

## Suggestions for improvements of the industry data bank template

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A number of possible adjustments to the template have been identified during the first attempts to use the template for reporting data for an industrial example. Suggested improvements range from adding single questions, to changing the structure of layout of certain sections of the template.

### Formalities

A number of formalities that should be added:

- Date (for data reporting)
- Contact information
  - Organisation in possession of the data archive for the project
  - Contact person (Name, affiliation, e-mail)
- Has all data reported been published? Yes or No – if No, specify
- References to published data

### Background information

New section to add in the template, including:

- Time period in which data was collected
- Purpose of study for which data was originally collected

### Current heading – 1) Industry main description

Add possibility to enter information about potential existence of more than one normal operating condition, e.g. by making it possible to specify:

- annual operating times for different products or feedstock
- if the production is run in campaigns or parallel lines.

Consider changing the heading to e.g. 'General information about the industrial production site'.

### Current heading – 2) Detailed description

Structure

- Consider restructuring by moving 'Main process parts' (and maybe also 'Major exothermic or endothermic reactions') to Section 3.
- Consider moving 'Symbiosis situation' to Section 1) 'Main industry description'.
- Heading of Section 2) could then be changed to, e.g., 'Energy system' or 'Utility system', and the heading of Section 3 could be changed to 'Process description'.
- Excess heat should be given a separate section.

Utility system

- Introduce a table layout for utility steam data, where information about steam header properties as well as production and consumption rates can be reported.
- Add possibility to enter information about how utility (steam) is generated (boilers, process coolers, waste heat recovery steam generators etc, type of fuel used...).
- Should there also be room for briefly describing fuel systems, for example when fuel is a by-product of the process (black liquor in pulp mills, fuel gas in petroleum refineries...)?

### New heading – Excess heat

The question about excess heat should be more structured and given a separate Section. The following information should be asked for:

- Estimated potential (in e.g. MW)
- Method used for evaluation
- Assumptions made (e.g. temperature level required, heat sources considered, requirement to retrofit the heat exchanger network)
- System boundaries if different from those corresponding to the total energy input reported in Section 1.

### Current heading – 3) Process scheme(s)

Consider changing the heading to process description. Move parts here from current heading 2).

This information could be useful, but it seems rather unlikely that it will be openly available. It is also unclear how information should be entered in the template. A possibility could be to leave room for detailed stream data in a separate sheet, where information could just be copy-pasted in whatever format is available in.

### Current heading – 4) Process integration

Change heading to 'Heat integration – pinch analysis' to avoid confusion with process integration relating to industrial symbiosis or excess heat deliveries to other plants or district heating networks.

Add possibility to enter information about the conditions for the heat integration analysis, e.g.:

- if data provided represents annual average conditions or a certain operating scenario
- what are the system boundaries for the reported stream data:
  - the whole site as described in Section 1) 'Industry main description'?
  - the same as representing the utility demand in Section 2) 'Detailed description'?
  - something else?

Introduce a table layout for stream data with predefined columns for stream names, temperatures, heat capacity flow rates, etc. Consider presenting this on a separate sheet.

### Information for advanced composite curves

To enable construction of the advanced composite curves – and possibly also for other more advanced evaluation methods – it is necessary to have information about the current design of the heat recovery system corresponding to the reported pinch stream data (i.e. same system boundaries). Should this be included and, in that case, how? Suggestion is a separate section that can be skipped if this data is not available.

Information needed:

- Heat loads of existing heaters and coolers
- Temperatures of specified process streams in existing heaters and coolers
- Temperature of utility in existing heaters and coolers

### Other general issues

- Suggest preferred unit (e.g. tonnes/year for production rates and GWh/year for energy inputs and outputs), but make it possible to add data with other units and specify the unit.
- Possibility to write comments to each question
- Provide heading for potential additional information not relating directly to a specific question