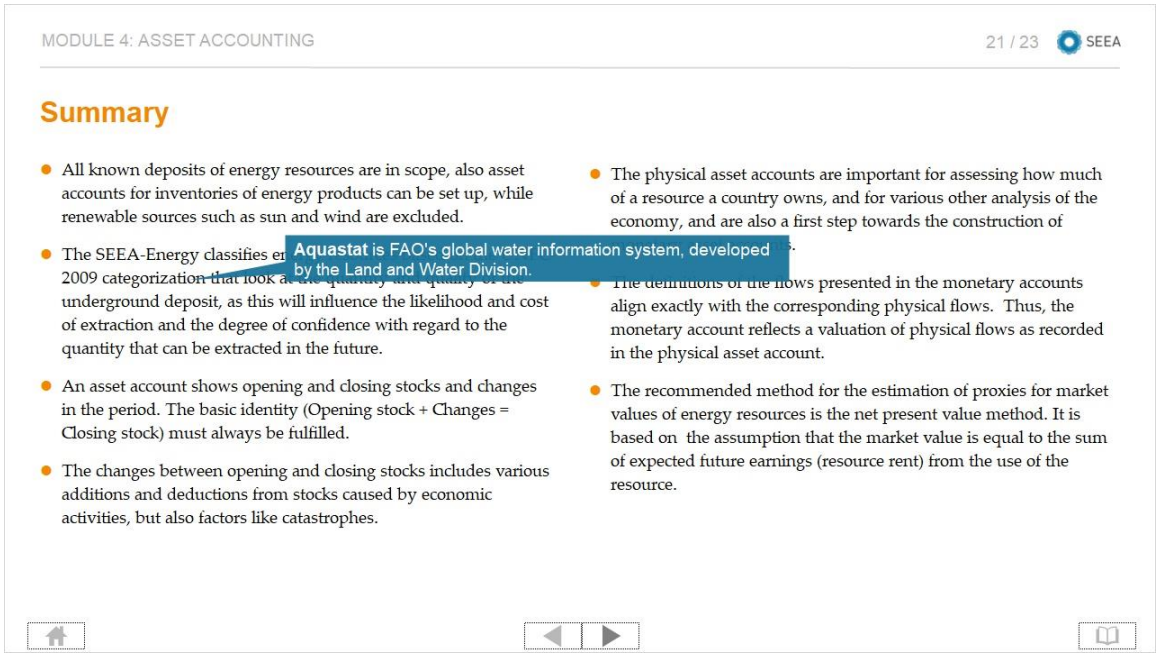


Future extraction profiles for an energy resource

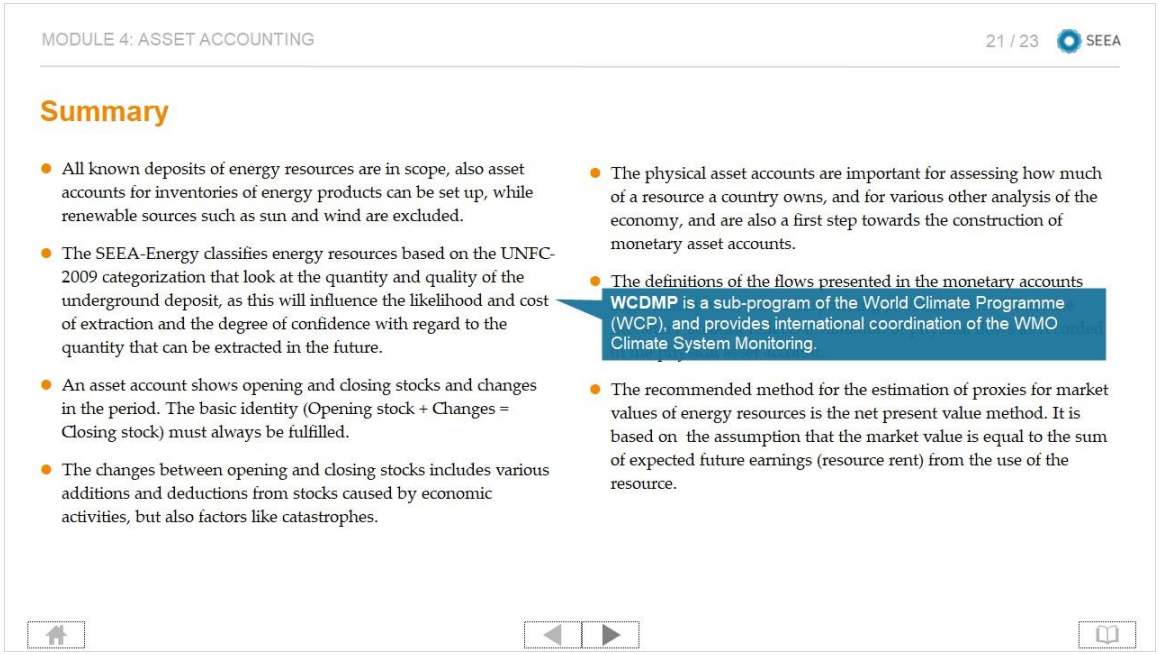
6.21 Summary



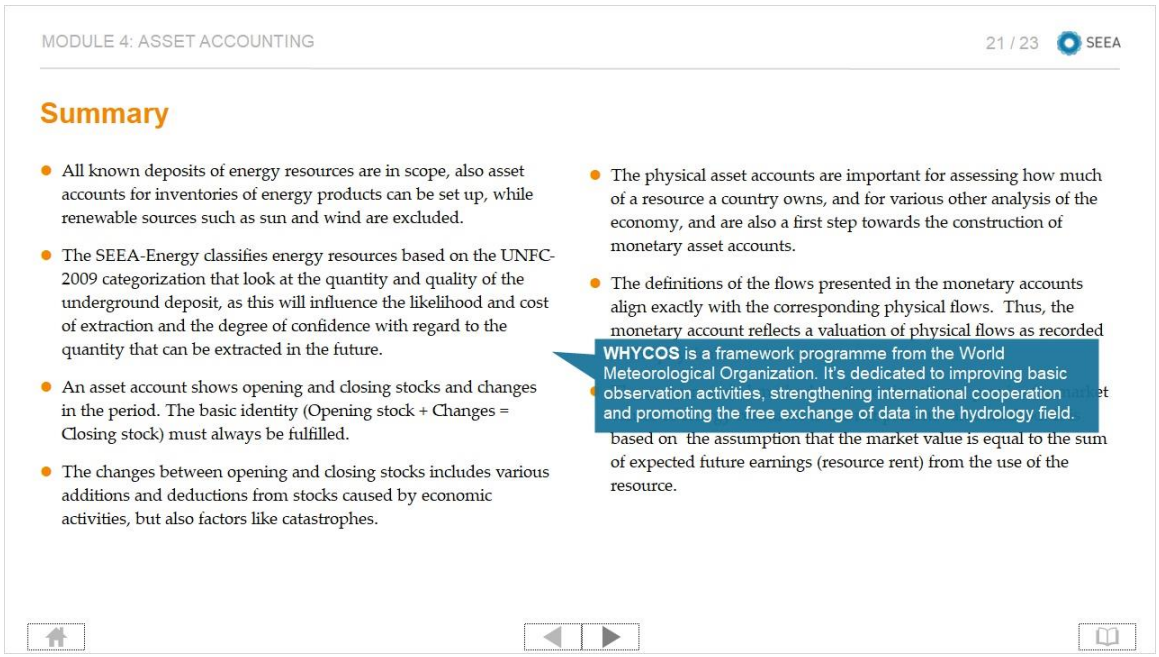
Explanation 1 (Slide Layer)



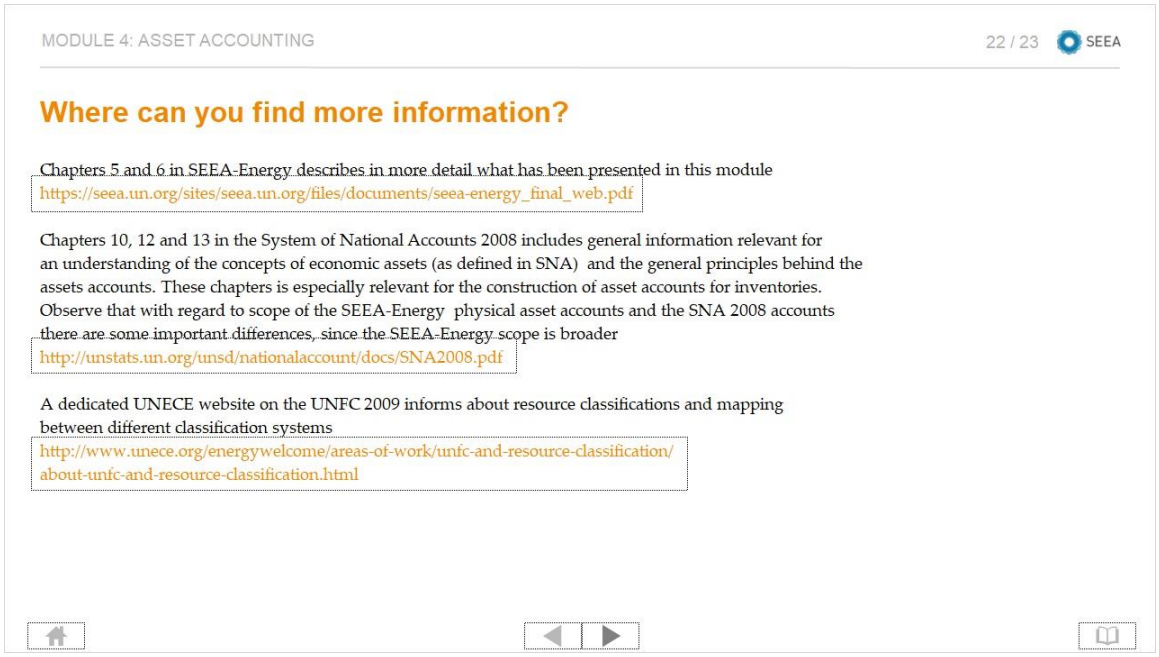
Explanation 2 (Slide Layer)



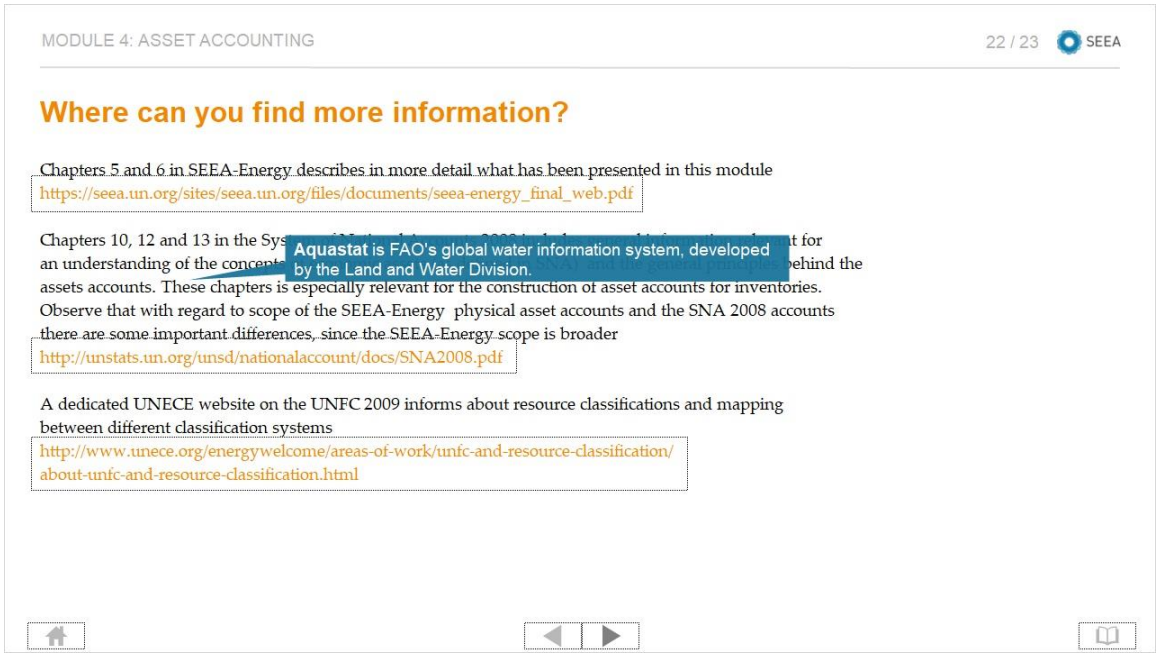
Explanation 3 (Slide Layer)



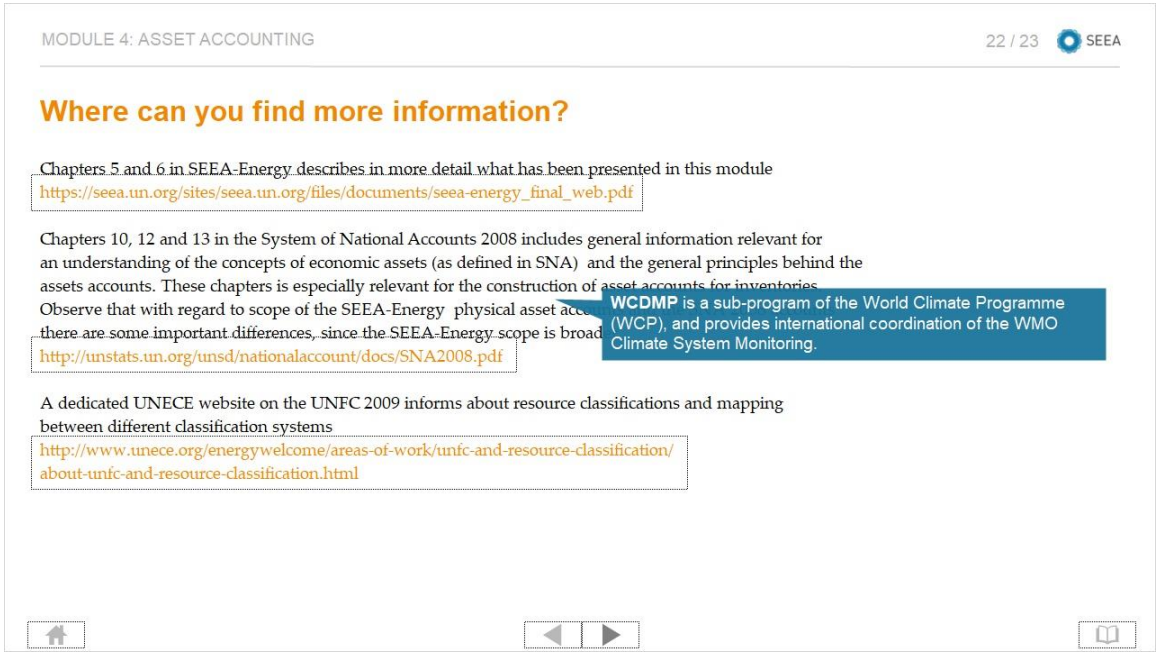
6.22 Where can you find more information?



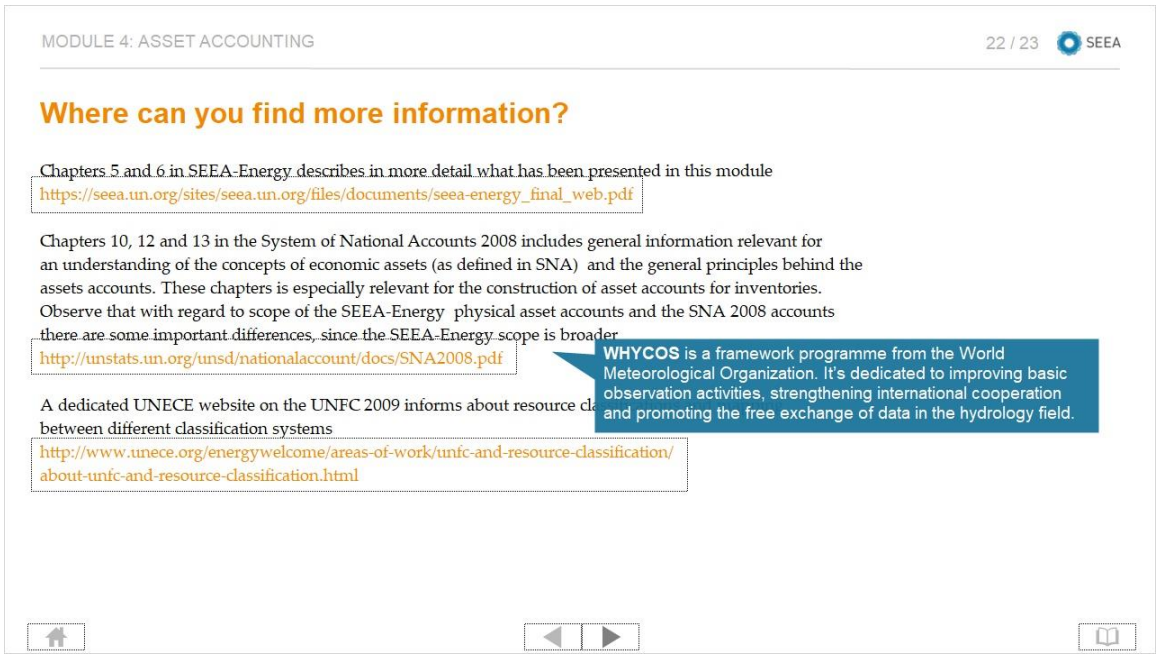
Explanation 1 (Slide Layer)



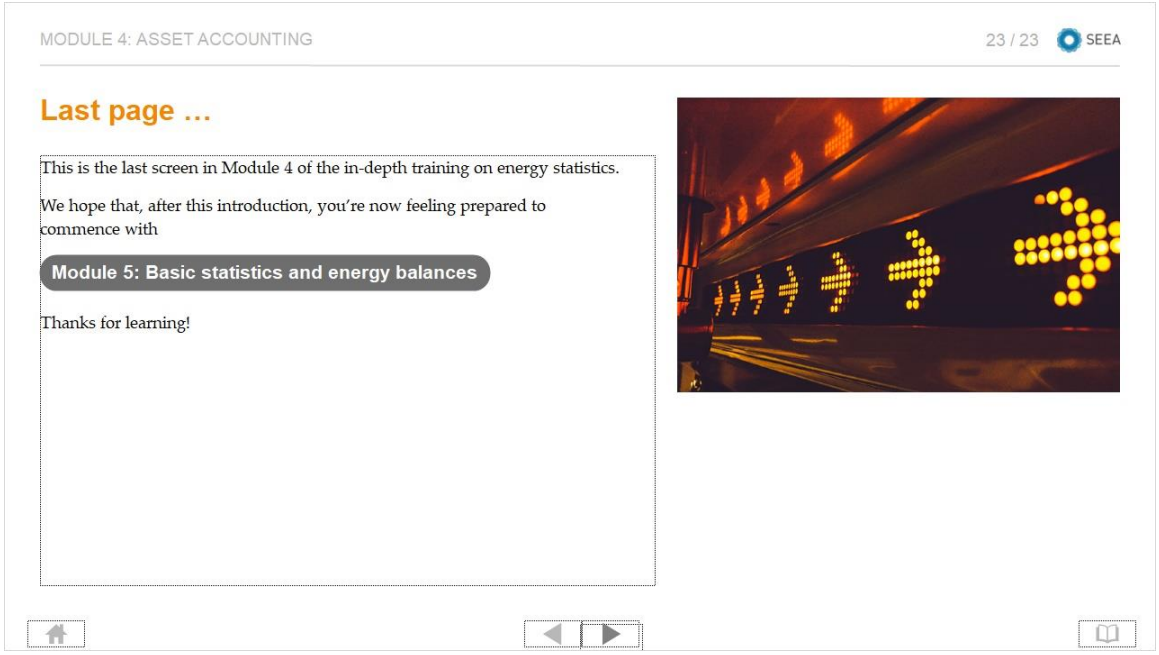
Explanation 2 (Slide Layer)



Explanation 3 (Slide Layer)

