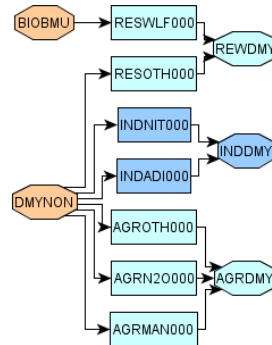


# UCL ENERGY INSTITUTE

## Visualisation of TIAM and other TIMES/MARKAL Reference Energy Systems

UCL (Paul Dodds and Will Usher)



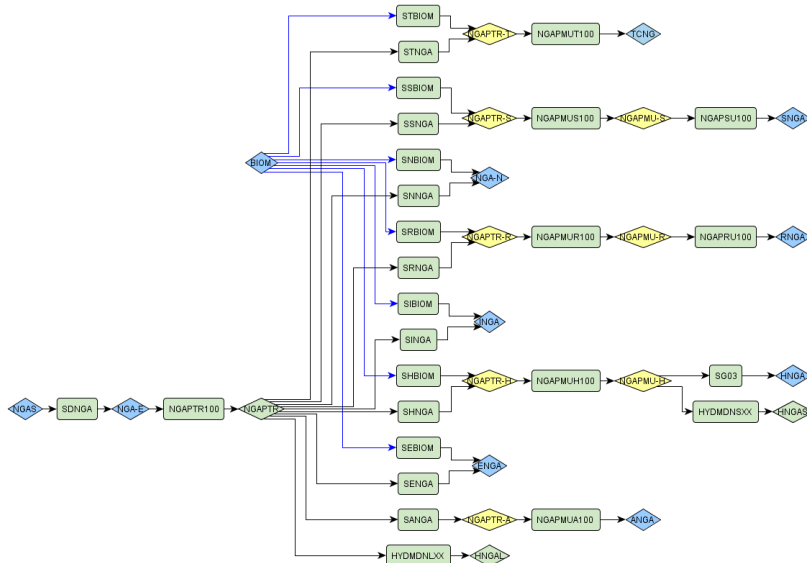
## Introduction

- Energy system models are complex, with 1000s of technologies in a typical RES
  - Difficult to understand for new users
  - Even experienced users can introduce errors when making changes
  - Difficult to communicate the model workings to stakeholders
- Current RES visualisations in ANSWER and VEDA show only single technologies at a time
- Aim of this project – to visualise the **whole** RES for any model or part of a model (selecting regions/scenarios etc.)

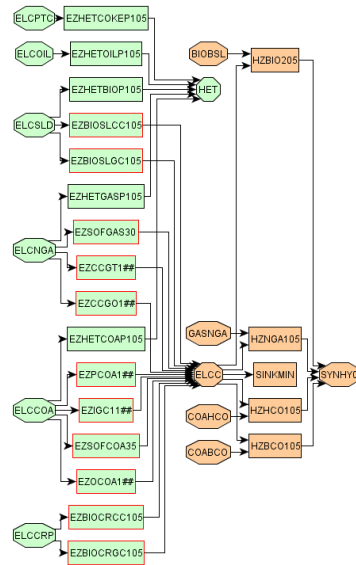
## UCL RES visualisation application

- UCL have created an experimental Windows application to automatically extract a RES from MARKAL/TIMES models, in an appropriate format for graphing software
- This data is input into freely-available graphing software which draws and automatically organises the RES
- The RES shapes and colours can be automatically selected according to the scenario/set membership/data etc.

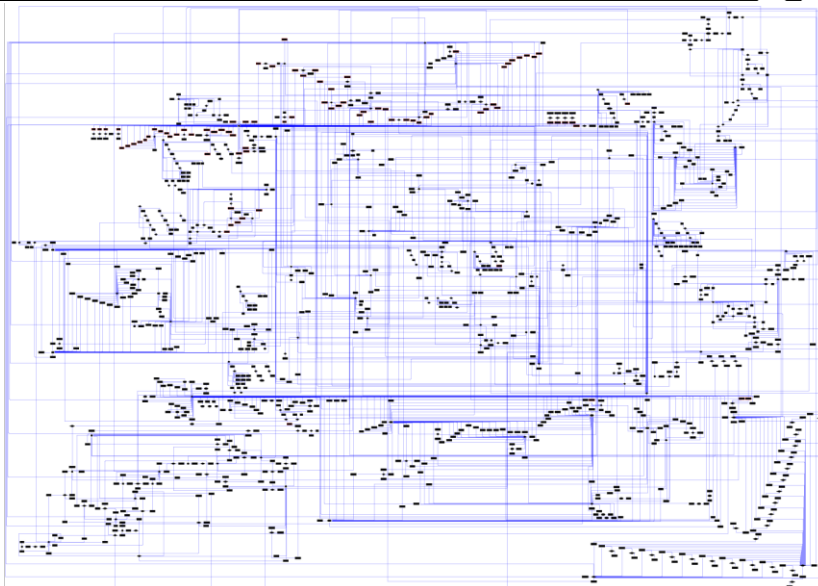
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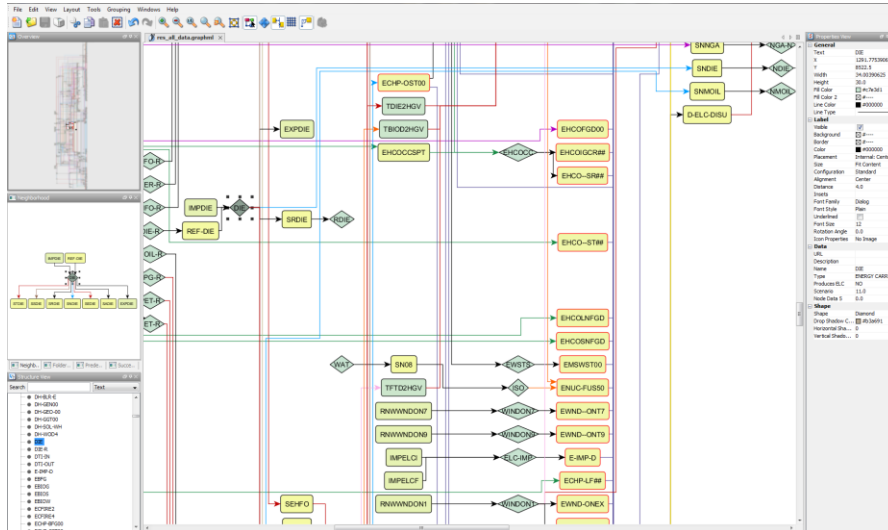
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## Proposal

- The RES extraction software is currently at a development stage and does not run as an independent application
- This project will produce:
  - A beta version of a full Windows application for demonstration and testing at the Lisbon ETSAP meeting in December
  - A full manual to support the software, also for the Lisbon meeting
  - A final production version of the software for the June 2013 meeting
- It will be free for all ETSAP members and should work on all ANSWER-MARKAL and VEDA-TIMES models