



Summary of most recent TIMES enhancements (v3.0.4 – v3.1.0)

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ETSAP ENERGY TECHNOLOGY SYSTEMS ANALYSIS PROGRAM

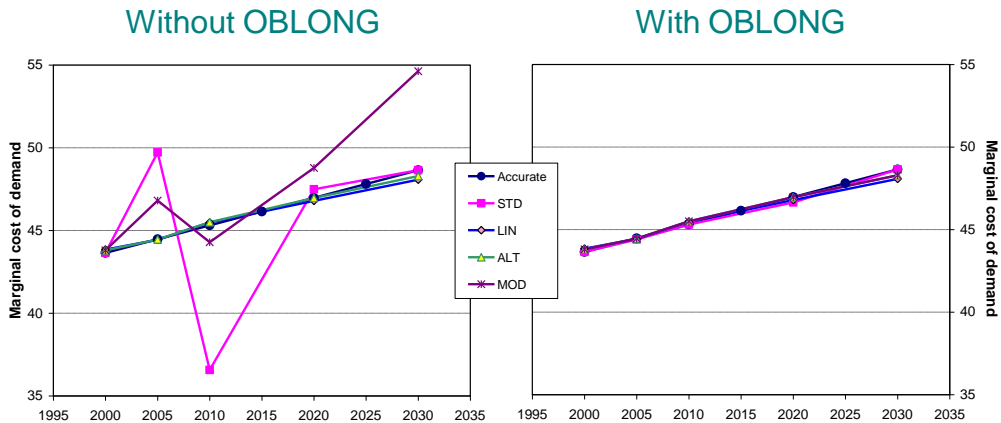


Review of the Objective Function

- ◆ Full review of the objective function formulations has been carried out, as a Quality Assurance measure
- ◆ A couple of small buglets were identified and fixed (rarely having impact on real-world models)
- ◆ A new option for eliminating the remaining problems in the standard (STD) and alternative (MOD) objective formulations has been implemented:
 - ◆ Investment cost timing in sync with the start of activity
 - ◆ Related problems with salvage values also eliminated
 - ◆ Can be recommended with OBJ = AUTO / STD / MOD
- ◆ Activated by **\$SET OBLONG YES** in the RUN file

Impacts of the OBLONG option illustrated

- Marginal costs in simple model compared to accurate model with 1-year periods:



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Other Miscellaneous Enhancements

- ◆ Currency conversions now supported
 - ◆ Between both “real” currencies and year-specific money values
 - ◆ Data can be maintained with original currencies in the database
- ◆ Support for one-sided storage processes (prod./cons.)
 - ◆ Solves the problems with arbitrary storage by-pass flows
- ◆ Support for using LO bounds in availability factors
- ◆ Support for negative ILEDs
 - ◆ Commissioning always at B(t) with preceding construction time
- ◆ New FLO_EFF parameter under the VDA extension
 - ◆ Identical to FLO_EMIS but supports any commodities
- ◆ Improved reporting of Benefit / Cost indicators
- ◆ New reporting attribute Cap_New:
 - ◆ Lumpsum investments and commissioned capacity by prc/period

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Documentation

- ◆ New document on TIMES enhancements in v2.1 – v3.1
- ◆ Updated document on the TIMES Control Switches
- ◆ Updated (abridged) document on the Climate Module
- ◆ All components of the TIMES documentation available for download at the ETSAP site:

www.etsap.org