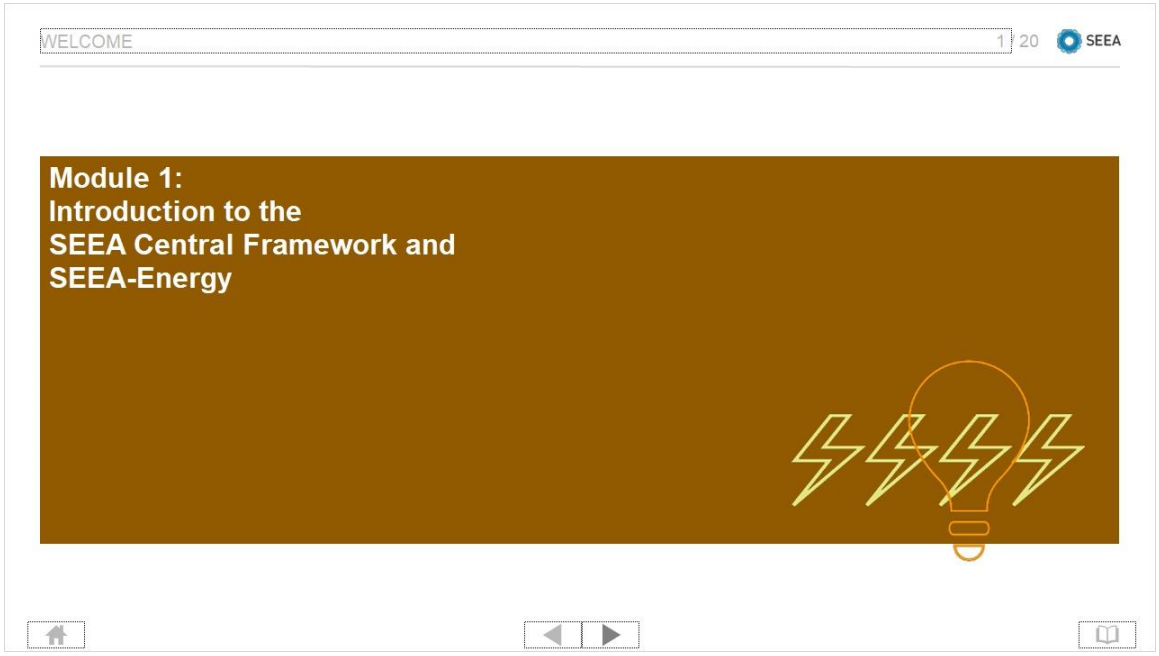


6.23 Last Page



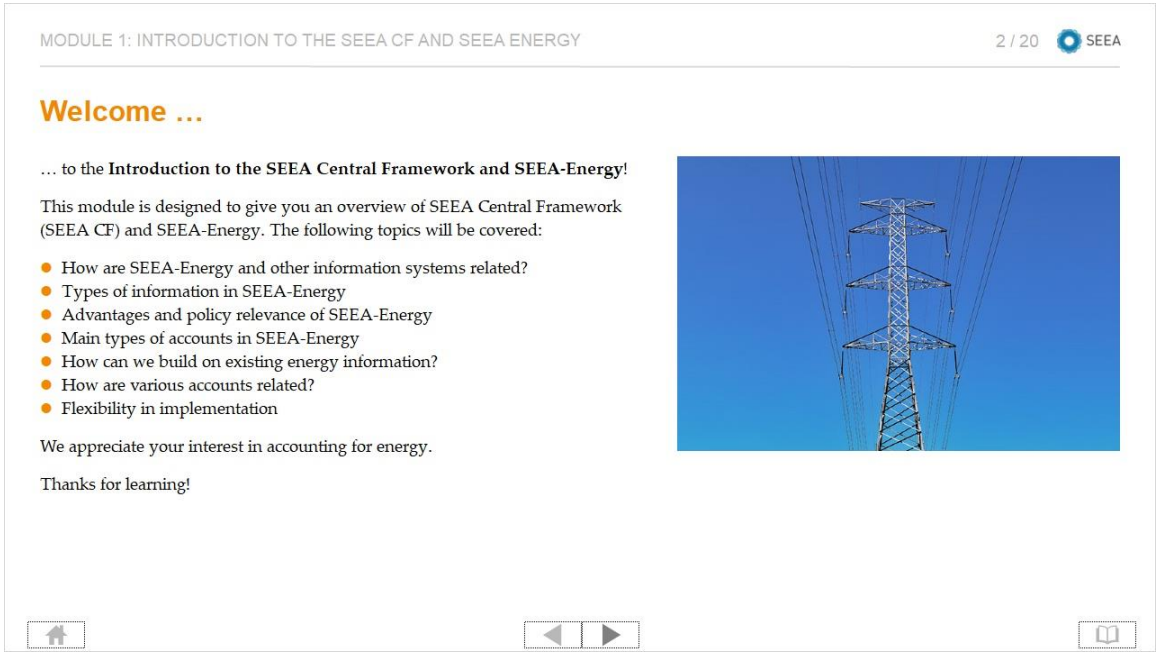
7. Module 1 - Introduction

7.1 Welcome

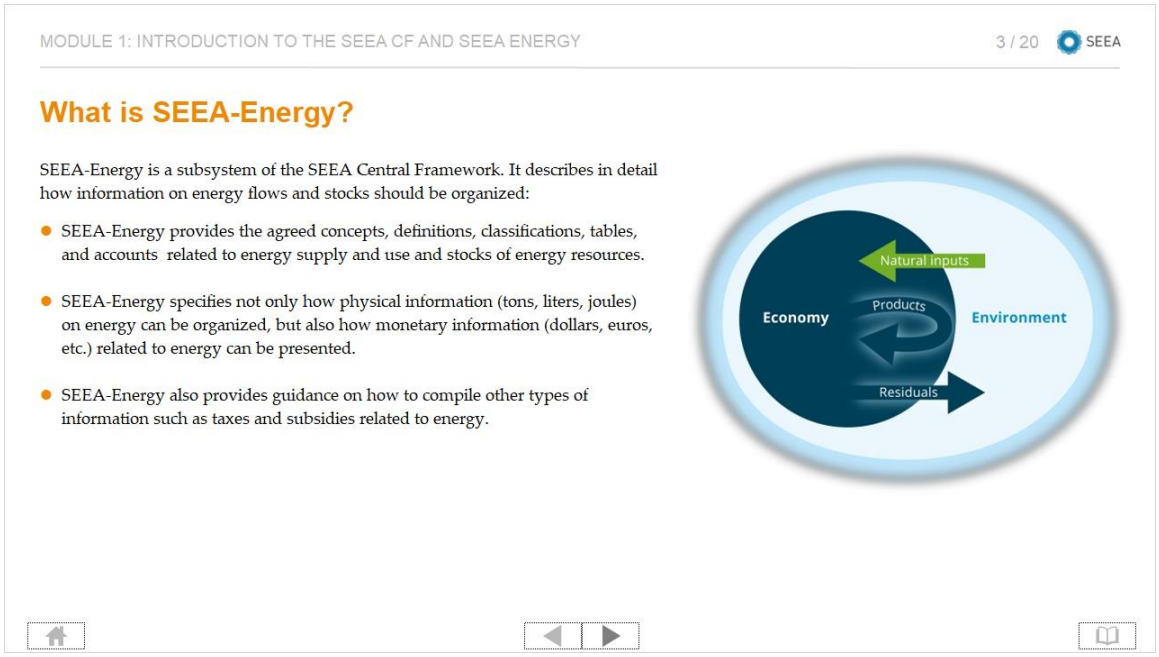


Notes:

7.2 Welcome...



7.3 What is SEEA Energy?



7.4 What is the link between SEEA Energy and other information systems?

(Drag and Drop, 10 points, 1 attempt permitted)

Drag Item	Drop Target
Picture 5	Rectangle 2
Picture 4	Rectangle 5
Picture 7	Rectangle 6

Drag and drop properties
Return item to start point if dropped outside the correct drop target
Snap dropped items to drop target (Snap to center)
Allow only one item in each drop target
Delay item drop states until interaction is submitted

Feedback when correct:

SEEA-Energy is an accounting approach which records the stocks and flows of energy.

SEEA-Energy's accounting approach is based on the SEEA Central Framework (SEEA CF).

The SEEA CF – and SEEA-Energy – are satellite accounts of the 2008 System of National Accounts (SNA).

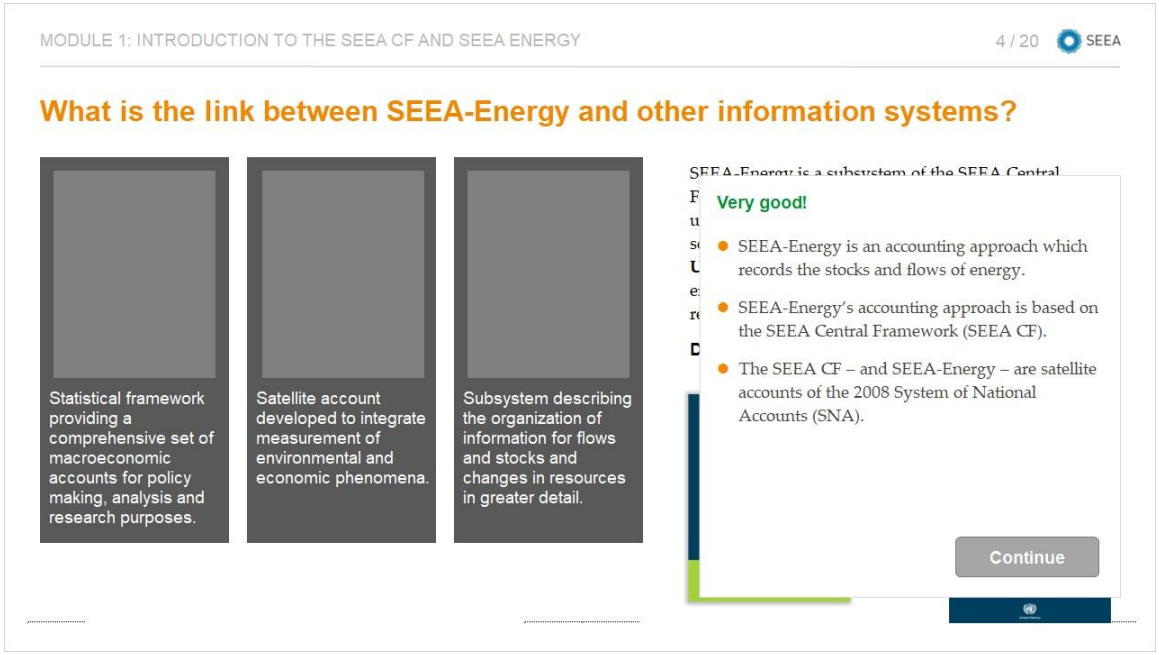
Feedback when incorrect:

SEEA-Energy is an accounting approach which records the stocks and flows of energy.

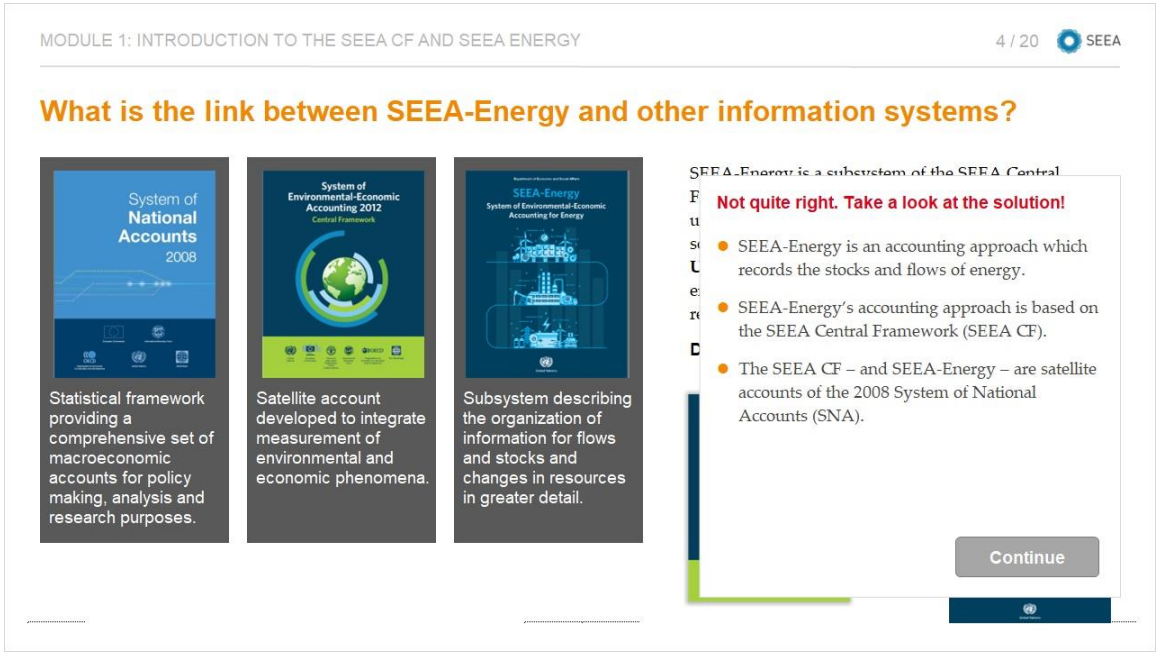
SEEA-Energy's accounting approach is based on the SEEA Central Framework (SEEA CF).

The SEEA CF – and SEEA-Energy – are satellite accounts of the 2008 System of National Accounts (SNA).

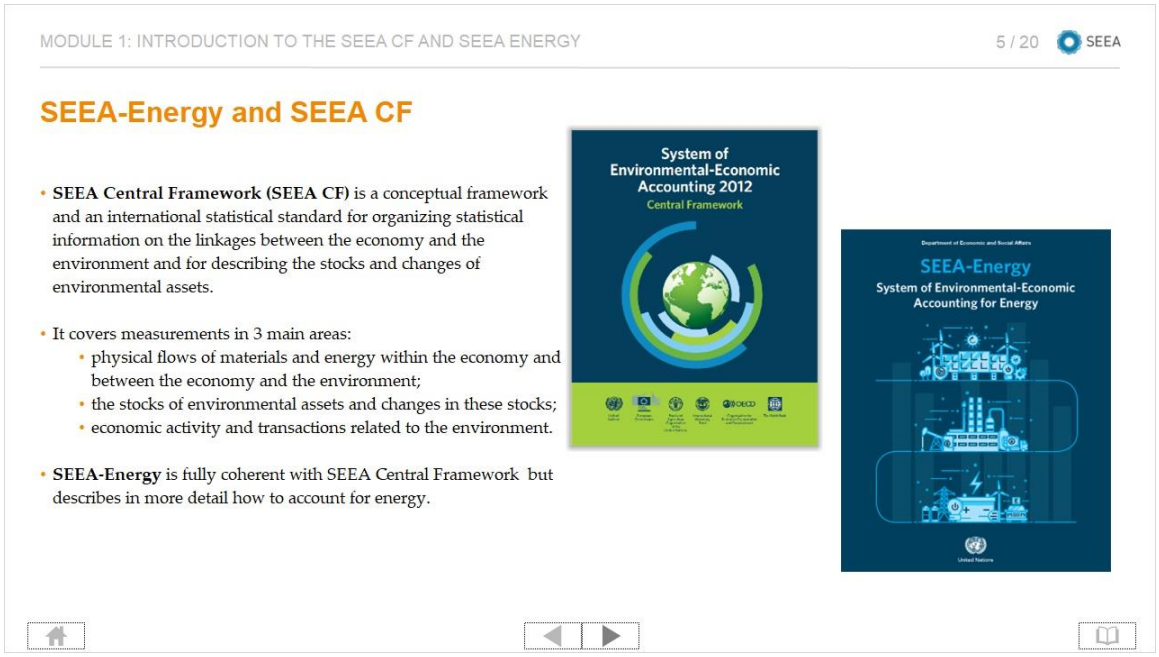
Correct (Slide Layer)



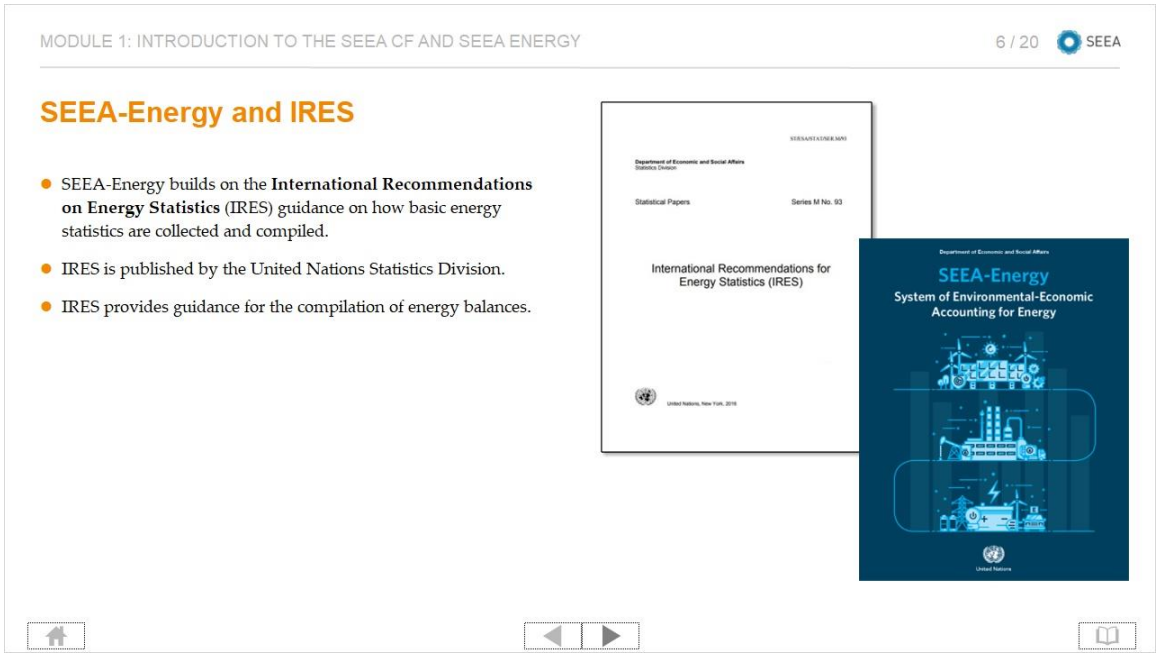
Incorrect (Slide Layer)



7.5 SEEA Energy and IRES

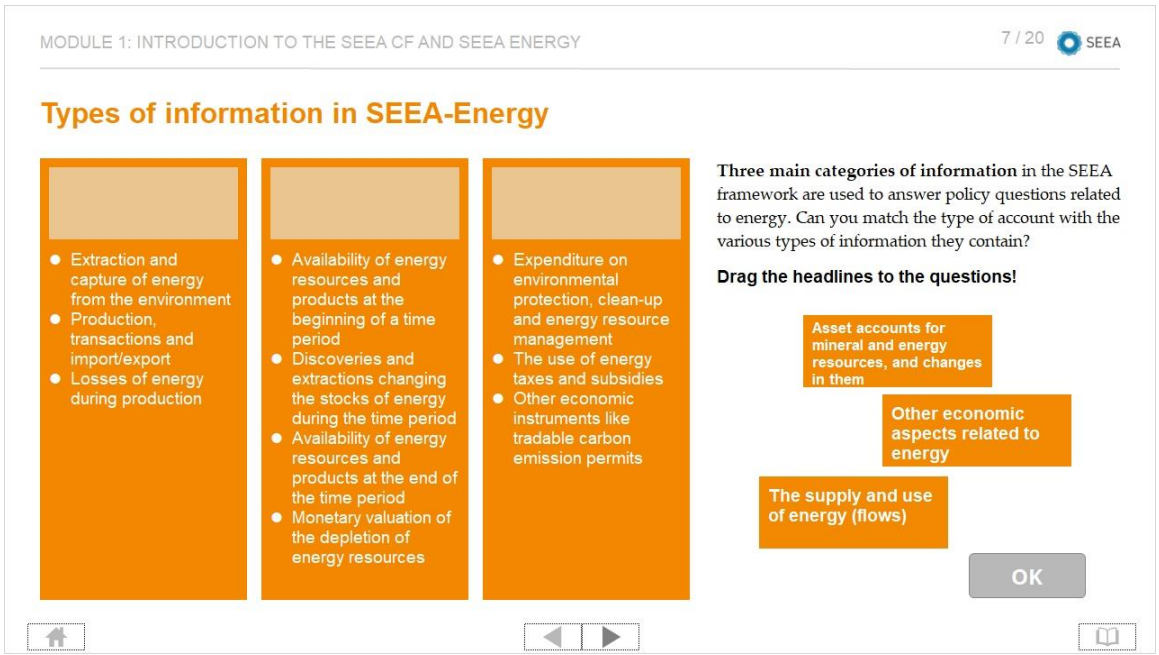


7.6 SEEA Energy and IRES



7.7 Types of information in SEEA Energy

(Drag and Drop, 10 points, 1 attempt permitted)



