

ENGINEERING ESTIMATING SYSTEM

EES



**clear concise estimating
for the engineering industries**

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Carbon

An optional Carbon module allows the determination of carbon from existing projects.

- Carbon factors can be assigned to Processes, Elements or Cost drivers to generate masses against hierarchy levels to allow for estimating carbon mass and cost.
- Price Databases can have Carbon factors at rate level, such as labour, plant and material rates, for accumulation to item level, and on to Cost Plan and Process levels.
- Carbon Costs are driven from the Carbon mass, and index linked carbon rates.
- Statistical Estimating of Carbon Mass, Cost and combined Capital/Carbon cost.



Cost Modelling

Projects are split into multiple levels as shown above, but the main level used for summarising the detailed work carried out in the system is Process level, with accumulation to Process Group, Asset Type and Project.

Each Process can have its own associated Cost Model, or in the case of some major Processes which can have multiple Cost Models.

These Cost Models bring together similar Processes from historical Projects to form a set of data points. These are selected based on user defined filter criteria restricting both the Projects (for example by Classification to only those that have been signed off) and Processes (for example a Pipework Process might have multiple Cost Models and each restricted to a certain material) to return the data set.

Processes then have their costs normalised by accounting for Location Indices (taking into account locality variance) and Cost Indices (taking into account inflation/deflation in costs over time), and adjusting the costs to bring all data point costs up to “current day” values to give a useful Model.

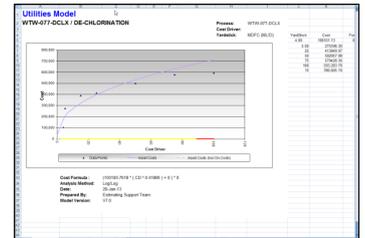
As well as having multiple versions of projects, Cost Model projects can have versions to allow for full future auditing and comparison, and as a basis for estimating.

Cost Models use well proven least squares regression techniques, power curve (log/log) or linear equations to create a formula for the Model based on the data set returned. For Processes which use Cost Drivers (as described in the Estimate Generation section), a rate per yardstick unit is calculated and then the Rate is graphed against the Cost Driver. In the example of a Pipe the normalisation would be on the Yardstick of Length (Metres). So instead of having a Cost, there would be a Rate/Metre, and this could be modelled and graphed against the Diameter of the pipe.

Estimating stages

Estimates and cost models can be generated for both capital costs and carbon costs from any level of data stored, dependant on the project structure employed.

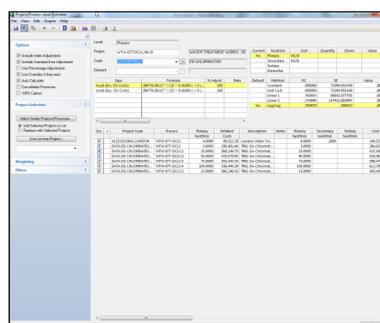
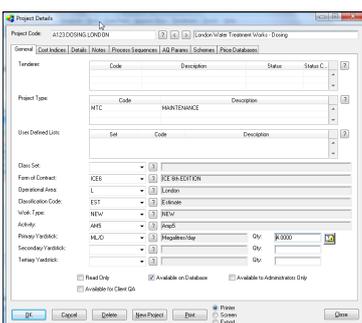
- Project level
- Asset type
- Process Group level
- Process level
- Elemental level
- Measured items
- Unit rate pricing
- Resource level pricing



As each project version is developed, further information can be added to lower levels, from initial feasibility estimate, through to detailed Cost Plan, and Final Account.

“CSSP provide good response from both the development and support teams”

“EES gives ease of model production and flexibility in choice of previous projects”



EES

Estimate Generation

Estimated costs can be generated by analysing historical projects stored within the database and using appropriate filters to restrict the set of 'data points' being returned, as a specific selection or by using the audited Cost Models' set of data points. As with the models, the costs are inflated and adjusted using indices and statistical formulae to produce reliable cost estimates. In addition to Capital asset costs, each data point will contain its relevant Carbon Mass to allow for a Carbon analysis to be run simultaneously.

At Process level, additional 'cost driver' information can be stored, which are fields of data defining the exact detail of the Process. An example would be a Pipework Process which would need additional fields such as the Surface Type, Material, Depth, Diameter etc. to be stored to give the specific Process further more detailed meaning. In addition, one of these drivers may be defined as the 'cost driver'. If defined, this cost driver is used to measure and statistically calculate unit based costs based on the cost driver in addition to the yardstick.



Installation and training?

EES is a multi-user system, and can run on individual laptops, pc's or on a central server linked to any number of workstations.

EES runs on any version of Microsoft Windows including the latest Windows workstation and server environments, and our users are also optionally reaping the benefits of using **EES** with Citrix, providing high performance remote access to the centralised database over low band width communications.

CSSP will professionally set-up, train and support users of **EES**. CSSP staff can assist with coding structures and the required statistical manipulation, and system outputs, to achieve maximum benefit from the system.

EES System Outputs

EES has a rich range of methods for reporting data from the system, with more available where required. These include, but are not limited to:

- View based summary level reporting, at Project, Process, Element and Measured Item levels.
- A variety of predefined reports or user defined reports to screen, printer, PDF and Excel.
- Full database export to Microsoft Access or Excel, or other Database platforms.
- Functionality to copy the viewed data to Windows clipboard.
- Export from statistical analysis screen to predefined templates, or to generate an Excel graph—which can be particularly useful for regulatory reporting.
- Bespoke export to users Excel templates.

