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**Programme Area:** Bioenergy

**Project:** TEA Biomass Pre-processing

**Title:** Down-selection and workshop report

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**Abstract:**

The document provides guidance on how to use the D2 Initial Downselect tool. This Excel tool was developed in the earlier stages of the TEABPP project to enable the identification of the 10 cases for detailed modelling using the gProms model built later in the project.

Further instructions are provided on the first tab of the workbook.

**Context:**

The techno-economic project will provide a greater understanding of the options available to modify or improve the physical and chemical characteristics of different types of UK-derived 2nd generation energy biomass feedstocks, that may otherwise reduce the cost-effective performance of conversion technologies.

# Initial Techno-Economic Results TEABPP Model

## Guidance to use of Excel spreadsheet D2

Project: Techno-Economic Assessment of Biomass Pre-Processing (TEABPP)  
Project Ref. No.: BI2011  
Deliverable Ref. No.: D2

### Model Context

The techno-economic project will provide a greater understanding of the options available to modify or improve the physical and chemical characteristics of different types of UK-derived 2nd generation energy biomass feedstocks that may otherwise reduce the cost-effective performance of conversion technologies.

The excel workbook contains all of the steps within each of the possible the chains, combined into a detailed chain model where each step can be turned on or off.

### Basic instructions:

1. The best way to compare chains with and without washing is to go to the "Chain Choice" tab. This shows the pre-loaded chains in column B. There is likely to be a preloaded chain for the option you are interested in
2. Filter to find the ones you are interested in e.g. Filter column C for SRF decide and M for BFB gasifier + gas engine.
3. This shows you the choice of pre-processing options you have. You can compare them using the data in columns Q to V
4. You'll see that the Off chain (chain number 1432 – note this is the chain number, not the Excel row) has an LCOE, and the water washing chain(#1433) a different LCOE
5. If you want more detail about the chains, type the chain number into cell P2. By doing this, you can see the chain layout and transport and storage details in the area within C2-N48, or the full detailed results for that chain in the "Results" tab
6. Doing that for each of the chains will enable you to compare any details you want to - for example, you can see from M49 and M50 of the Results tab that the opex of the gasifier goes down when washing is added (changing "Chain choice" cell P2 from chain 1432 to 1433)
7. If you want a different chain from the ones that are pre-loaded, you can change the individual components of a chain. Click the component of a chain that you want to change in the Chain choice tab, and choose a new option from the drop down.

For example, you can change cell K58 to choose to store pellets in a silo rather than a shed. To see the results of this, make sure that the chain number is typed into cell P2 so you can see the chain layout on this sheet and the results on the Results tab.

However, it won't change the data table (coloured table in columns Q,R,S and T) unless you press F9 and wait about 2 minutes. The Data table will be refreshed when the "Data Table: 1" status at the bottom right of the Excel window disappears. If you hit "F9" then move to another cell or tab, the table will not have updated.

### Notes:

The TEABPP project involves the configuration of value chains. The core focus is on pre-processing and conversion technologies. These are however usually separated by transport and storage legs which also involve different possible technologies, many of which are included here.

This workbook relies on the user making sensible choices - e.g. not trying to transport chips by pipeline, or chip chips, or dry pellets

When rescaling the technologies, it is assumed that the unit sizes are decreased/increased, not the operational hours/yr, so that each unit always operates at the fixed actual availability values given

Blending Onsite/Offsite costs will be added as a process modelling formulae in WP3, common to all chains. The added costs are very low

### Model Status

- This model is available as a final deliverable. There is no further development currently being performed.
- This version of the model has been tested by the project team and ETI Staff reviewers.

### Licence Arrangements

- See ETI Open License.

### Anticipated User

- This model is intended for specialist users. The use of this model requires detailed technical knowledge and skills of biomass chains and their pre-processing.

### Installation

This model is a single Excel file which can be opened using Microsoft Excel.

This workbook is very large, and reliant on the interaction between thousands of different input parameters and formulae.

In particular, the "Chain choice" tab contains a Data table with over a large number of rows and three columns, which is computationally heavy, and often leads to cycling between chains/volatile values changing.

Users are strongly recommended to set Excel to manual calculation when using this spreadsheet.

To do this, go to File > Options > Formulas > and select "**Automatic except for data tables**".

You can then use the Excel more easily. To refresh the calculations, press the "**F9**" button and wait about 2 minutes. The Data table will be refreshed when the "Data Table: 1" status at the bottom right of the Excel window disappears. If you press "F9" and then move to another cell or tab, the table will not have updated.

## Training

- No training is available.

## IT Requirements

- This model is distributed as files of the following types/formats Excel workbook .xls Format