Drag Item	Drop Target
The supply and use of energy (flows)	Rectangle 4
Asset accounts for mineral and energy resources, and changes in them	Rectangle 8
Other economic aspects related to energy	Rectangle 9

Drag and drop properties
Return item to start point if dropped outside the correct drop target
Snap dropped items to drop target (Snap to center)
Allow only one item in each drop target
Delay item drop states until interaction is submitted

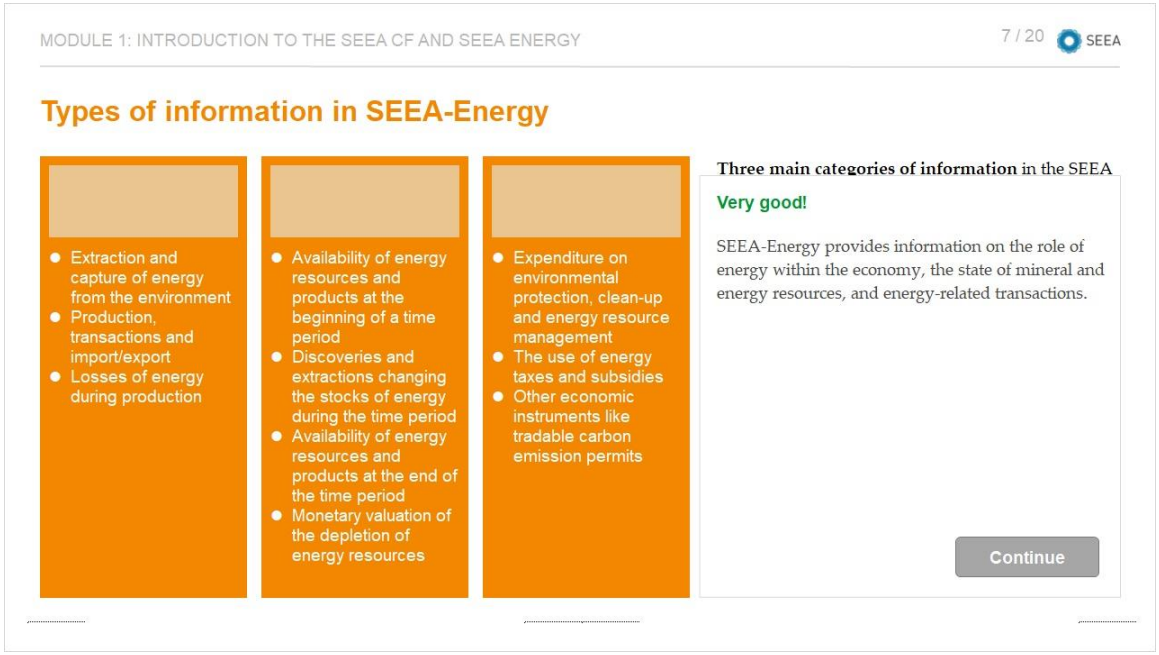
Feedback when correct:

SEEA-Energy provides information on the role of energy within the economy, the state of mineral and energy resources, and energy-related transactions.

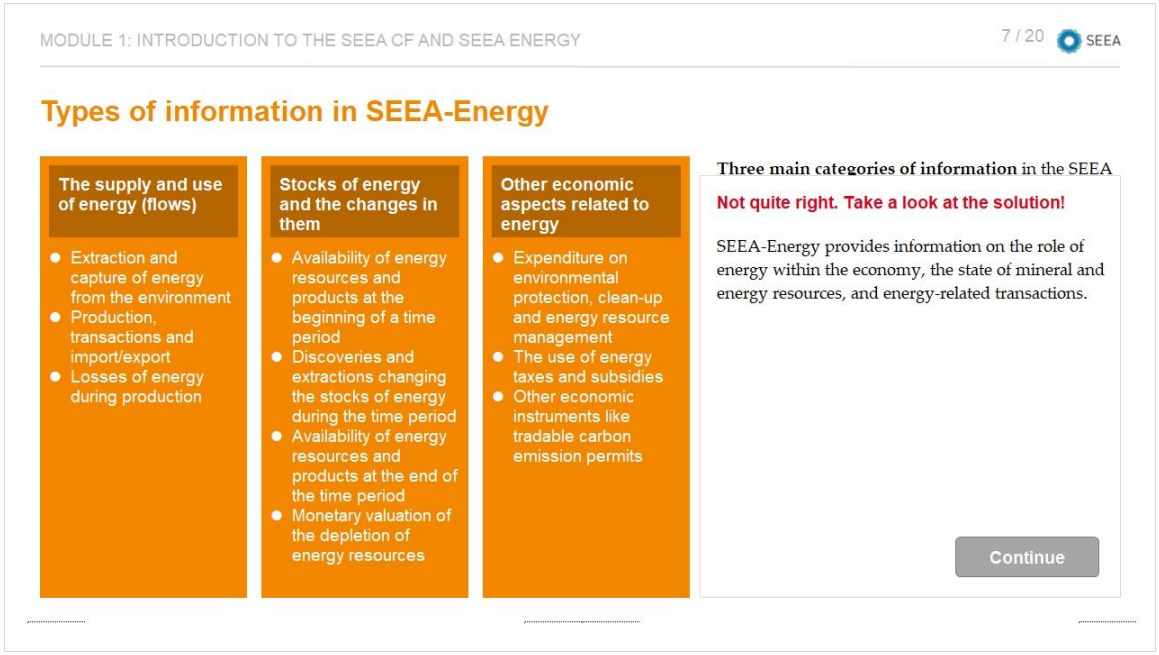
Feedback when incorrect:

SEEA-Energy provides information on the role of energy within the economy, the state of mineral and energy resources, and energy-related transactions.

Correct (Slide Layer)



Incorrect (Slide Layer)



7.8 Advantages of SEEA Energy

Advantages of SEEA-Energy

Coherent and consistent data and statistics on energy are a reliable basis for discussing policy issues and making decisions. One of the SEEA's main advantages is its built-in system of checks and balances:

- SEEA-Energy uses a certain type of systematic tables, i.e. accounts, to organize data - just like SEEA CF and SNA do.
- The accounts ensure that the total supply of an energy product is exactly equal to its total use.
- The amount of energy resources at the end of the period should equal the amount at the beginning plus the changes during the period.

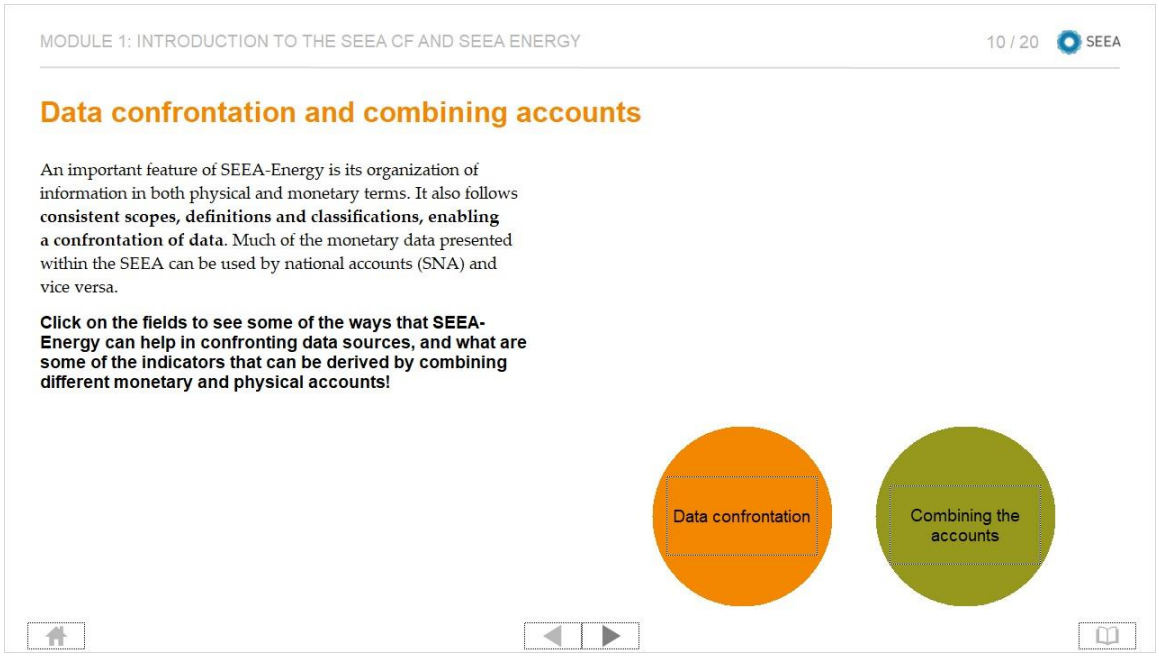
7.9 Information silos versus integrated data

Information silos versus integrated data

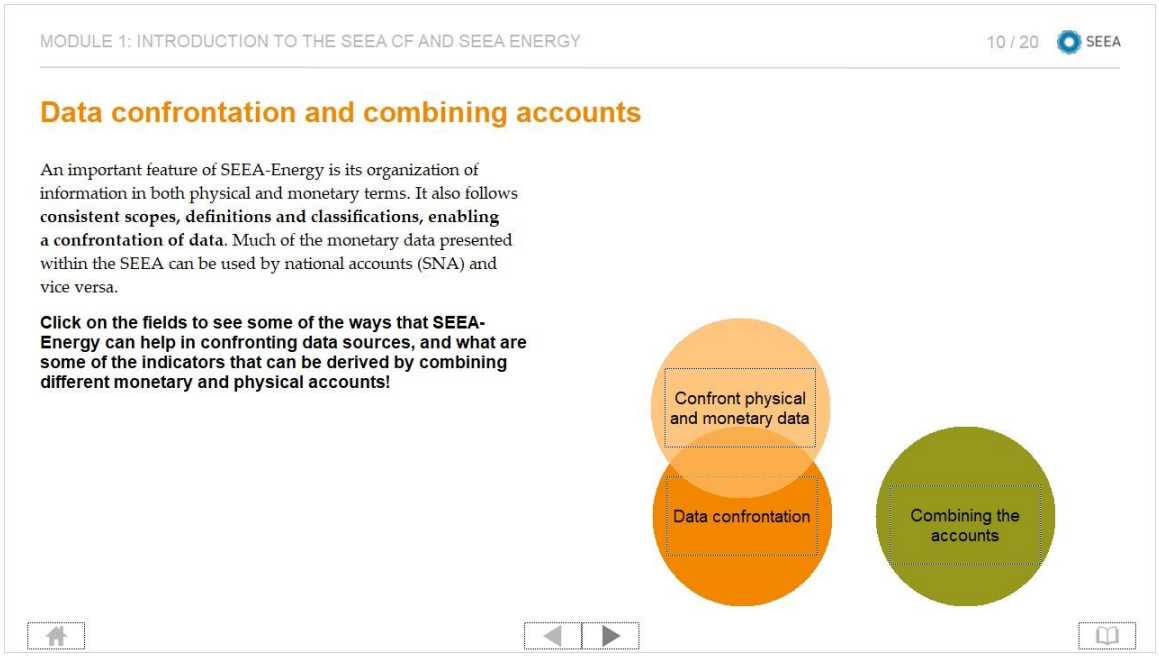
Linking environmental and socio-economic data through an internationally agreed statistical framework is essential for **integrated policy making**. As an integrated accounting system, SEEA-Energy is different from individual sets of energy statistics. While individual sets are usually internally consistent, consistency between one set of statistics and another is often lacking.

Click on the images to see the difference!

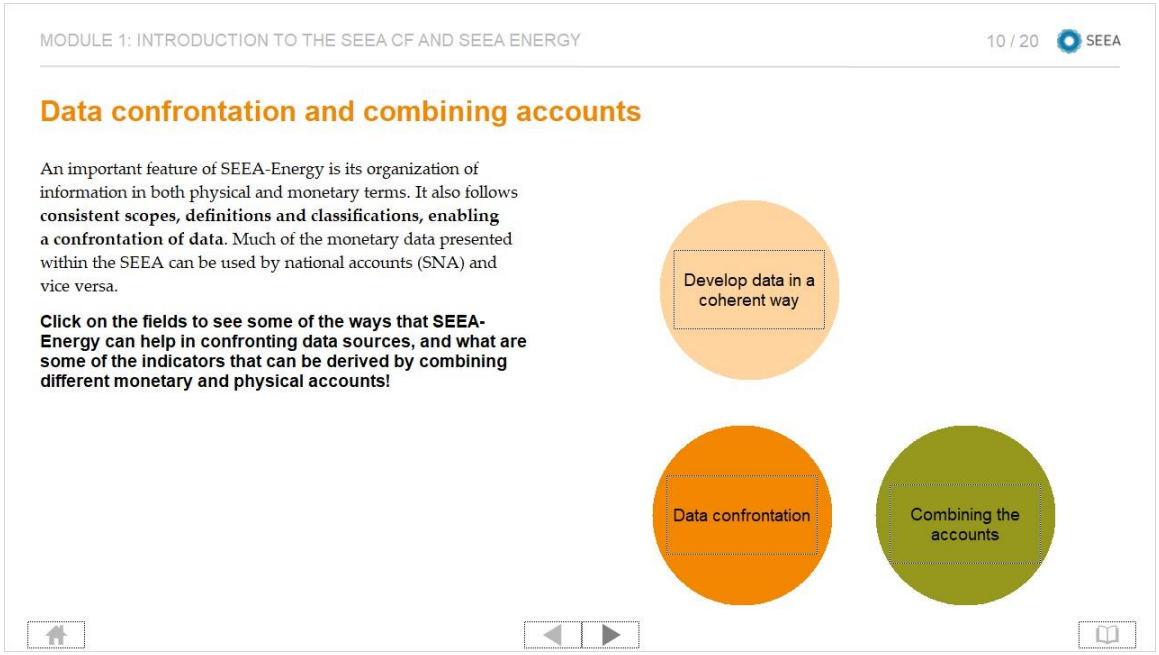
7.10 Data confrontation and combining accounts



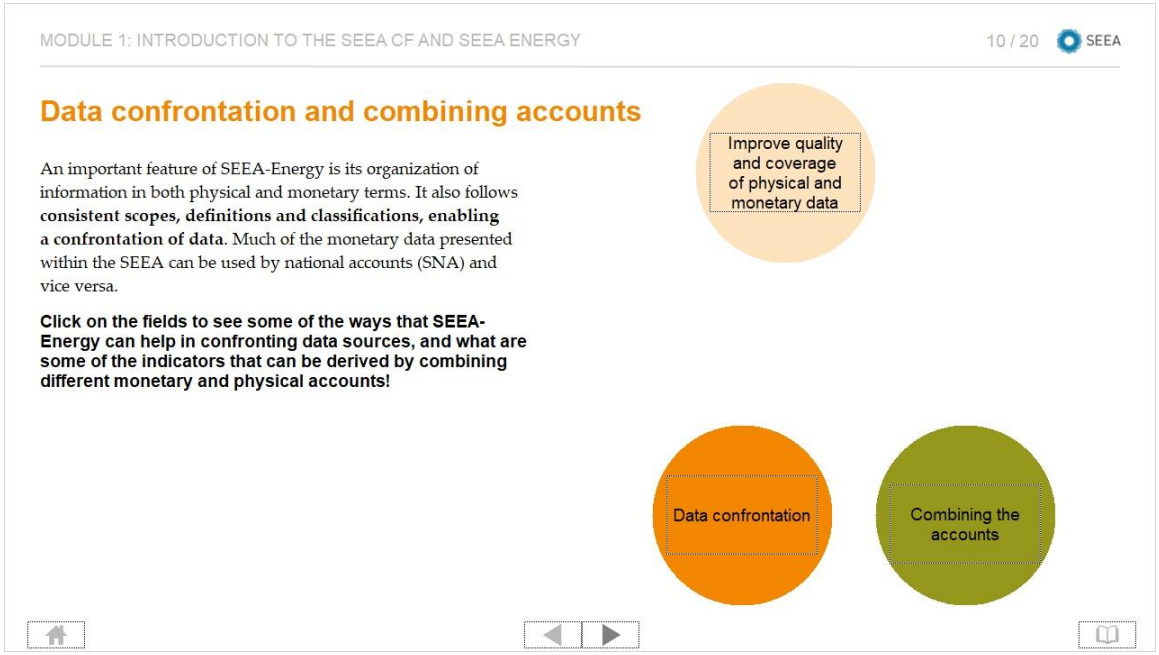
Untitled Layer 1 (Slide Layer)



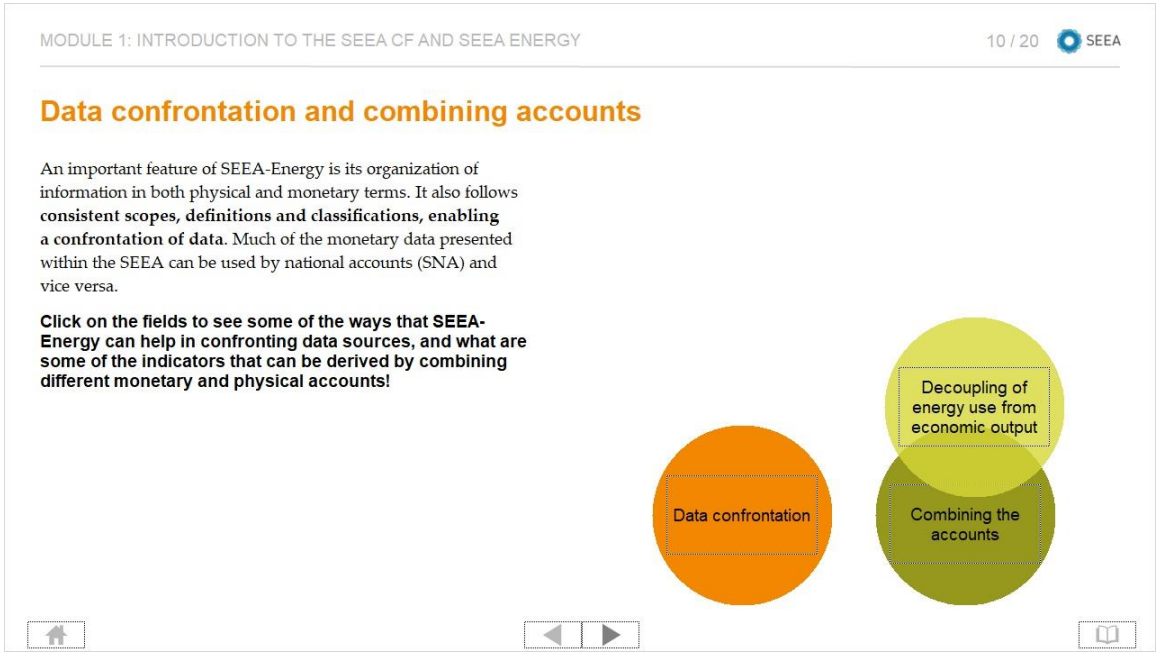
Untitled Layer 2 (Slide Layer)



