

ANSWER-TIMES

Initial Production Version

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Presentation Outline

- ◆ *ANSWER-TIMES Brief Overview*
- ◆ *ANSWER-TIMES Enhancements since Brasilia ETSAP Meeting*
- ◆ *Status Summary*
- ◆ *Future Developments*
- ◆ *Acknowledgments*



ANSWER-TIMES Brief Overview – Home Screen

(Same as Home Screen for ANSWER-MARKAL, a few facilities differ slightly)



ANSWER-TIMES Brief Overview – Data Screen

(Same as Data Screen for ANSWER-MARKAL, some tabs different names)



ANSWER-TIMES enhancements since Brasilia ETSAP Meeting

- ◆ **Simplified handling of TimeSlices where same TimeSlices in every region**
 - Still possible to handle models with different TimeSlices in different regions
- ◆ **New/Edit Trade Process form completely revised**
 - Allows handling of Trade Processes that involve trade in multiple commodities, while retaining full generality of naming permitted by TIMES
 - Thanks to Antti Lehtila, VTT Energy Finland, for valuable suggestions
- ◆ **TIMES interpolate/extrapolate options for time-series parameters now handled**
- ◆ **Preliminary ANSWER-TIMES User Manual completely rewritten**



Simplified handling of TimeSlices where same TimeSlices in every region: (Changes in one region are automatically applied to every region)

Template Version
Version: **TIMESv6**
Other...

Base Scenario Details
Name: **BASE**
Description: **New TIMES Database**

Data Time Periods
 Unequal spacing Equal spacing

Periods in Database	Periods in Database
2021	1995
2022	2000
2023	2003
2024	2004
2025	2005
2026	2008
2027	2010
2028	2013
2029	2015
2030	2020
2031	2025
2032	2030
2033	2035
2034	
2035	
2036	
2037	

Results Time Periods
 Unequal spacing Equal spacing

Periods in Database	Periods in Database
2085	2000
2086	2005
2087	2010
2088	2020
2089	2030
2090	2040
2091	2050
2092	2060
2093	2070
2094	2080
2095	2090
2096	2100
2097	
2098	
2099	
2100	
2101	

Create Initial Region Same TimeSlices in Every Region

OK Cancel



New/Edit Trade Process completely revised - 2

- ◆ *New Trade Matrix tab, simplified specification, extra facilities*

Edit Trade Process BITRD-SAME in scenario TRD-DEMO

Edit Name/Description for Trade Process BITRD-SAME. Or change Set Memberships or Units. Or use Traded Commodities and/or Trade Matrix tabs to change Traded Commodities and/or Trade Matrices.

Item Information
 Scenario: TRD-DEMO Demonstrate assorted types of Trade Processes
 Name, Desc: BITRD-SAME Bilateral Trade in Diesel and Gasoline, Same Commodity Name in All Regions

Type of Trade
 Bilateral Trade Market Trade

Commodity Type and Naming
 Type: NRG Same Commodity Name in All Regions

Set Memberships, Units **Traded Commodities** **Trade Matrix**

Use Commodity combobox to specify the Name of the Traded Commodity and then use checkboxes to specify the Trade Matrix. TM Same as Master Clear TM Restore TM Check TM Integrity

Commodity: DSL Diesel All Links Bi-Directional

EXP/IMP	Com	REG1	REG2	REG3	REG4
	DSL				
REG1	DSL				
REG2	DSL				
REG3	DSL				
REG4	DSL				

OK Cancel



New/Edit Trade Process completely revised - 3

- ◆ *Example showing Trade Matrix tab for Market Trade Process*

Edit Trade Process MKTRD-SAME in scenario TRD-DEMO

Edit Name/Description for Trade Process MKTRD-SAME. Or change Set Memberships or Units. Or use Traded Commodities and/or Trade Matrix tabs to change Traded Commodities and/or Trade Matrices.

Item Information
 Scenario: TRD-DEMO Demonstrate assorted types of Trade Processes
 Name, Desc: MKTRD-SAME Market Trade in Diesel (Master) and Gasoline, Same Commodity Name in All Regions

Type of Trade
 Bilateral Trade Market Trade Market Region: REG2

Commodity Type and Naming
 Type: NRG Same Commodity Name in All Regions

Set Memberships, Units **Traded Commodities** **Trade Matrix**

Use Commodity combobox to specify the Name of the Traded Commodity and then use checkboxes to specify the Trade Matrix. TM Same as Master Clear TM Restore TM Check TM Integrity

