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Recording of losses in the physical supply and use tables

- Should product output be recorded gross or net of the losses?

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Treatment of losses in PSUT

- There are conceptually no difficulties in treating losses in the physical supply and use tables, but it can be done in different ways

- A complete treatment includes recording the losses both in the supply *and* in the use table

- It is useful to consider whether:

  losses are flows of products

  or flows of residuals

  or perhaps flows of both products and residuals

Three options for describing losses

Losses are flows of residuals

Product output is measured net, i.e. excluding the losses
(Electricity output is 25, and output of residuals is 3)

Losses are flows of products

Product output is measured gross, i.e. including the losses
(Electricity output is 28=25 + 3)

Losses are first flows of products and then flows of residuals

Product output is measured gross, i.e. including the losses
(Electricity output is 28 and output of residuals is 3)

Option 1. Losses are residuals - net output of electricity

Supply (physical units)

		Indu-stries	House-holds	Changes in inven-tories	Environ-ment	Total supply
Products	Electricity	25				25
Residuals	Distribution losses	3				3
Total supply		28				28

Use (physical units)

		Indu-stries	House-holds	Changes in inven-tories	Environ-ment	Total use
Products	Electricity		25			25
	Distribution					

Option 2. Losses are products - gross output of electricity

Supply (physical units)

		Indu-stries	House-holds	Changes in inven-tories	Enviro n-ment	Total supply
Products	Electricity	28				28
Residuals						
Total supply		28				28

Use (physical units)

		Industrie s	House-holds	Changes in inven-tories	Environ-ment distribu-tion losses	Total use
Products	Electricity		25		3	28
Residuals						
Total use			25		3	28

New item in PSUT!

Option 3. Losses are products which become residuals - gross output of electricity

Supply (physical units)

		Indu-stries	House-holds	Changes in inventories	Environ-ment	Total supply
Products	Electricity	28				28
Residuals	Distribution losses	3				3
Total supply		31				31

Use (physical units)

		Industries	House-holds	Changes in inven-tories	Environ-ment (distribu-tion losses)	Total use
Products	Electricity	3	25			28
Residuals	Distribution losses				3	3
Total use		3	25		3	31

Net recording of physical output

+ Net recording of monetary output is used in SNA

  The losses are not economic transaction (no mutual agreement).

- No direct correspondence with energy statistics and balances

  The accounts will present a product output which is different from what is presented elsewhere.

- Theft of e.g. electricity is theft of residuals

Gross recording of physical output

+ Usually used in energy statistics and balances.

  Output is measured as what is actually produced and could potentially be sold.

+ Suited for analysis of the efficiency of the energy production.

  Can easily compare inputs to and outputs from energy production

+ Theft is easy to record

- Quantities does not correspond to the quantities implicitly included in the monetary accounts' product output

  We need to interprete the losses as economic output with a market price of zero.

Suggestion for energy products

- Record gross physical output (option 2 or 3)
- Record the losses in the use table

Because:

It is important to maintain a link to the energy statistics and energy balances and to what is normally considered to be the physical output of energy products.

Gross output seems better suited for efficiency analysis of the energy production

Suggestion for natural resources

- Record gross inputs of natural resources to the extraction industry, i.e. including resources lost during extraction (e.g. flaring, re-injection).

- Record losses during extraction as flows of residuals in the use table

Because:

It is important to show the losses during extraction e.g. flaring. However, in ressource/energy statistics there is no tradition for recording the physical output of products of the extraction industries including the losses.

Suggestion for conversion losses

- Record conversion losses as residuals in both the supply and the use table

Because:

Conversion losses is a difference between inputs and outputs of different products

Conversion losses does not necessarily relate to any specific products

Often more than one energy products on both the input side and the output side.