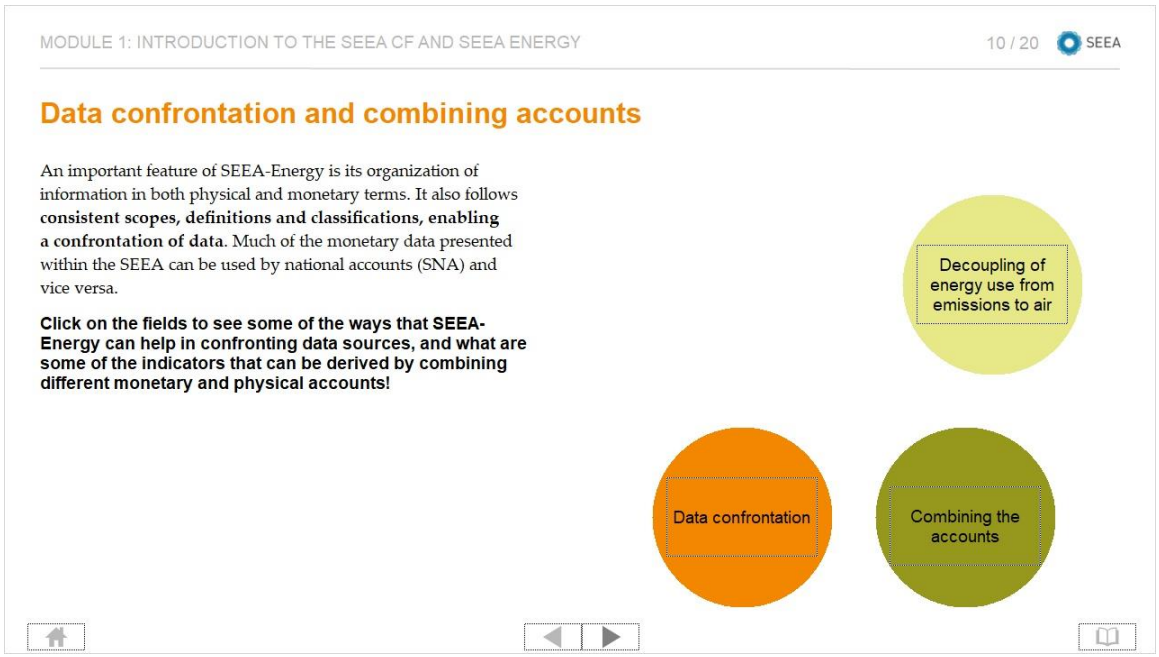
Untitled Layer 3 (Slide Layer)



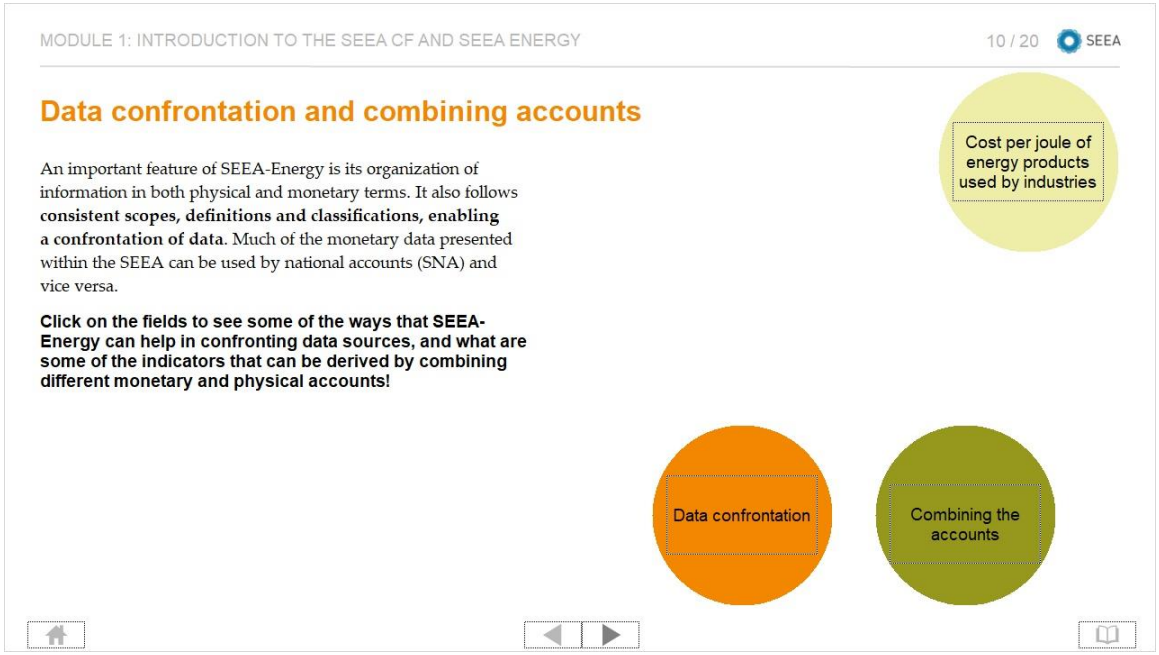
Untitled Layer 4 (Slide Layer)



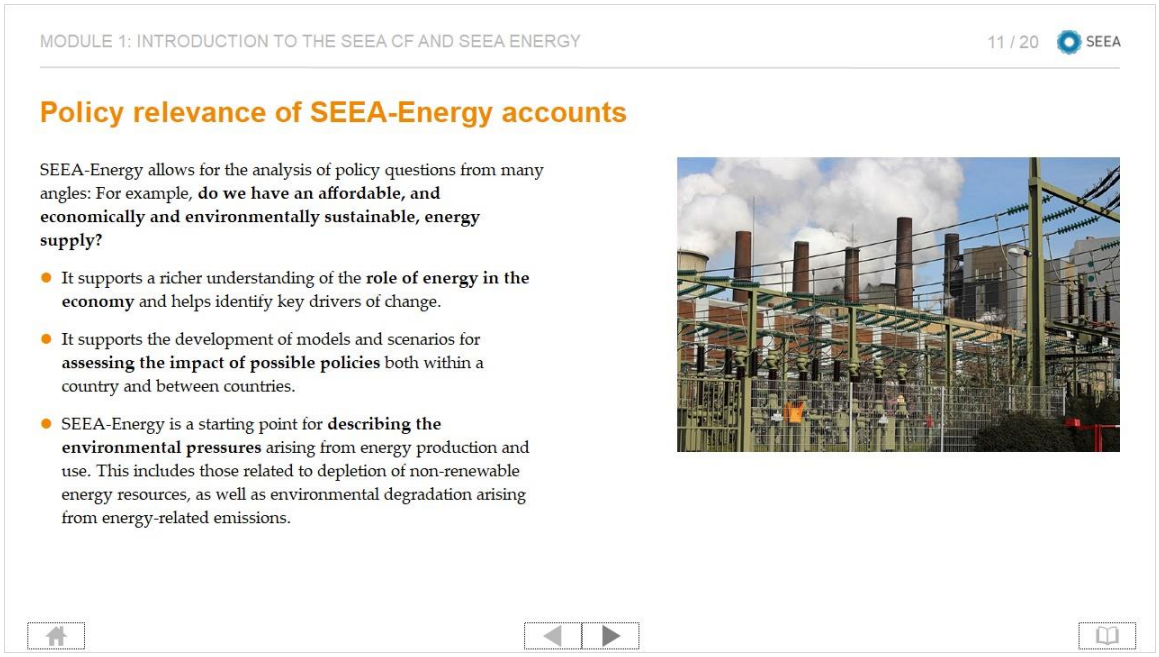
Untitled Layer 5 (Slide Layer)



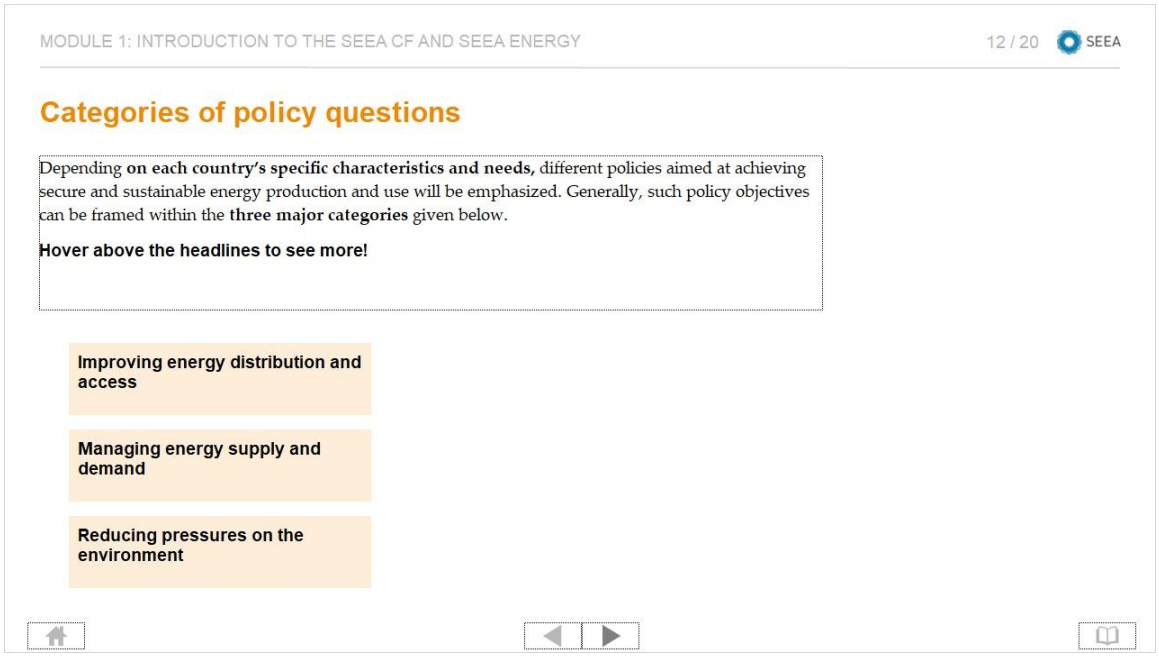
Untitled Layer 6 (Slide Layer)



7.11 Policy relevance of SEEA Energy accounts

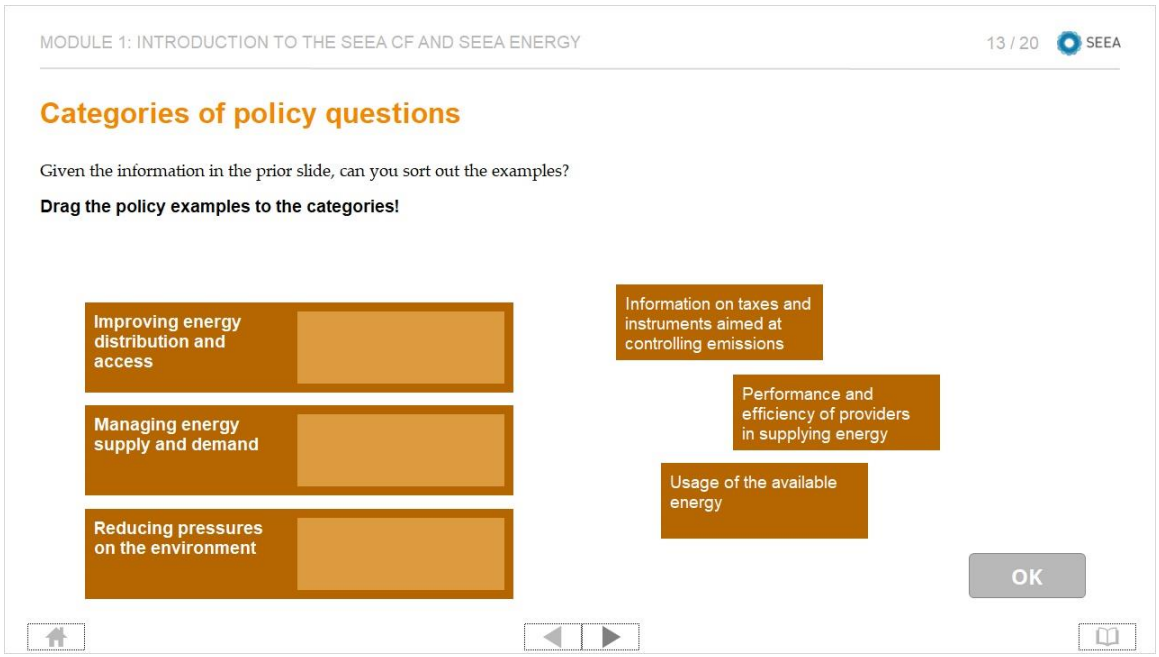


7.12 Main types of accounts in SEEA Energy



7.13 Categories of policy questions

(Drag and Drop, 10 points, 1 attempt permitted)



Drag Item	Drop Target
Usage of the available energy	Rectangle 8
Information on taxes and instruments aimed at controlling emissions	Rectangle 9
Performance and efficiency of providers in supplying energy	Rectangle 4

Drag and drop properties
Return item to start point if dropped outside the correct drop target
Snap dropped items to drop target (Snap to center)
Allow only one item in each drop target
Delay item drop states until interaction is submitted

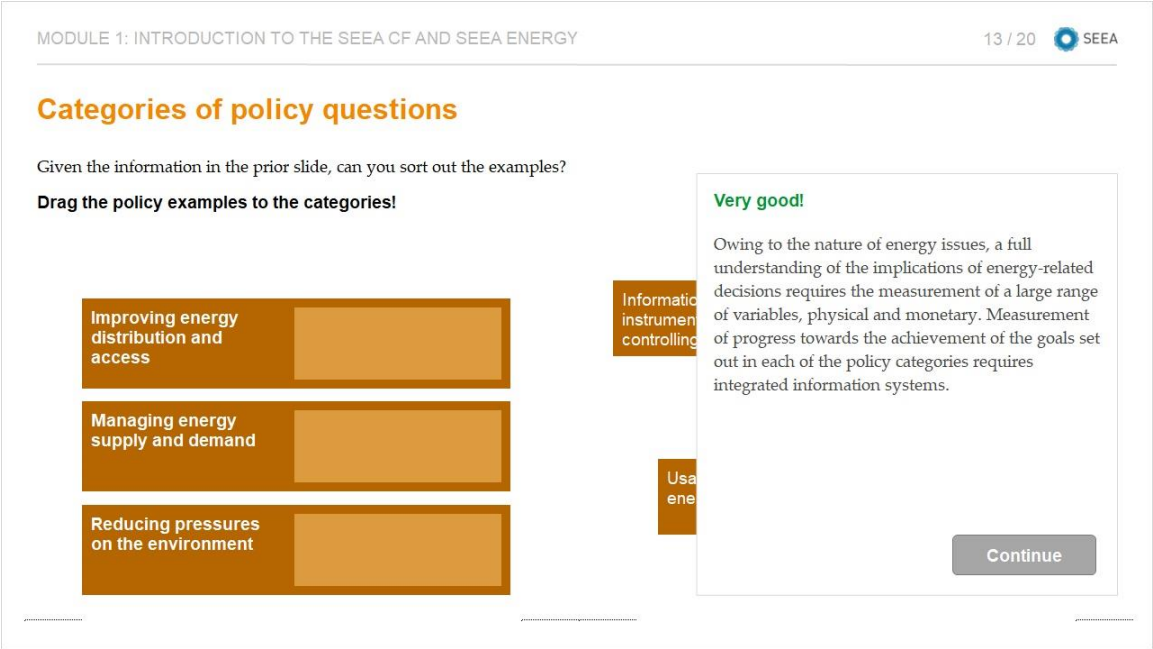
Feedback when correct:

Owing to the nature of energy issues, a full understanding of the implications of energy-related decisions requires the measurement of a large range of variables, physical and monetary. Measurement of progress towards the achievement of the goals set out in each of the policy categories requires integrated information systems.

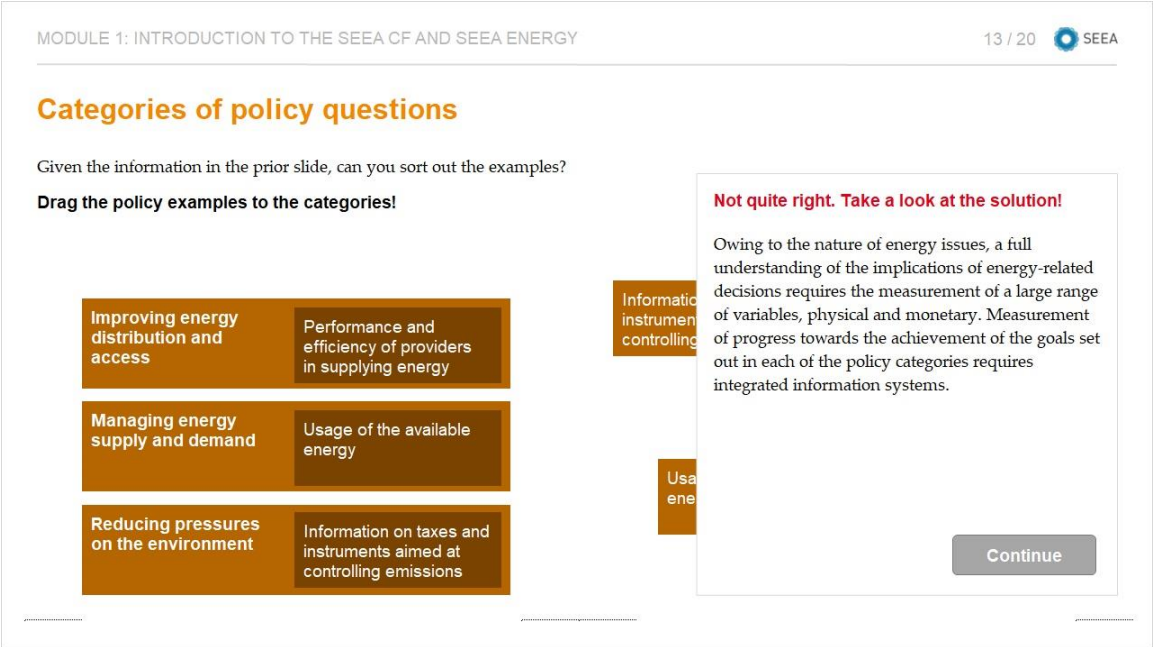
Feedback when incorrect:

Owing to the nature of energy issues, a full understanding of the implications of energy-related decisions requires the measurement of a large range of variables, physical and monetary. Measurement of progress towards the achievement of the goals set out in each of the policy categories requires integrated information systems.