Commodity: DSL Diesel All Links Bi-Directional

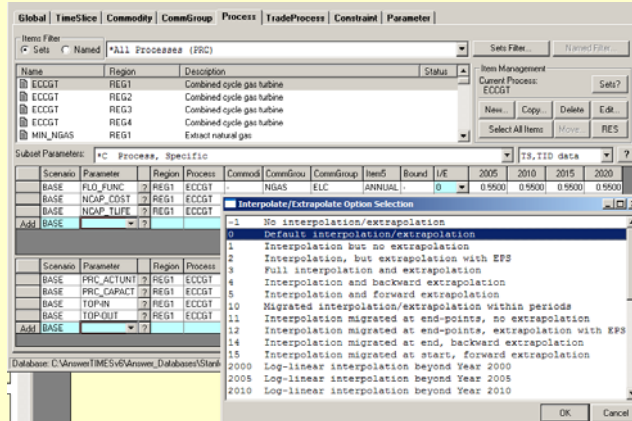
EXP/IMP	Com	REG1	REG2	REG3	REG4
	DSL				
REG1	DSL				
REG2	DSL				
REG3	DSL				
REG4	DSL				

OK Cancel



TIMES interpolate/extrapolate options for TS parameters now handled

- ◆ *New I/E column on Data Screen for TS Data Parameters*
- ◆ *Direct-Cell Edit or View Descriptions to change I/E option code*



Revised Preliminary ANSWER-TIMES User Manual

- ◆ *Table of Contents*
- ◆ *Sections 1-3 (14 pages) provide quick summary*
- ◆ *Remaining sections 4-7 (46 pages) provide additional details, focussing on facilities that differ from ANSWER-MARKAL*



ANSWER-TIMES Status Summary July 2008

- ◆ **Initial ANSWER-TIMES production version now available for evaluation**
 - Contact Ken Noble (noblesoft@netspeed.com.au)
 - Right now VEDA-BE also needed to calculate aggregate results
- ◆ **Preparation of ANSWER-TIMES training course under way**

----- Details -----
- ◆ **All standard TIMES Sets and Parameters in latest v2.6.0 TIMES GAMS code recognized (also some VDA extension parameters)**
- ◆ **Data year – model year independence supported**
- ◆ **“Run Model” enhanced to allow specification of Milestone Years, B and E and also to support GAMS Savepoint/Loadpoint (Basis Save/Restart) enhancement in TIMES GAMS code**



ANSWER-TIMES Status Summary July 2008 – 2

- ◆ **All Home Screen and Data Screen functions operational, except “Import TIMES GAMS DD” facility**
 - “Import TIMES GAMS DD” has been tested with a number of TIMES GAMS DDs, but needs extra work before being made available to users
- ◆ **Process tab facilities enhanced to better handle special needs of TIMES, with new form to specify I/O commodities and PCG**
 - Technology (Process) Items Filters facility available (as for ANSWER-MARKAL)
 - Future enhancement of Process tab facilities anticipated
- ◆ **New/Edit Trade Process form completely revised to simplify handling of Trade Processes that involve trade in multiple commodities, while retaining full generality of naming permitted by TIMES**
- ◆ **All types of TIMES User Constraints are handled**
 - Rule-based Constraints facility available (as for ANSWER-MARKAL)



Future Developments

- ◆ **Results handling: extend TIMES GAMS code and ANSWER-TIMES so that a comprehensive set of aggregated results is calculated and imported into ANSWER-TIMES**
 - To ease burden on new user of coming to grips with TIMES
- ◆ **Tidy up “Import TIMES GAMS DD” facility so it can be made available to users**
 - TIMES GAMS DDs needed for testing integrity and robustness of facility!
- ◆ **Extend Preliminary ANSWER-TIMES User Manual to create a more comprehensive User Manual**
 - Emphasis on user-friendly examples demonstrating assorted TIMES features (e.g. TIMES storage processes)
- ◆ **Develop ANSWER-TIMES “smart” spreadsheets by extending approach used for ANSWER-MARKAL “smart” spreadsheets**
- ◆ **Revisit MARKAL-to-TIMES conversion issue?**



Acknowledgments

- ◆ **Antti Lehtila, VTT Energy Finland, for his extremely generous assistance from 2005 through 2008 in: answering numerous TIMES queries, making enhancements to the TIMES GAMS code, making suggestions that have benefitted various aspects of the ANSWER-TIMES interface**
- ◆ **Uwe Remme, IER Germany, for his generous assistance in answering TIMES queries as far back as Dec. 2004, and for his roles in ANSWER-TIMES presentations in Stanford June 2007, and Brasilia November 2007**
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