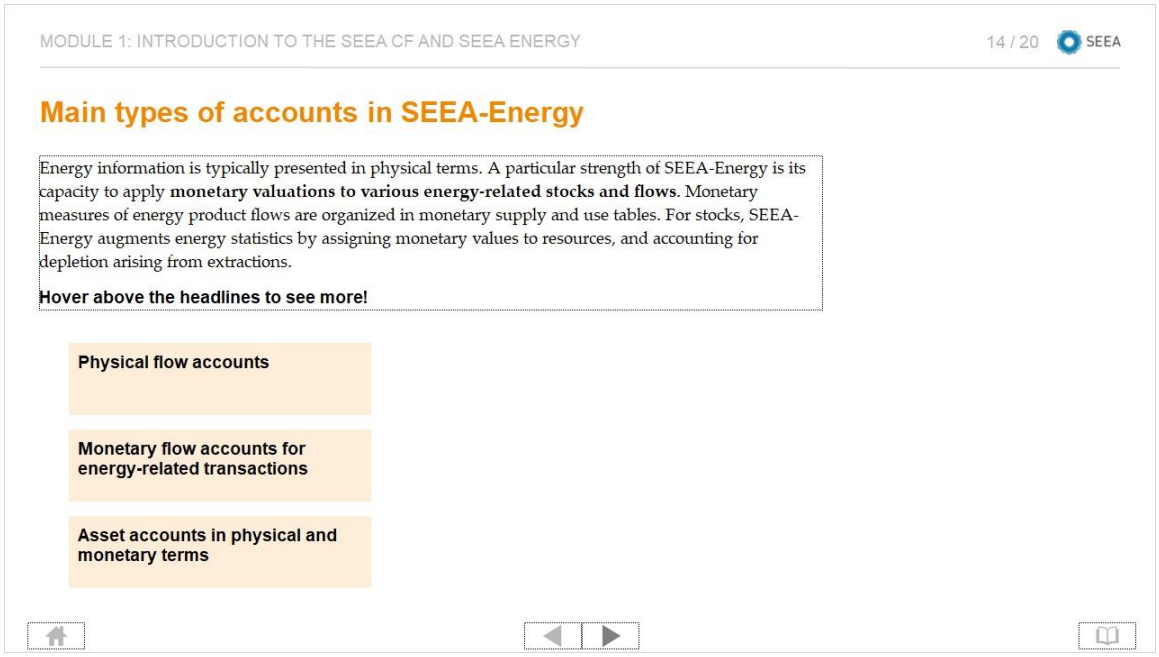
Correct (Slide Layer)



Incorrect (Slide Layer)

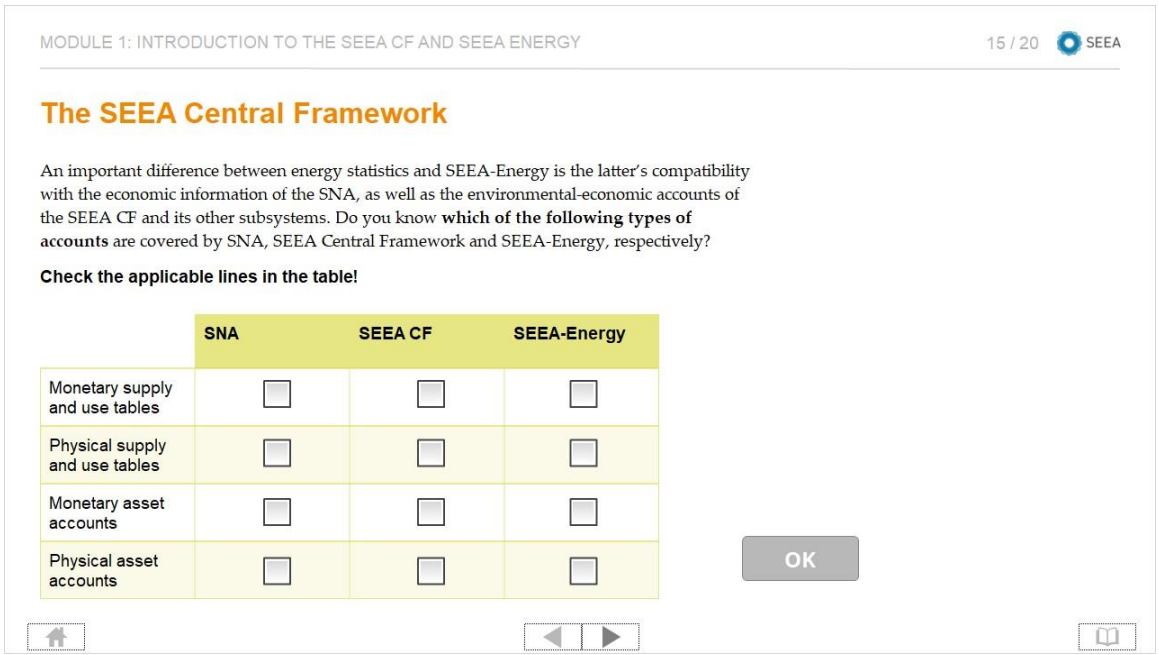


7.14 Main types of accounts in SEEA Energy



7.15 The SEEA Central Framework

(Pick Many, 10 points, 1 attempt permitted)



Correct	Choice
X	Check Box 1
X	Check Box 2
X	Check Box 3
	Check Box 4
X	Check Box 5
X	Check Box 6
X	Check Box 7
X	Check Box 8
X	Check Box 9
	Check Box 10
X	Check Box 11
X	Check Box 12

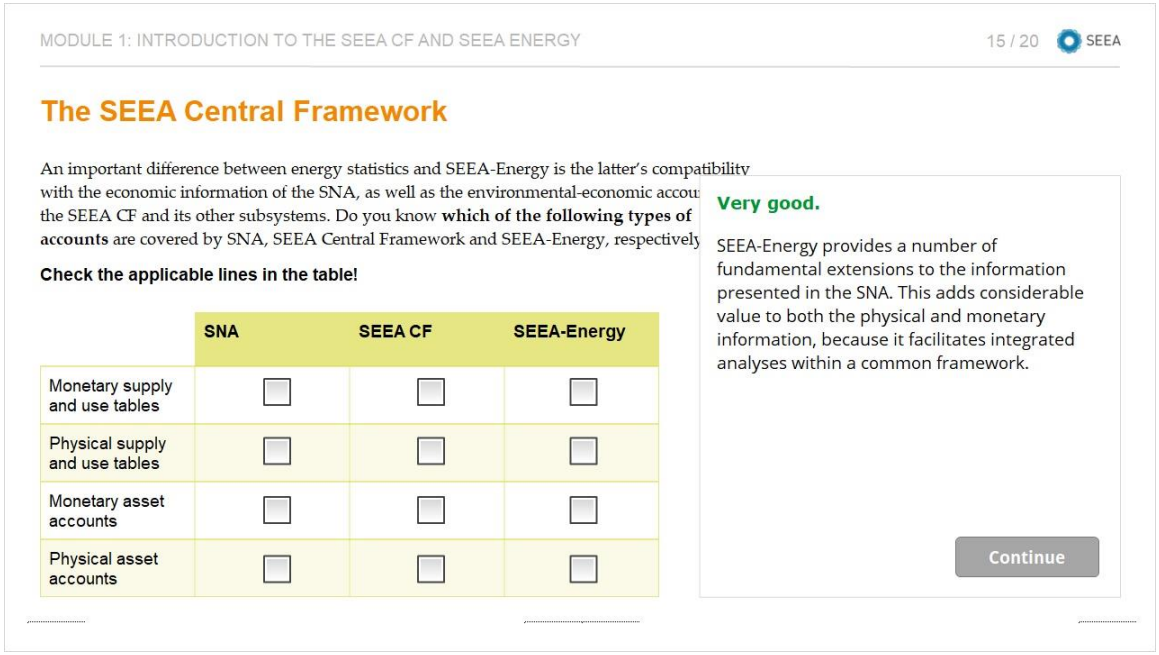
Feedback when correct:

SEEA-Energy provides a number of fundamental extensions to the information presented in the SNA. This adds considerable value to both the physical and monetary information, because it facilitates integrated analyses within a common framework.

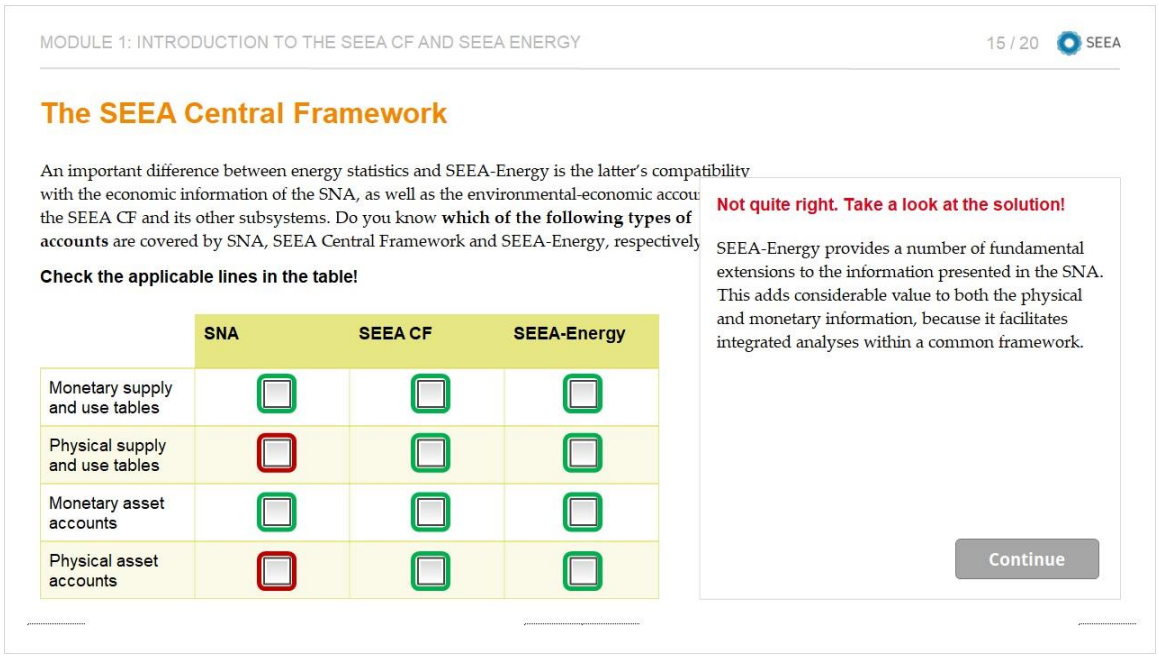
Feedback when incorrect:

SEEA-Energy provides a number of fundamental extensions to the information presented in the SNA. This adds considerable value to both the physical and monetary information, because it facilitates integrated analyses within a common framework.

Very good. (Slide Layer)

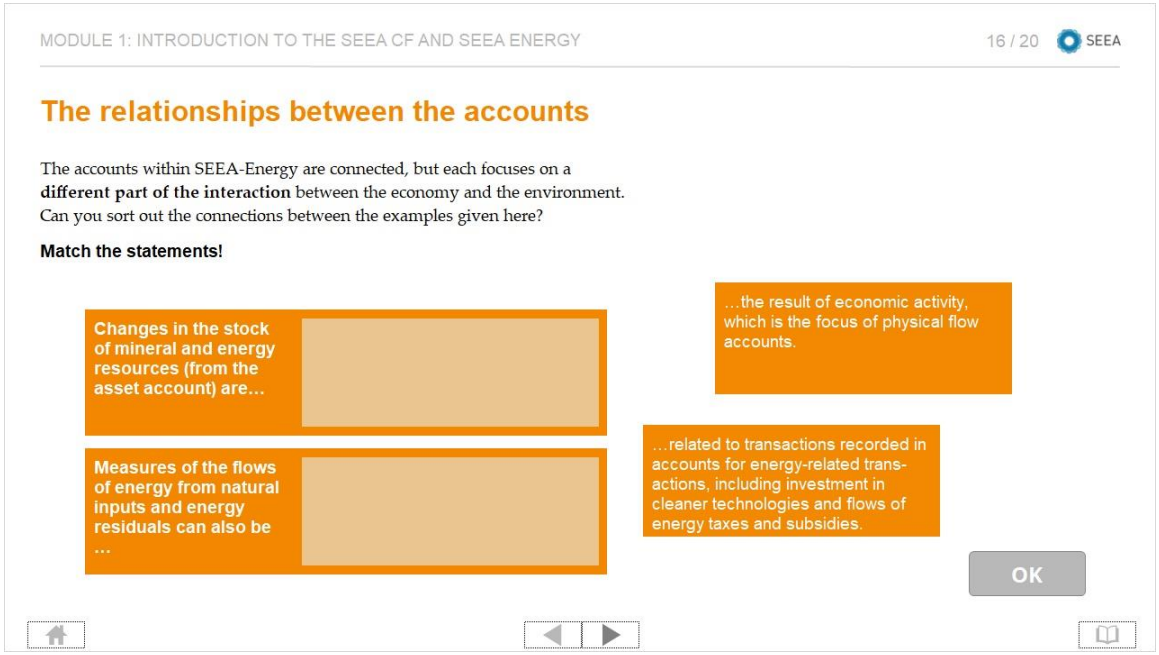


Not quite right. Take a look at the solution! (Slide Layer)



7.16 The relationships between the accounts

(Drag and Drop, 10 points, 1 attempt permitted)



Drag Item	Drop Target
…related to transactions recorded in accounts for energy-related trans-actions, including investment in cleaner technologies and flows of energy taxes and subsidies.	Rectangle 8
…the result of economic activity, which is the focus of physical flow accounts.	Rectangle 4

Drag and drop properties
Return item to start point if dropped outside the correct drop target
Snap dropped items to drop target (Snap to center)

Allow only one item in each drop target
Delay item drop states until interaction is submitted

Feedback when correct:

These examples serve to highlight the varied relationships between accounts, each taking a different perspective.

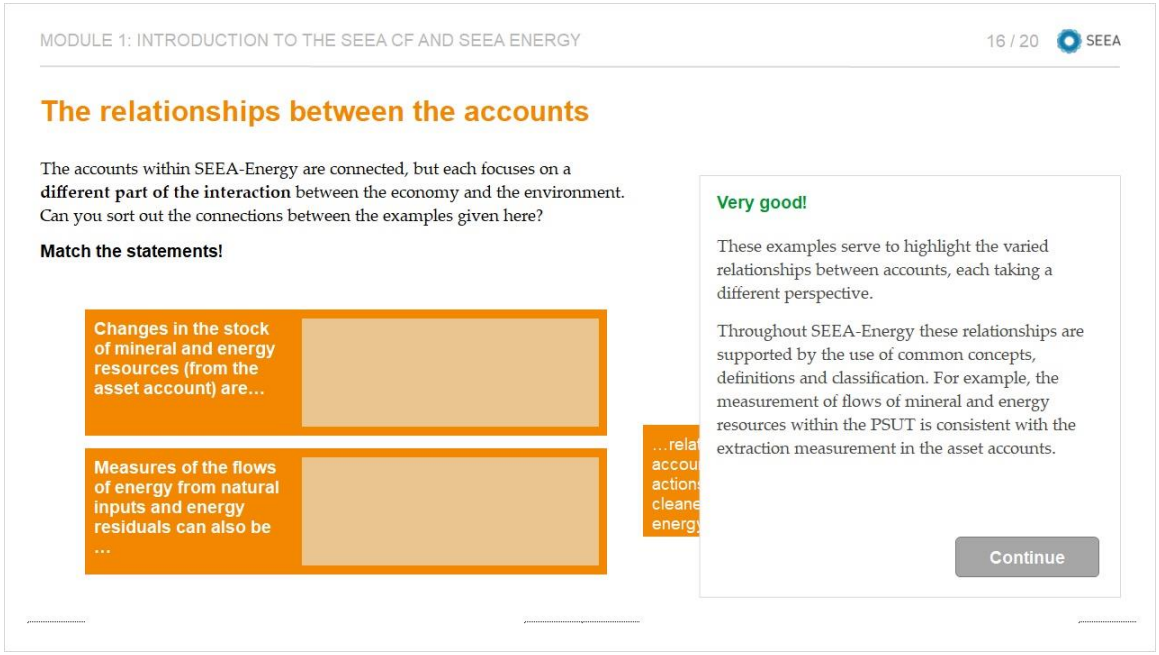
Throughout SEEA-Energy these relationships are supported by the use of common concepts, definitions and classification. For example, the measurement of flows of mineral and energy resources within the PSUT is consistent with the extraction measurement in the asset accounts.

Feedback when incorrect:

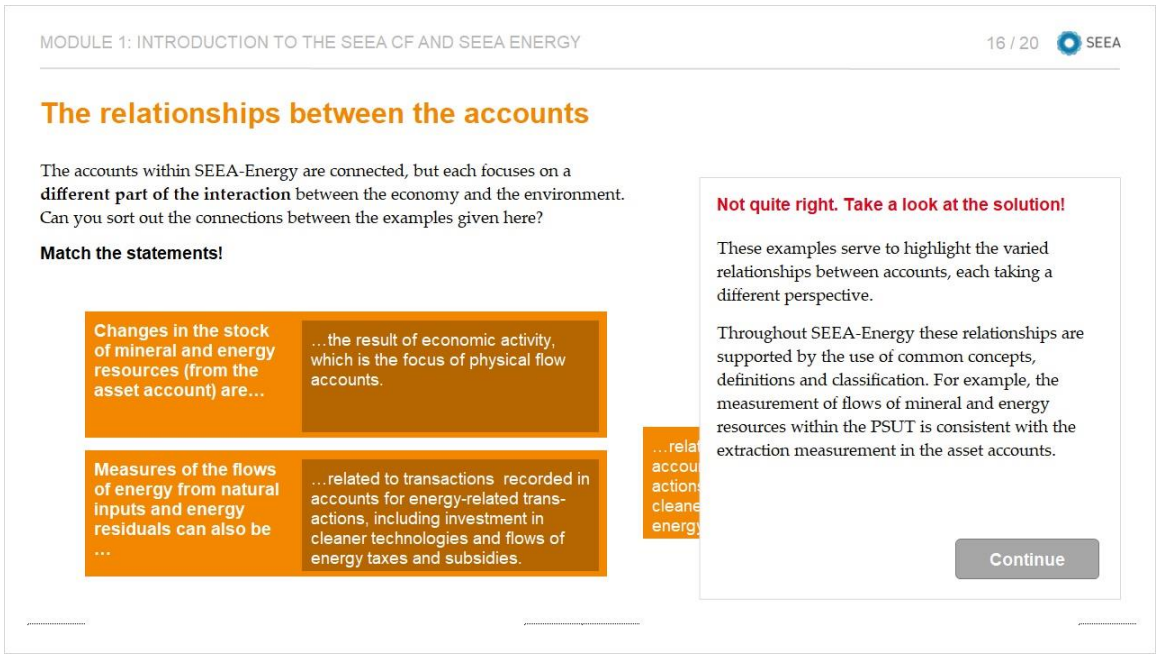
These examples serve to highlight the varied relationships between accounts, each taking a different perspective.

Throughout SEEA-Energy these relationships are supported by the use of common concepts, definitions and classification. For example, the measurement of flows of mineral and energy resources within the PSUT is consistent with the extraction measurement in the asset accounts.

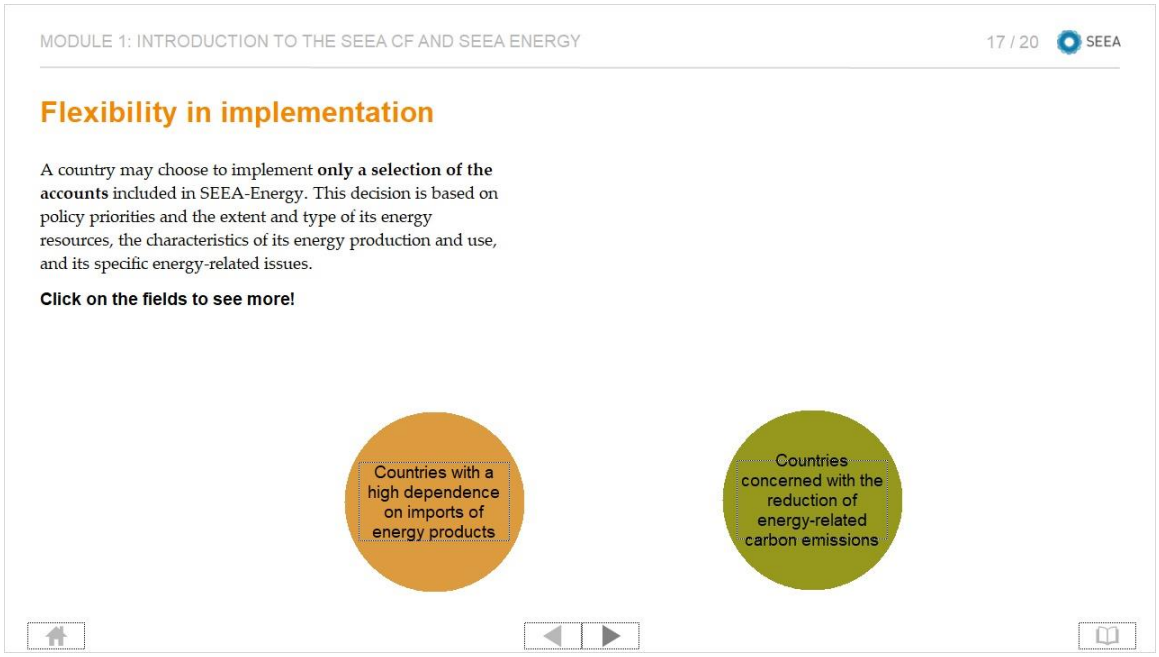
Correct (Slide Layer)



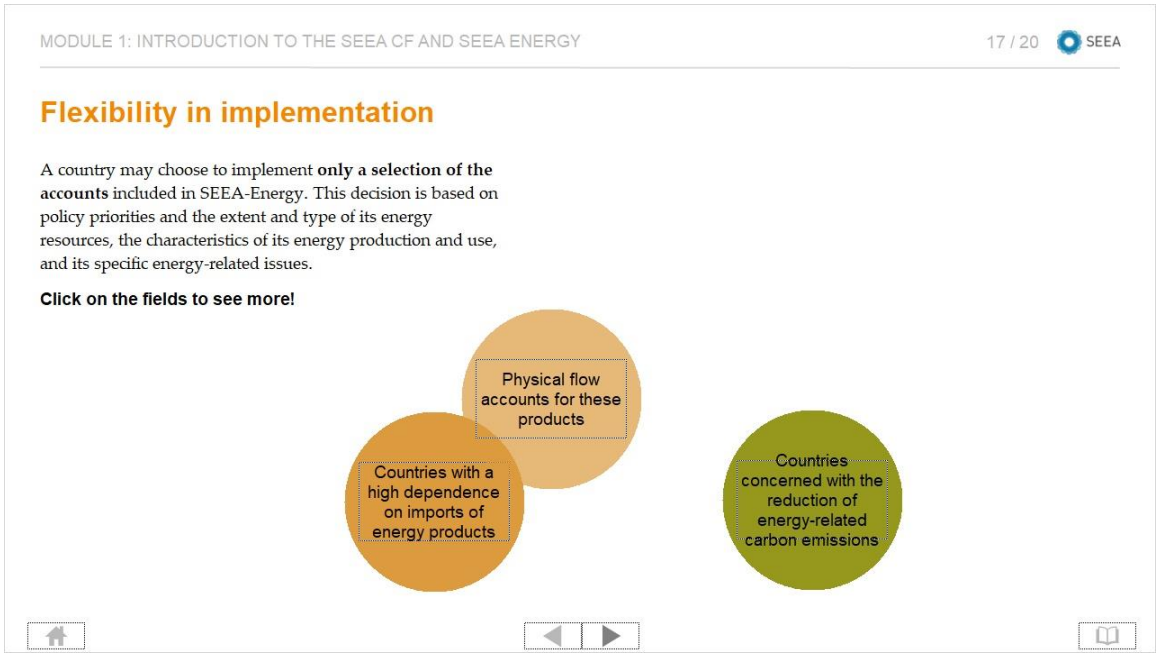
Incorrect (Slide Layer)



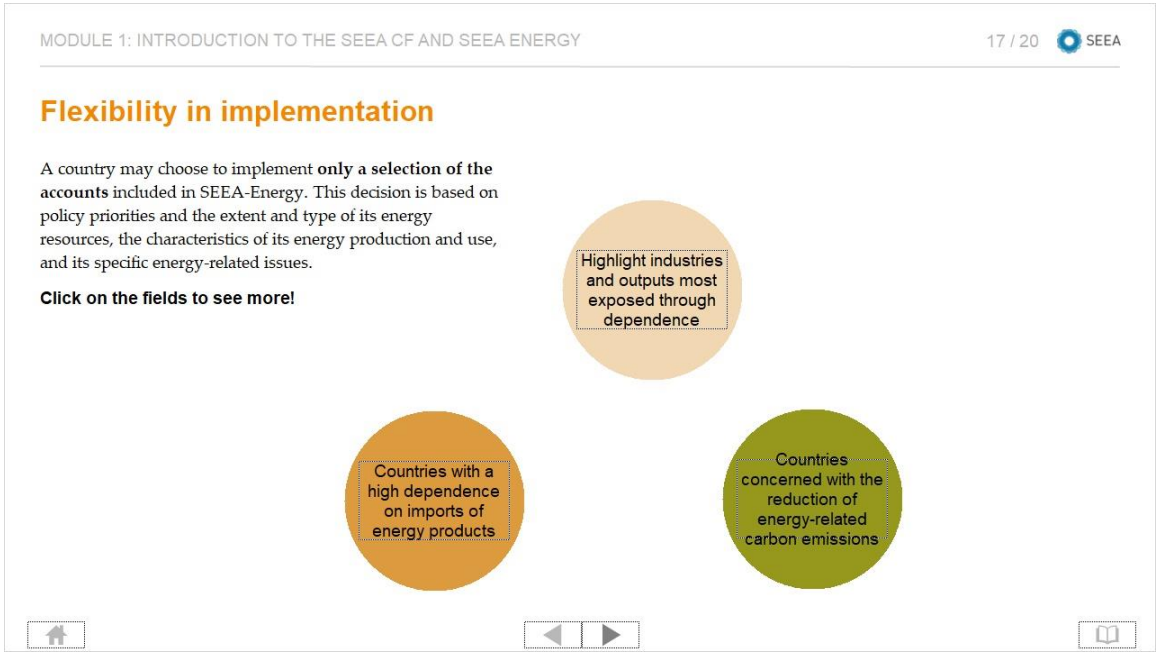
7.17 Flexibility in implementation



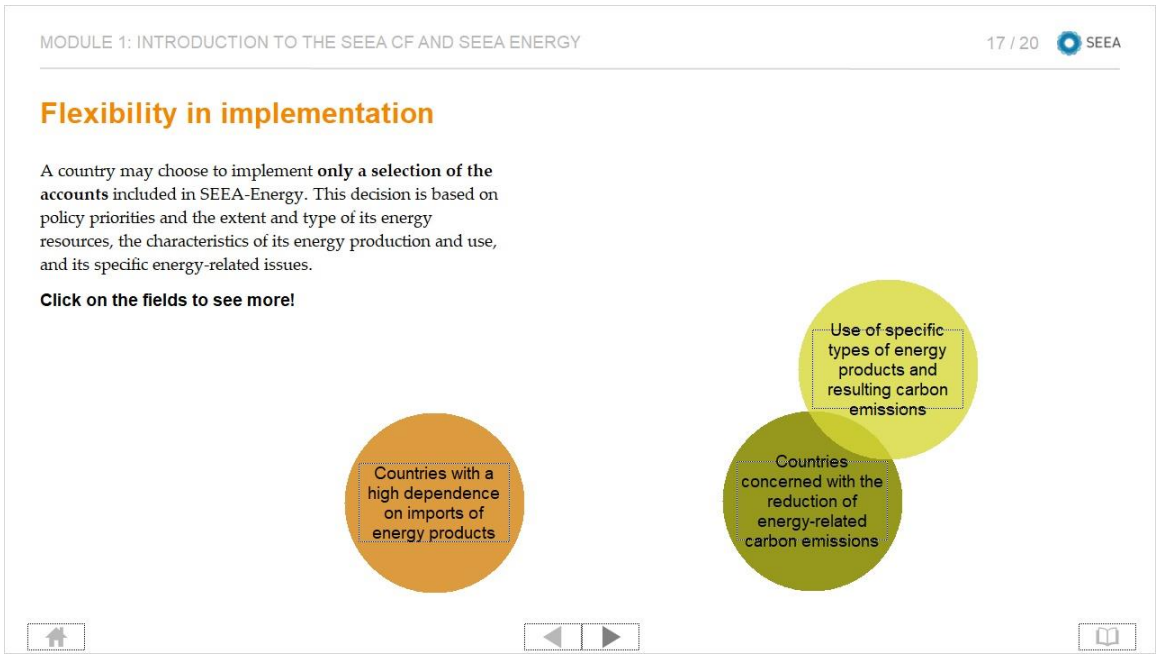
Untitled Layer 1 (Slide Layer)



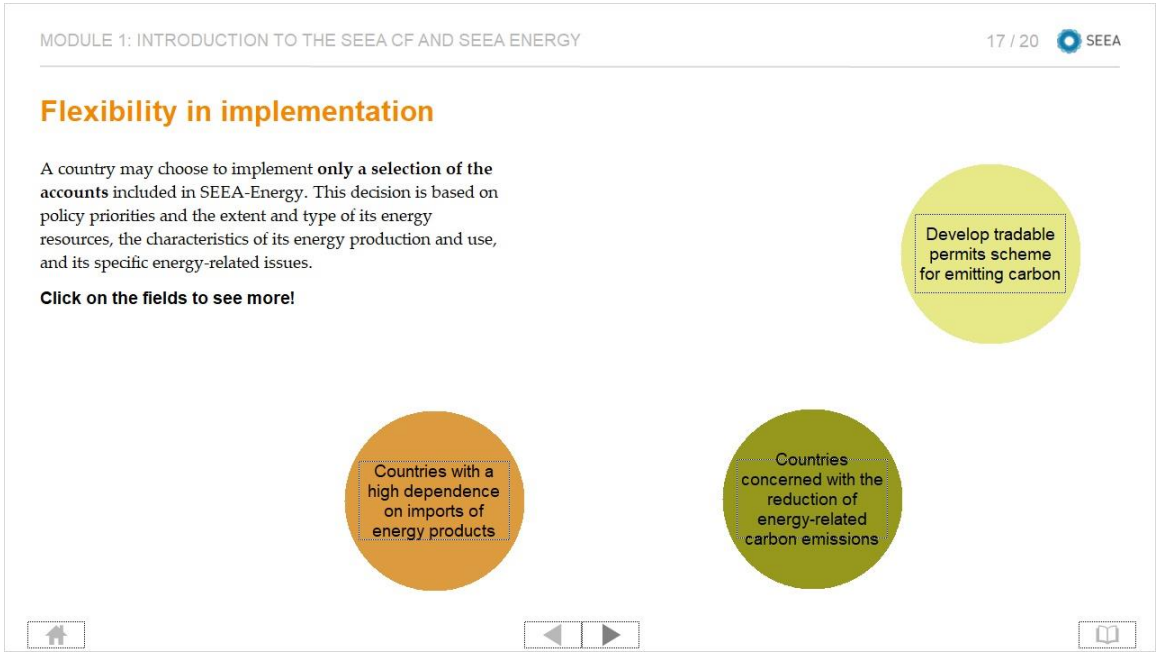
Untitled Layer 2 (Slide Layer)



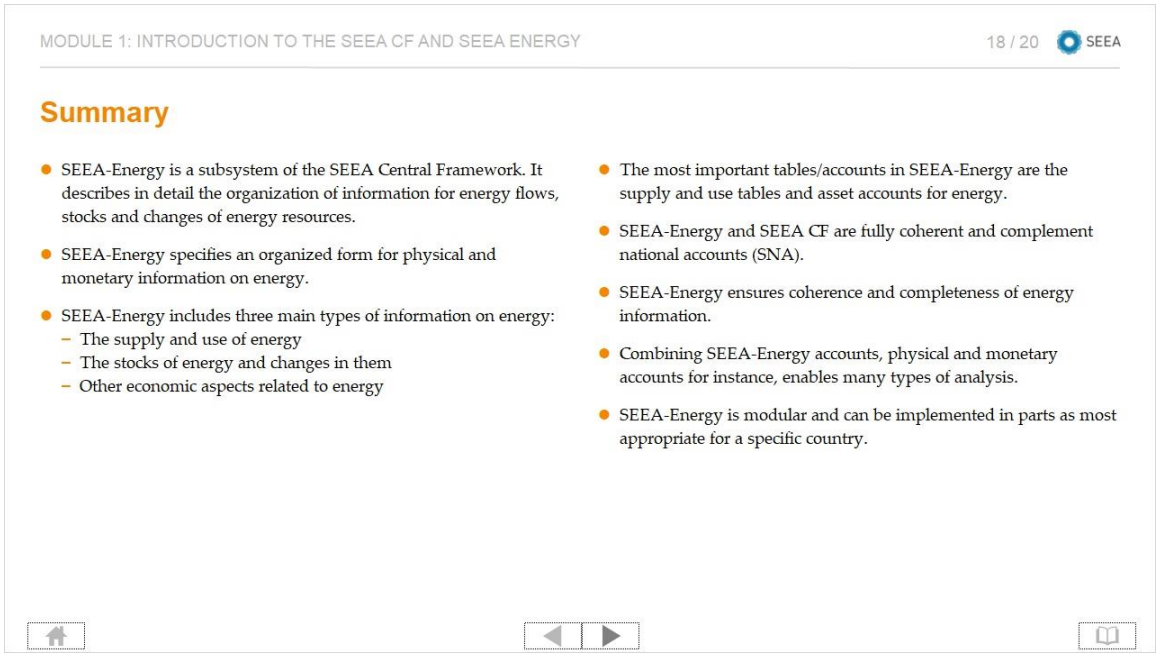
Untitled Layer 4 (Slide Layer)



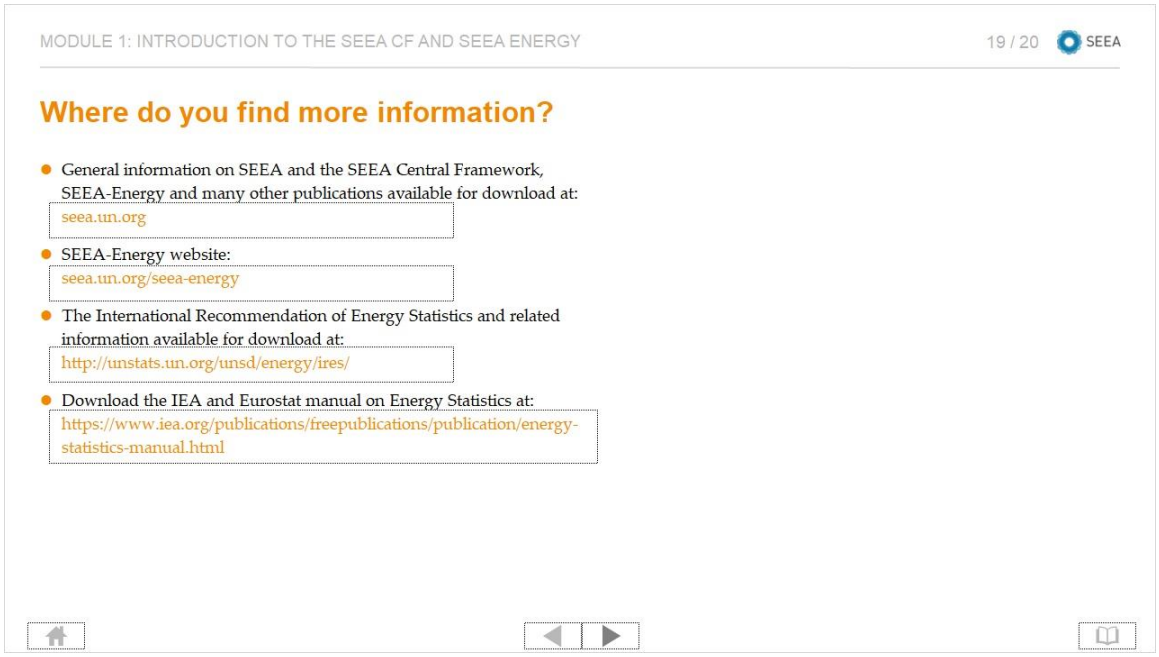
Untitled Layer 5 (Slide Layer)



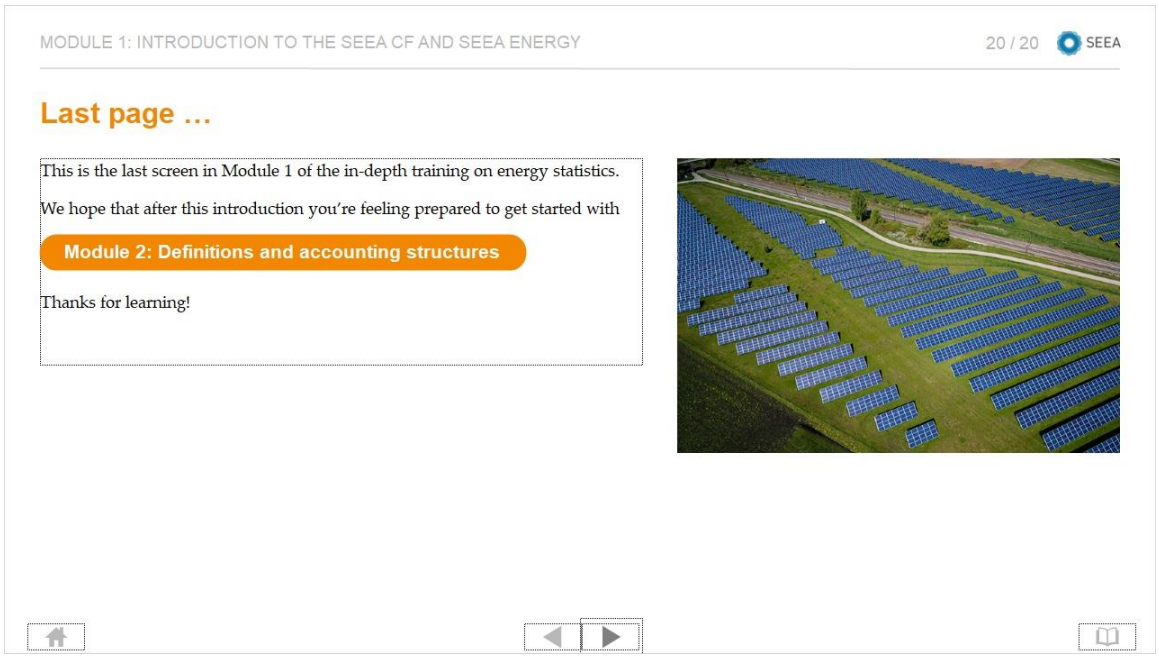
7.18 Summary



7.19 Where do you find more information?

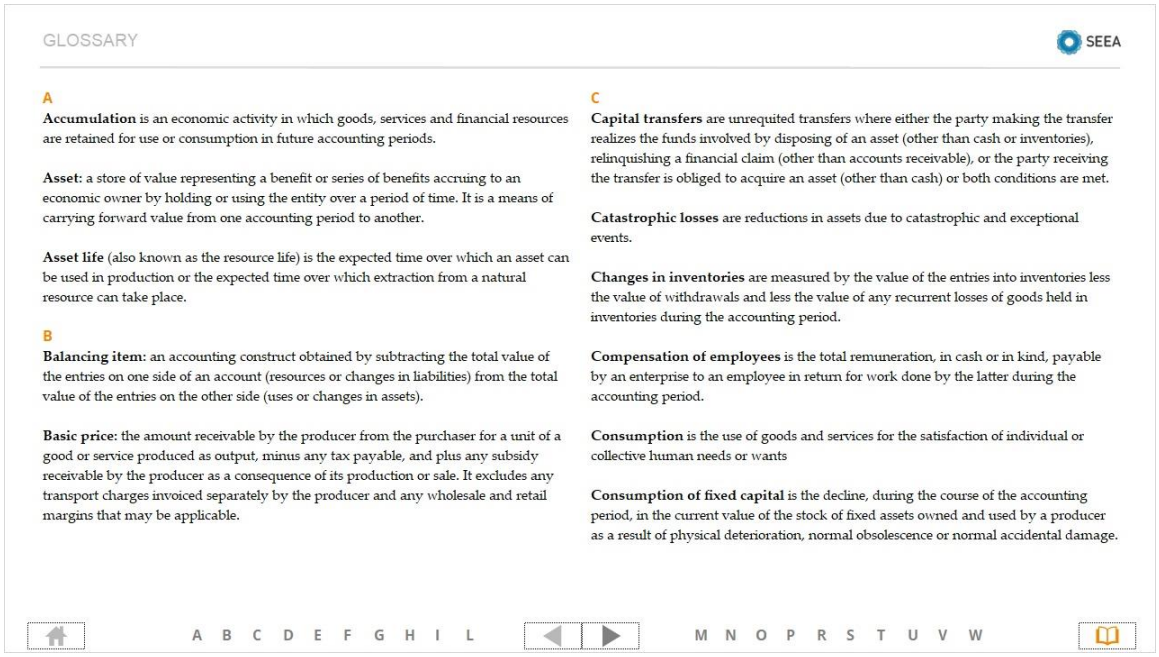


7.20 Last Page



8. Glossary

8.1 Glossary Start



GLOSSARY

SEEA

A

Accumulation is an economic activity in which goods, services and financial resources are retained for use or consumption in future accounting periods.

Asset: a store of value representing a benefit or series of benefits accruing to an economic owner by holding or using the entity over a period of time. It is a means of carrying forward value from one accounting period to another.

Asset life (also known as the resource life) is the expected time over which an asset can be used in production or the expected time over which extraction from a natural resource can take place.

B

Balancing item: an accounting construct obtained by subtracting the total value of the entries on one side of an account (resources or changes in liabilities) from the total value of the entries on the other side (uses or changes in assets).

Basic price: the amount receivable by the producer from the purchaser for a unit of a good or service produced as output, minus any tax payable, and plus any subsidy receivable by the producer as a consequence of its production or sale. It excludes any transport charges invoiced separately by the producer and any wholesale and retail margins that may be applicable.

C

Capital transfers are unrequited transfers where either the party making the transfer realizes the funds involved by disposing of an asset (other than cash or inventories), relinquishing a financial claim (other than accounts receivable), or the party receiving the transfer is obliged to acquire an asset (other than cash) or both conditions are met.

Catastrophic losses are reductions in assets due to catastrophic and exceptional events.

Changes in inventories are measured by the value of the entries into inventories less the value of withdrawals and less the value of any recurrent losses of goods held in inventories during the accounting period.

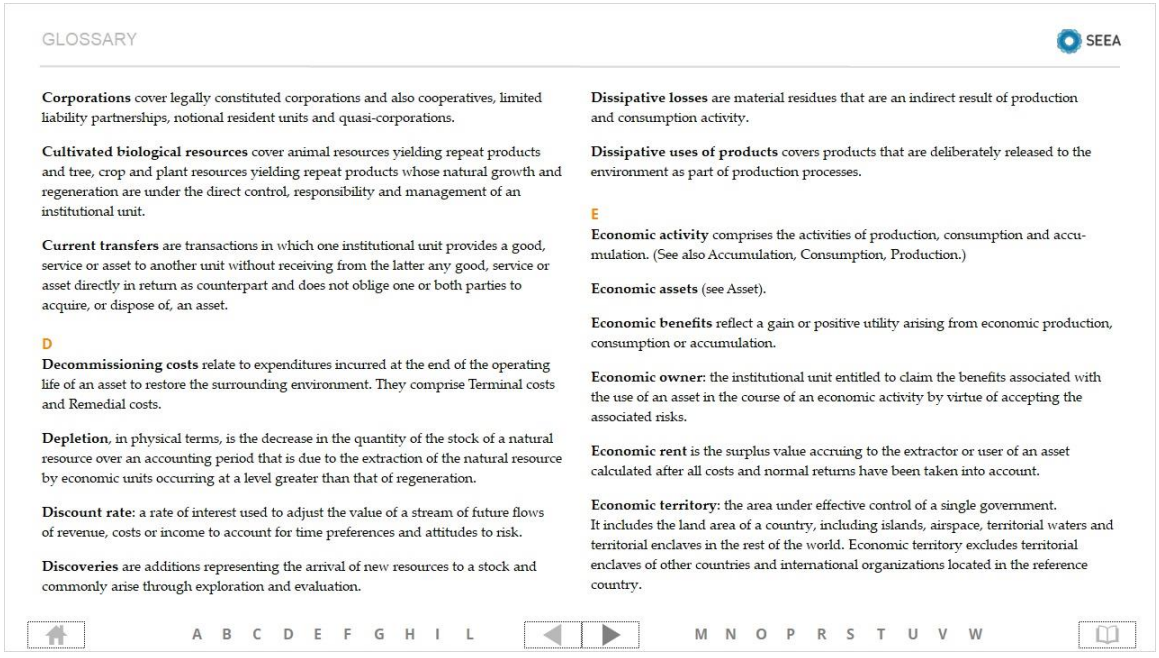
Compensation of employees is the total remuneration, in cash or in kind, payable by an enterprise to an employee in return for work done by the latter during the accounting period.

Consumption is the use of goods and services for the satisfaction of individual or collective human needs or wants

Consumption of fixed capital is the decline, during the course of the accounting period, in the current value of the stock of fixed assets owned and used by a producer as a result of physical deterioration, normal obsolescence or normal accidental damage.

A B C D E F G H I L M N O P R S T U V W

8.2 Glossary D E



GLOSSARY

SEEA

Corporations cover legally constituted corporations and also cooperatives, limited liability partnerships, notional resident units and quasi-corporations.

Cultivated biological resources cover animal resources yielding repeat products and tree, crop and plant resources yielding repeat products whose natural growth and regeneration are under the direct control, responsibility and management of an institutional unit.

Current transfers are transactions in which one institutional unit provides a good, service or asset to another unit without receiving from the latter any good, service or asset directly in return as counterpart and does not oblige one or both parties to acquire, or dispose of, an asset.

D

Decommissioning costs relate to expenditures incurred at the end of the operating life of an asset to restore the surrounding environment. They comprise Terminal costs and Remedial costs.

Depletion, in physical terms, is the decrease in the quantity of the stock of a natural resource over an accounting period that is due to the extraction of the natural resource by economic units occurring at a level greater than that of regeneration.

Discount rate: a rate of interest used to adjust the value of a stream of future flows of revenue, costs or income to account for time preferences and attitudes to risk.

Discoveries are additions representing the arrival of new resources to a stock and commonly arise through exploration and evaluation.

Dissipative losses are material residues that are an indirect result of production and consumption activity.

Dissipative uses of products covers products that are deliberately released to the environment as part of production processes.

E

Economic activity comprises the activities of production, consumption and accumulation. (See also Accumulation, Consumption, Production.)

Economic assets (see Asset).

Economic benefits reflect a gain or positive utility arising from economic production, consumption or accumulation.

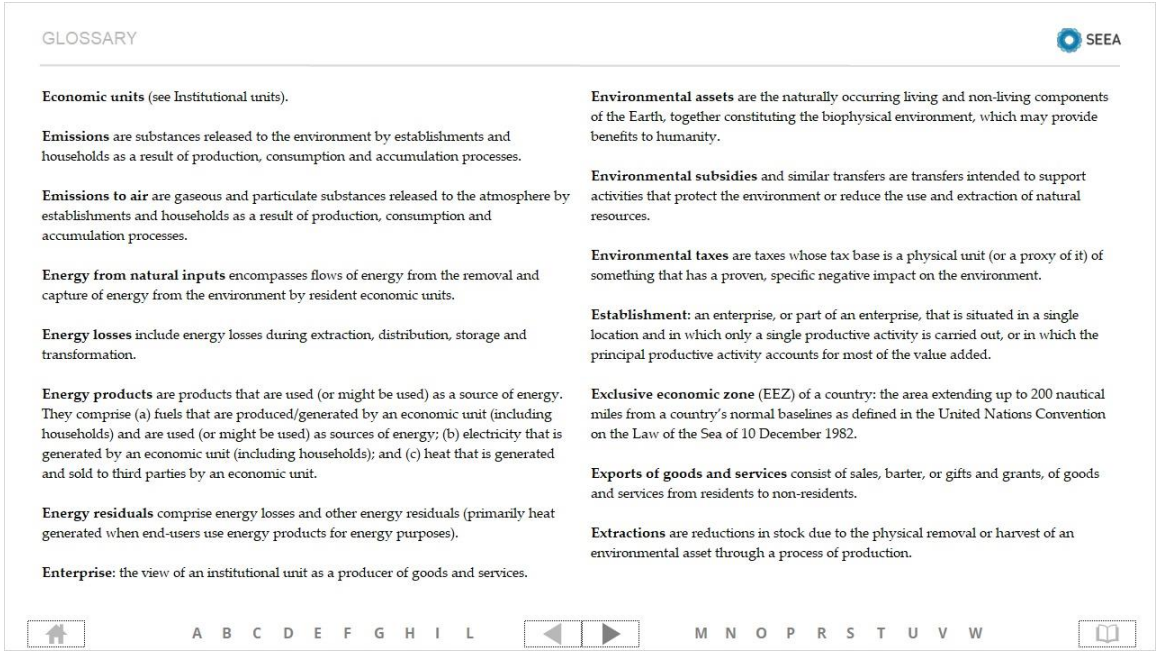
Economic owner: the institutional unit entitled to claim the benefits associated with the use of an asset in the course of an economic activity by virtue of accepting the associated risks.

Economic rent is the surplus value accruing to the extractor or user of an asset calculated after all costs and normal returns have been taken into account.

Economic territory: the area under effective control of a single government. It includes the land area of a country, including islands, airspace, territorial waters and territorial enclaves in the rest of the world. Economic territory excludes territorial enclaves of other countries and international organizations located in the reference country.

A B C D E F G H I L M N O P R S T U V W

8.3 Glossary E



GLOSSARY

SEEA

Economic units (see Institutional units).

Emissions are substances released to the environment by establishments and households as a result of production, consumption and accumulation processes.

Emissions to air are gaseous and particulate substances released to the atmosphere by establishments and households as a result of production, consumption and accumulation processes.

Energy from natural inputs encompasses flows of energy from the removal and capture of energy from the environment by resident economic units.

Energy losses include energy losses during extraction, distribution, storage and transformation.

Energy products are products that are used (or might be used) as a source of energy. They comprise (a) fuels that are produced/generated by an economic unit (including households) and are used (or might be used) as sources of energy; (b) electricity that is generated by an economic unit (including households); and (c) heat that is generated and sold to third parties by an economic unit.

Energy residuals comprise energy losses and other energy residuals (primarily heat generated when end-users use energy products for energy purposes).

Enterprise: the view of an institutional unit as a producer of goods and services.

Environmental assets are the naturally occurring living and non-living components of the Earth, together constituting the biophysical environment, which may provide benefits to humanity.

Environmental subsidies and similar transfers are transfers intended to support activities that protect the environment or reduce the use and extraction of natural resources.

Environmental taxes are taxes whose tax base is a physical unit (or a proxy of it) of something that has a proven, specific negative impact on the environment.

Establishment: an enterprise, or part of an enterprise, that is situated in a single location and in which only a single productive activity is carried out, or in which the principal productive activity accounts for most of the value added.

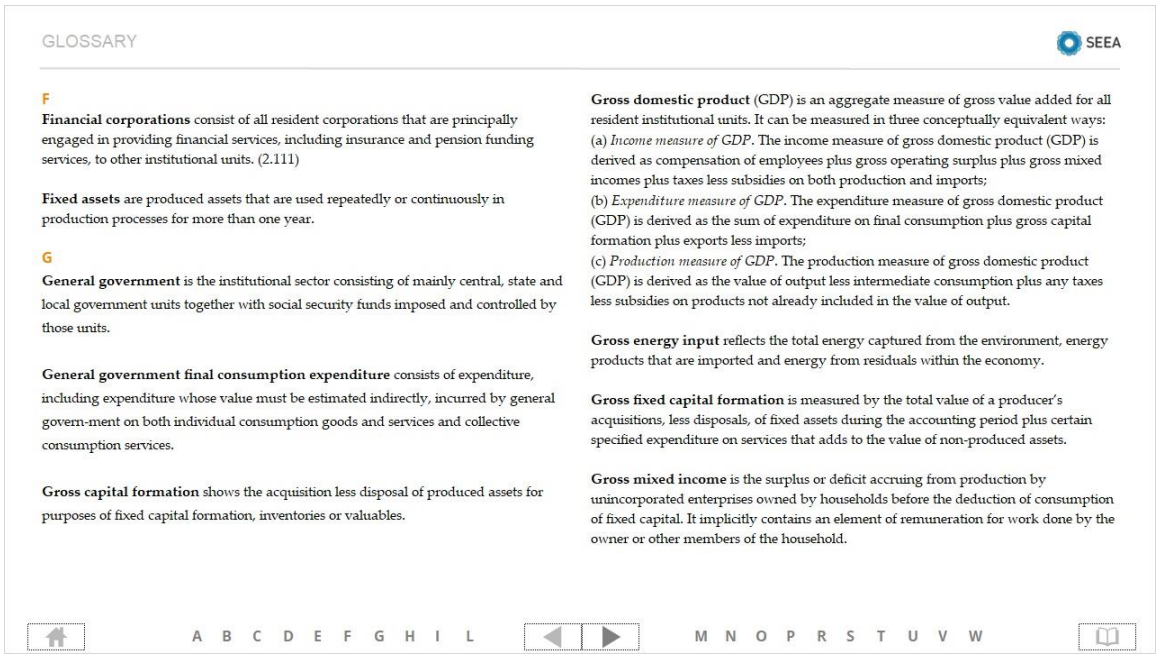
Exclusive economic zone (EEZ) of a country: the area extending up to 200 nautical miles from a country's normal baselines as defined in the United Nations Convention on the Law of the Sea of 10 December 1982.

Exports of goods and services consist of sales, barter, or gifts and grants, of goods and services from residents to non-residents.

Extractions are reductions in stock due to the physical removal or harvest of an environmental asset through a process of production.

A B C D E F G H I L M N O P R S T U V W

8.4 Glossary F G



GLOSSARY

SEEA

F

Financial corporations consist of all resident corporations that are principally engaged in providing financial services, including insurance and pension funding services, to other institutional units. (2.111)

Fixed assets are produced assets that are used repeatedly or continuously in production processes for more than one year.

G

General government is the institutional sector consisting of mainly central, state and local government units together with social security funds imposed and controlled by those units.

General government final consumption expenditure consists of expenditure, including expenditure whose value must be estimated indirectly, incurred by general govern-ment on both individual consumption goods and services and collective consumption services.

Gross capital formation shows the acquisition less disposal of produced assets for purposes of fixed capital formation, inventories or valuables.

Gross domestic product (GDP) is an aggregate measure of gross value added for all resident institutional units. It can be measured in three conceptually equivalent ways:
(a) *Income measure of GDP*. The income measure of gross domestic product (GDP) is derived as compensation of employees plus gross operating surplus plus gross mixed incomes plus taxes less subsidies on both production and imports;
(b) *Expenditure measure of GDP*. The expenditure measure of gross domestic product (GDP) is derived as the sum of expenditure on final consumption plus gross capital formation plus exports less imports;
(c) *Production measure of GDP*. The production measure of gross domestic product (GDP) is derived as the value of output less intermediate consumption plus any taxes less subsidies on products not already included in the value of output.

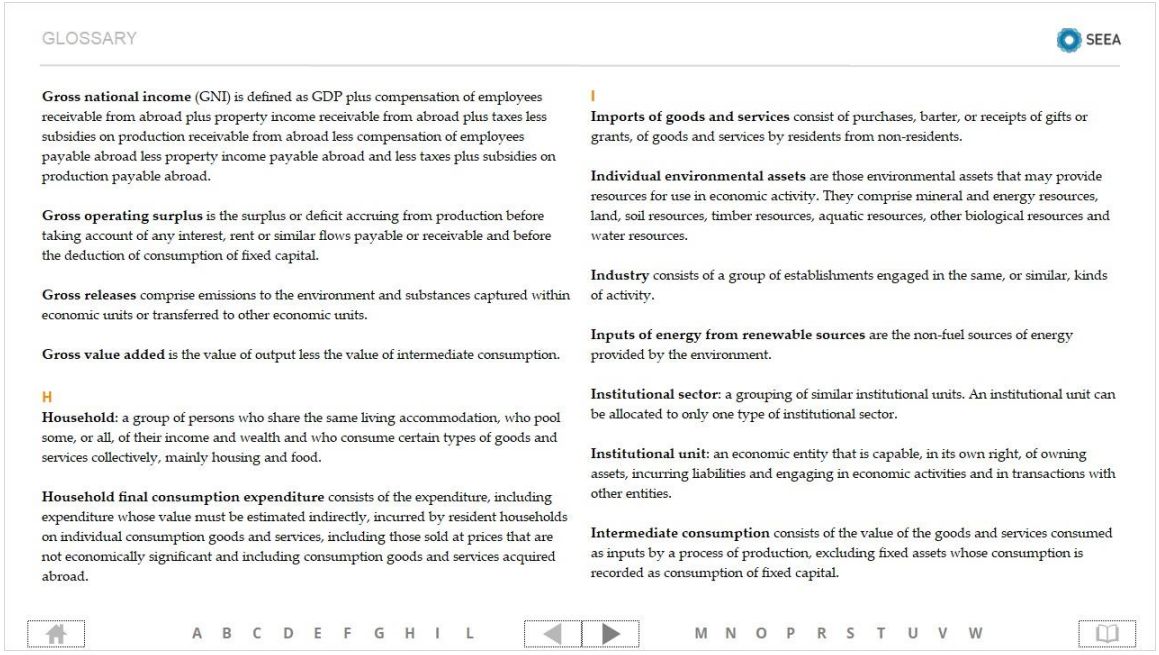
Gross energy input reflects the total energy captured from the environment, energy products that are imported and energy from residuals within the economy.

Gross fixed capital formation is measured by the total value of a producer's acquisitions, less disposals, of fixed assets during the accounting period plus certain specified expenditure on services that adds to the value of non-produced assets.

Gross mixed income is the surplus or deficit accruing from production by unincorporated enterprises owned by households before the deduction of consumption of fixed capital. It implicitly contains an element of remuneration for work done by the owner or other members of the household.

A B C D E F G H I L M N O P R S T U V W

8.5 Glossary H I



GLOSSARY

SEEA

Gross national income (GNI) is defined as GDP plus compensation of employees receivable from abroad plus property income receivable from abroad plus taxes less subsidies on production receivable from abroad less compensation of employees payable abroad less property income payable abroad and less taxes plus subsidies on production payable abroad.

Gross operating surplus is the surplus or deficit accruing from production before taking account of any interest, rent or similar flows payable or receivable and before the deduction of consumption of fixed capital.

Gross releases comprise emissions to the environment and substances captured within economic units or transferred to other economic units.

Gross value added is the value of output less the value of intermediate consumption.

H

Household: a group of persons who share the same living accommodation, who pool some, or all, of their income and wealth and who consume certain types of goods and services collectively, mainly housing and food.

Household final consumption expenditure consists of the expenditure, including expenditure whose value must be estimated indirectly, incurred by resident households on individual consumption goods and services, including those sold at prices that are not economically significant and including consumption goods and services acquired abroad.

I

Imports of goods and services consist of purchases, barter, or receipts of gifts or grants, of goods and services by residents from non-residents.

Individual environmental assets are those environmental assets that may provide resources for use in economic activity. They comprise mineral and energy resources, land, soil resources, timber resources, aquatic resources, other biological resources and water resources.

Industry consists of a group of establishments engaged in the same, or similar, kinds of activity.

Inputs of energy from renewable sources are the non-fuel sources of energy provided by the environment.

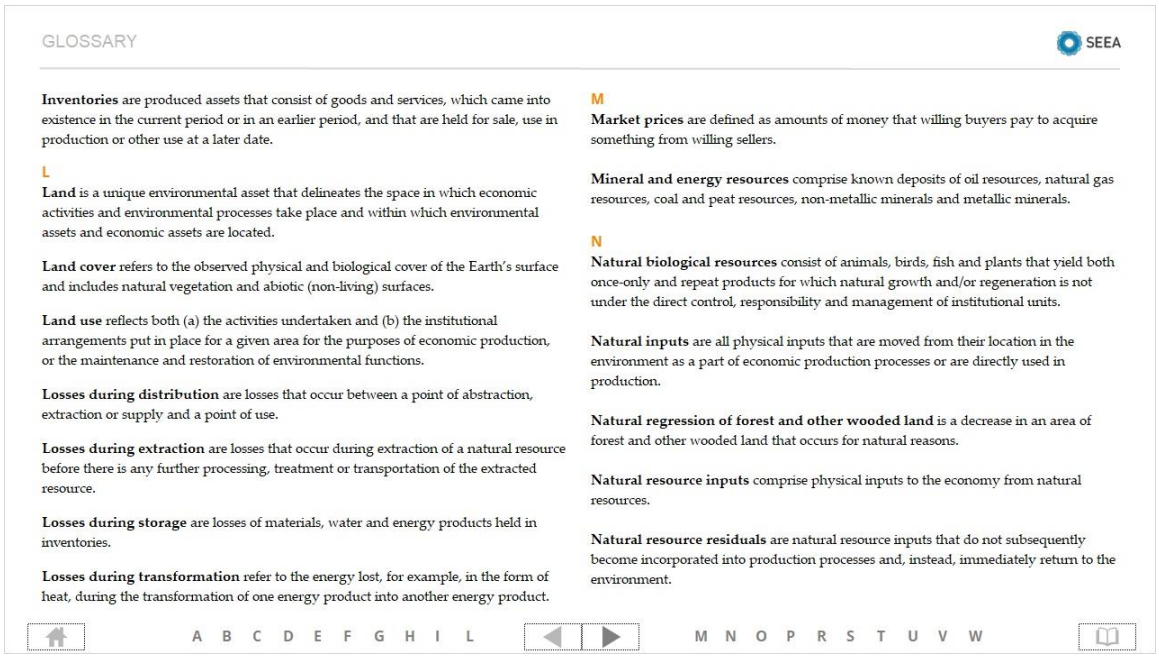
Institutional sector: a grouping of similar institutional units. An institutional unit can be allocated to only one type of institutional sector.

Institutional unit: an economic entity that is capable, in its own right, of owning assets, incurring liabilities and engaging in economic activities and in transactions with other entities.

Intermediate consumption consists of the value of the goods and services consumed as inputs by a process of production, excluding fixed assets whose consumption is recorded as consumption of fixed capital.

A B C D E F G H I L M N O P R S T U V W

8.6 Glossary L M N



GLOSSARY

SEEA

Inventories are produced assets that consist of goods and services, which came into existence in the current period or in an earlier period, and that are held for sale, use in production or other use at a later date.

L

Land is a unique environmental asset that delineates the space in which economic activities and environmental processes take place and within which environmental assets and economic assets are located.

Land cover refers to the observed physical and biological cover of the Earth's surface and includes natural vegetation and abiotic (non-living) surfaces.

Land use reflects both (a) the activities undertaken and (b) the institutional arrangements put in place for a given area for the purposes of economic production, or the maintenance and restoration of environmental functions.

Losses during distribution are losses that occur between a point of abstraction, extraction or supply and a point of use.

Losses during extraction are losses that occur during extraction of a natural resource before there is any further processing, treatment or transportation of the extracted resource.

Losses during storage are losses of materials, water and energy products held in inventories.

Losses during transformation refer to the energy lost, for example, in the form of heat, during the transformation of one energy product into another energy product.

M

Market prices are defined as amounts of money that willing buyers pay to acquire something from willing sellers.

Mineral and energy resources comprise known deposits of oil resources, natural gas resources, coal and peat resources, non-metallic minerals and metallic minerals.

N

Natural biological resources consist of animals, birds, fish and plants that yield both once-only and repeat products for which natural growth and/or regeneration is not under the direct control, responsibility and management of institutional units.

Natural inputs are all physical inputs that are moved from their location in the environment as a part of economic production processes or are directly used in production.

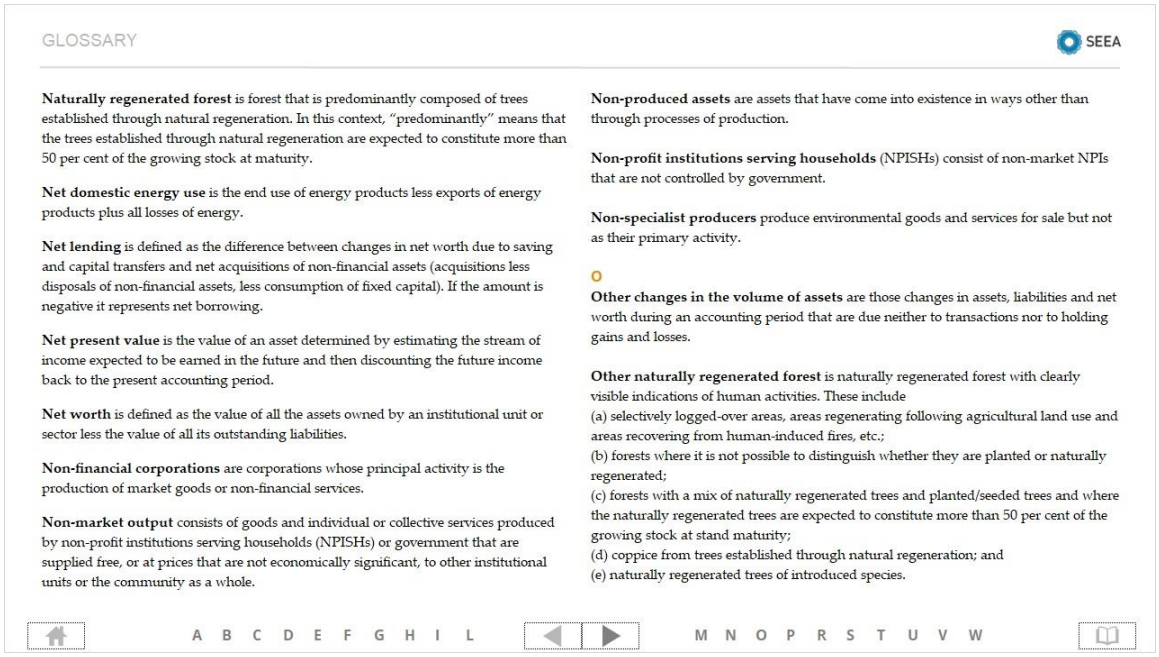
Natural regression of forest and other wooded land is a decrease in an area of forest and other wooded land that occurs for natural reasons.

Natural resource inputs comprise physical inputs to the economy from natural resources.

Natural resource residuals are natural resource inputs that do not subsequently become incorporated into production processes and, instead, immediately return to the environment.

A B C D E F G H I L M N O P R S T U V W

8.7 Glossary O



GLOSSARY

SEEA

Naturally regenerated forest is forest that is predominantly composed of trees established through natural regeneration. In this context, "predominantly" means that the trees established through natural regeneration are expected to constitute more than 50 per cent of the growing stock at maturity.

Net domestic energy use is the end use of energy products less exports of energy products plus all losses of energy.

Net lending is defined as the difference between changes in net worth due to saving and capital transfers and net acquisitions of non-financial assets (acquisitions less disposals of non-financial assets, less consumption of fixed capital). If the amount is negative it represents net borrowing.

Net present value is the value of an asset determined by estimating the stream of income expected to be earned in the future and then discounting the future income back to the present accounting period.

Net worth is defined as the value of all the assets owned by an institutional unit or sector less the value of all its outstanding liabilities.

Non-financial corporations are corporations whose principal activity is the production of market goods or non-financial services.

Non-market output consists of goods and individual or collective services produced by non-profit institutions serving households (NPISHs) or government that are supplied free, or at prices that are not economically significant, to other institutional units or the community as a whole.

Non-produced assets are assets that have come into existence in ways other than through processes of production.

Non-profit institutions serving households (NPISHs) consist of non-market NPIs that are not controlled by government.

Non-specialist producers produce environmental goods and services for sale but not as their primary activity.

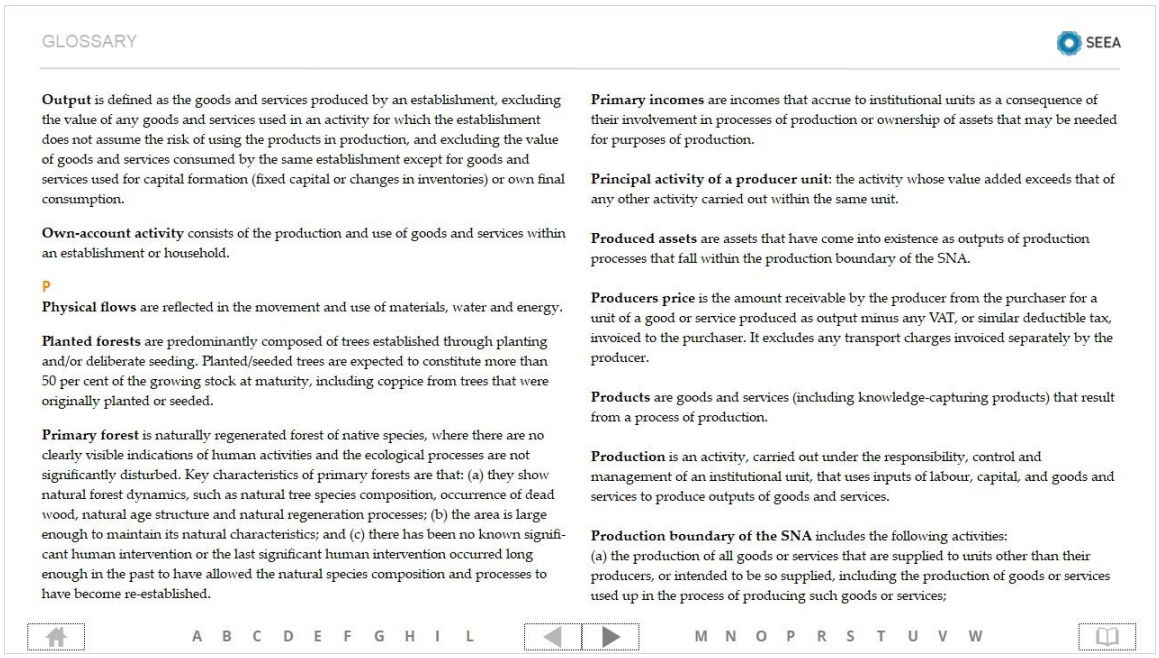
O

Other changes in the volume of assets are those changes in assets, liabilities and net worth during an accounting period that are due neither to transactions nor to holding gains and losses.

Other naturally regenerated forest is naturally regenerated forest with clearly visible indications of human activities. These include
(a) selectively logged-over areas, areas regenerating following agricultural land use and areas recovering from human-induced fires, etc.;
(b) forests where it is not possible to distinguish whether they are planted or naturally regenerated;
(c) forests with a mix of naturally regenerated trees and planted/seeded trees and where the naturally regenerated trees are expected to constitute more than 50 per cent of the growing stock at stand maturity;
(d) coppice from trees established through natural regeneration; and
(e) naturally regenerated trees of introduced species.

A B C D E F G H I L M N O P R S T U V W

8.8 Glossary P



GLOSSARY

SEEA

Output is defined as the goods and services produced by an establishment, excluding the value of any goods and services used in an activity for which the establishment does not assume the risk of using the products in production, and excluding the value of goods and services consumed by the same establishment except for goods and services used for capital formation (fixed capital or changes in inventories) or own final consumption.

Own-account activity consists of the production and use of goods and services within an establishment or household.

P

Physical flows are reflected in the movement and use of materials, water and energy.

Planted forests are predominantly composed of trees established through planting and/or deliberate seeding. Planted/seeded trees are expected to constitute more than 50 per cent of the growing stock at maturity, including coppice from trees that were originally planted or seeded.

Primary forest is naturally regenerated forest of native species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed. Key characteristics of primary forests are that: (a) they show natural forest dynamics, such as natural tree species composition, occurrence of dead wood, natural age structure and natural regeneration processes; (b) the area is large enough to maintain its natural characteristics; and (c) there has been no known significant human intervention or the last significant human intervention occurred long enough in the past to have allowed the natural species composition and processes to have become re-established.

Primary incomes are incomes that accrue to institutional units as a consequence of their involvement in processes of production or ownership of assets that may be needed for purposes of production.

Principal activity of a producer unit: the activity whose value added exceeds that of any other activity carried out within the same unit.

Produced assets are assets that have come into existence as outputs of production processes that fall within the production boundary of the SNA.

Producers price is the amount receivable by the producer from the purchaser for a unit of a good or service produced as output minus any VAT, or similar deductible tax, invoiced to the purchaser. It excludes any transport charges invoiced separately by the producer.

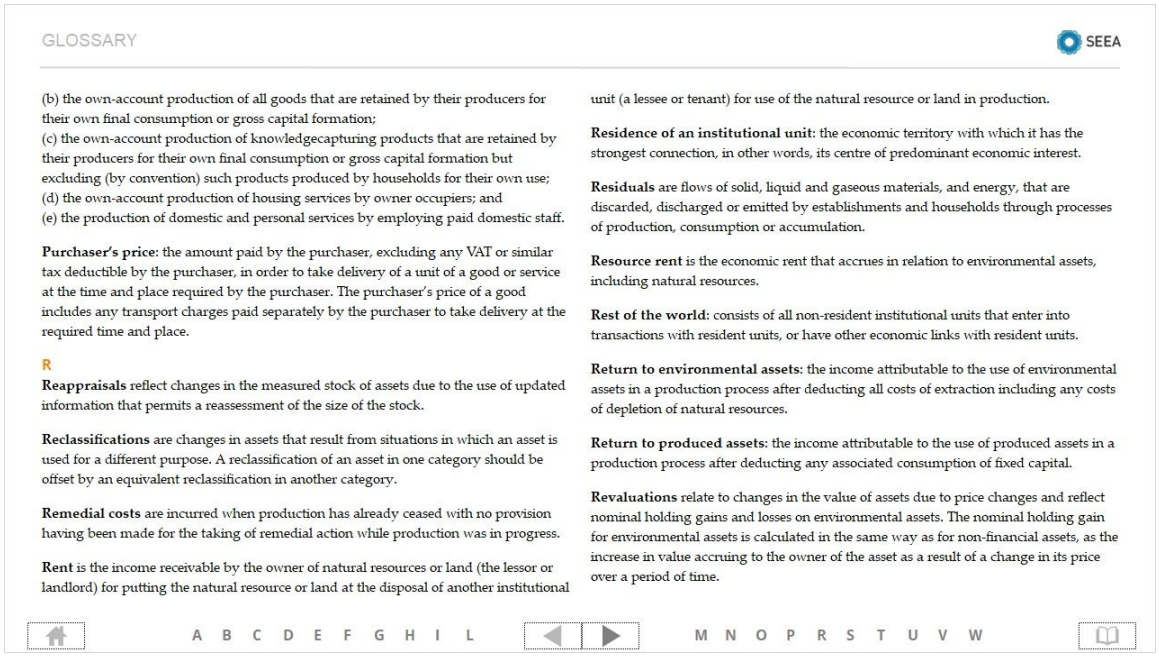
Products are goods and services (including knowledge-capturing products) that result from a process of production.

Production is an activity, carried out under the responsibility, control and management of an institutional unit, that uses inputs of labour, capital, and goods and services to produce outputs of goods and services.

Production boundary of the SNA includes the following activities:
(a) the production of all goods or services that are supplied to units other than their producers, or intended to be so supplied, including the production of goods or services used up in the process of producing such goods or services;

A B C D E F G H I L M N O P R S T U V W

8.9 Glossary R



GLOSSARY

SEEA

(b) the own-account production of all goods that are retained by their producers for their own final consumption or gross capital formation;
(c) the own-account production of knowledgecapturing products that are retained by their producers for their own final consumption or gross capital formation but excluding (by convention) such products produced by households for their own use;
(d) the own-account production of housing services by owner occupiers; and
(e) the production of domestic and personal services by employing paid domestic staff.

Purchaser's price: the amount paid by the purchaser, excluding any VAT or similar tax deductible by the purchaser, in order to take delivery of a unit of a good or service at the time and place required by the purchaser. The purchaser's price of a good includes any transport charges paid separately by the purchaser to take delivery at the required time and place.

R

Reappraisals reflect changes in the measured stock of assets due to the use of updated information that permits a reassessment of the size of the stock.

Reclassifications are changes in assets that result from situations in which an asset is used for a different purpose. A reclassification of an asset in one category should be offset by an equivalent reclassification in another category.

Remedial costs are incurred when production has already ceased with no provision having been made for the taking of remedial action while production was in progress.

Rent is the income receivable by the owner of natural resources or land (the lessor or landlord) for putting the natural resource or land at the disposal of another institutional unit (a lessee or tenant) for use of the natural resource or land in production.

Residence of an institutional unit: the economic territory with which it has the strongest connection, in other words, its centre of predominant economic interest.

Residuals are flows of solid, liquid and gaseous materials, and energy, that are discarded, discharged or emitted by establishments and households through processes of production, consumption or accumulation.

Resource rent is the economic rent that accrues in relation to environmental assets, including natural resources.

Rest of the world: consists of all non-resident institutional units that enter into transactions with resident units, or have other economic links with resident units.

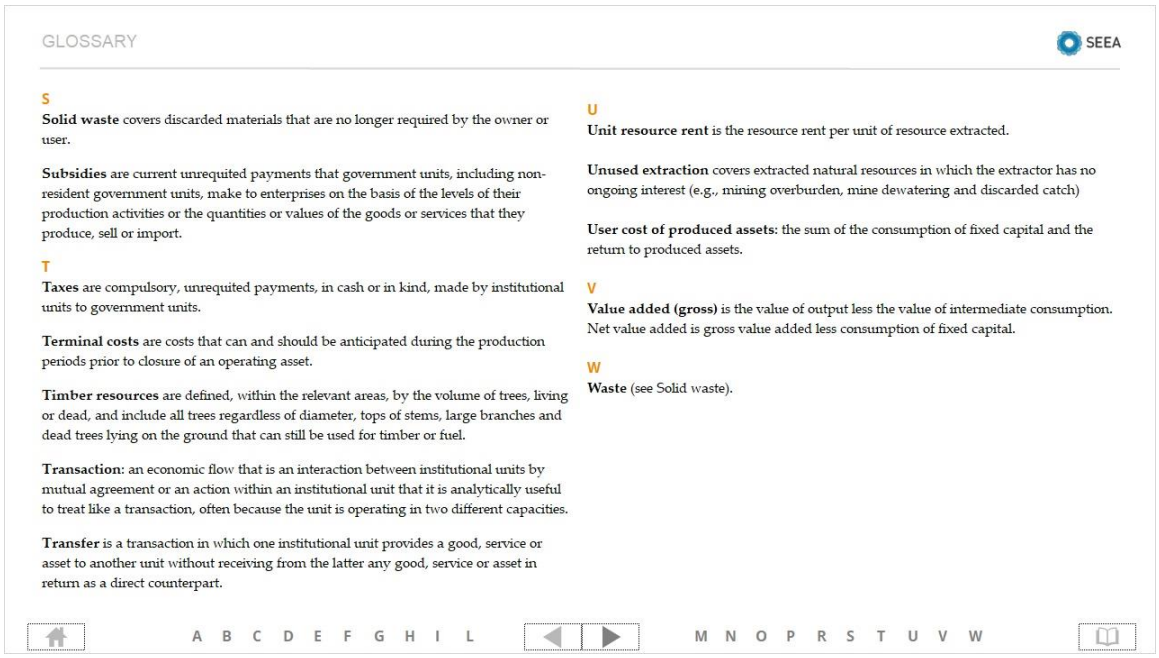
Return to environmental assets: the income attributable to the use of environmental assets in a production process after deducting all costs of extraction including any costs of depletion of natural resources.

Return to produced assets: the income attributable to the use of produced assets in a production process after deducting any associated consumption of fixed capital.

Revaluations relate to changes in the value of assets due to price changes and reflect nominal holding gains and losses on environmental assets. The nominal holding gain for environmental assets is calculated in the same way as for non-financial assets, as the increase in value accruing to the owner of the asset as a result of a change in its price over a period of time.

A B C D E F G H I L M N O P R S T U V W

8.10 Glossary S T U V W



GLOSSARY

SEEA

S

Solid waste covers discarded materials that are no longer required by the owner or user.

Subsidies are current unrequited payments that government units, including non-resident government units, make to enterprises on the basis of the levels of their production activities or the quantities or values of the goods or services that they produce, sell or import.

T

Taxes are compulsory, unrequited payments, in cash or in kind, made by institutional units to government units.

Terminal costs are costs that can and should be anticipated during the production periods prior to closure of an operating asset.

Timber resources are defined, within the relevant areas, by the volume of trees, living or dead, and include all trees regardless of diameter, tops of stems, large branches and dead trees lying on the ground that can still be used for timber or fuel.

Transaction: an economic flow that is an interaction between institutional units by mutual agreement or an action within an institutional unit that it is analytically useful to treat like a transaction, often because the unit is operating in two different capacities.

Transfer is a transaction in which one institutional unit provides a good, service or asset to another unit without receiving from the latter any good, service or asset in return as a direct counterpart.

U

Unit resource rent is the resource rent per unit of resource extracted.

Unused extraction covers extracted natural resources in which the extractor has no ongoing interest (e.g., mining overburden, mine dewatering and discarded catch)

User cost of produced assets: the sum of the consumption of fixed capital and the return to produced assets.

V

Value added (gross) is the value of output less the value of intermediate consumption. Net value added is gross value added less consumption of fixed capital.

W

Waste (see Solid waste).

A B C D E F G H I L M N O P R S T U V W