

ANSWERv5 Enhancements for the IEA's ETP Model

(Jointly funded by IEA, ETSAP and ABARE)

Ken Noble

ABARE, Australia

ETSAP Annex VIII Vienna Meeting

23-27 June 2003

ABARE

ANSWERv5 Enhancements for IEA's ETP Model

- ◆ *ETP model is a 15 region model, a lot of detail for each region, so is a huge model*
 - e.g. just USA region had 244 energy carriers, 55 end-use demands, 25 emissions, 1864 technologies, 523 ADRATIOs
- ◆ *common naming convention across regions for technologies (and commodities)*
 - eg ESISBFG005 is "Ind. Cogen unit, Iron and Steel, RFG" in each region
- ◆ *common numeric values across regions for parameter instances associated with many technologies*
 - or, eg regional value = common numeric value * regional multiplier, where same regional multiplier applies for many technologies

ABARE

ANSWERv5 Enhancements for IEA's ETP Model

◆ *ANSWER Library Database Approach in 2001*

- Library database information in a separate ANSWER database
- Poor facilities for bulk copying from Library to Local database
- Facilities for × , +, override of Library parameter numeric values at the individual technology level (rather than in bulk)
- Name of child technology in local region may differ from parent in Library

◆ *ANSWER Library Database Approach in 2003*

- Library database information in special _LIBRARY region of Local database
- Bulk copying facilities, eg from _LIBRARY region to local regions
- "Operator Parameter" facilities for × , +, override of _LIBRARY region parameter numeric values affect multiple technologies
- Name of child technology in local region same as parent in _LIBRARY region

ABARE

ANSWERv5 Enhancements for IEA's ETP Model

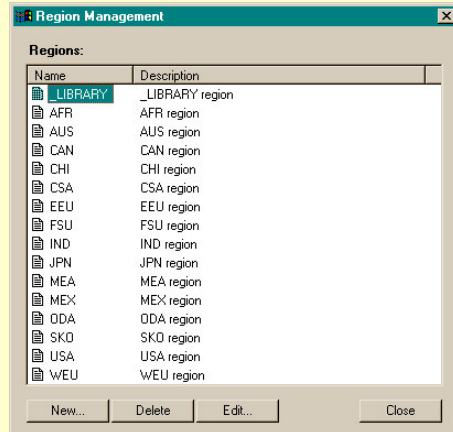
◆ *ANSWER Library Database Approach in 2003 (cont)*

- Name of child commodity in local region same as parent in _LIBRARY region
- Achieving acceptable performance a big challenge even with simplification permitted by assuming child item in local region has same name as parent

ABARE

ANSWERv5 Enhancements for IEA's ETP Model

◆ Special `_LIBRARY` region:

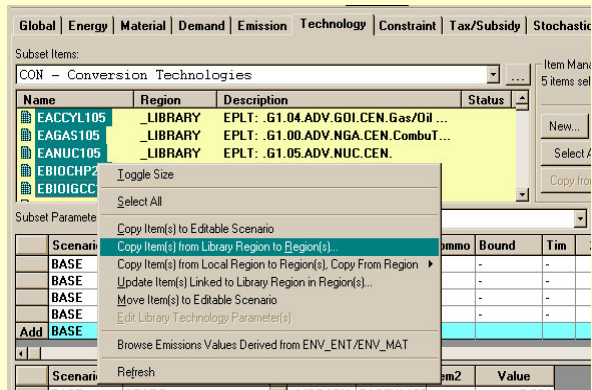


ABARE

ANSWERv5 Enhancements for IEA's ETP Model

◆ Bulk copying facilities from `_LIBRARY` region to local regions

- multi-select on technologies in `_LIBRARY` region

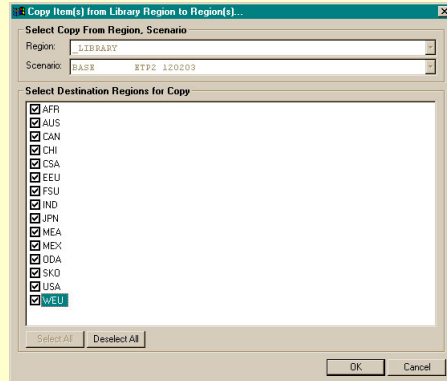


ABARE

ANSWERv5 Enhancements for IEA's ETP Model

◆ Bulk copying facilities from _LIBRARY region to local regions

- multi-select on local regions to be copied to (and click on OK)

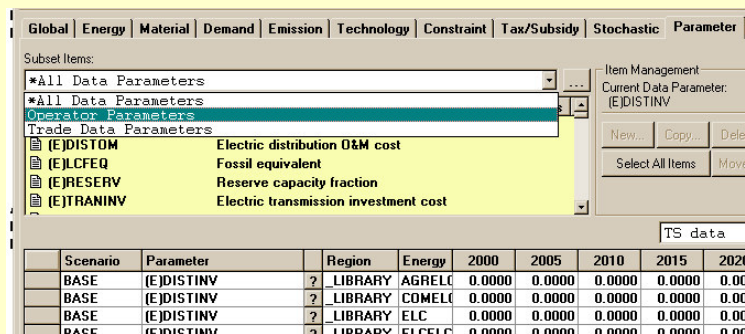


ABARE

ANSWERv5 Enhancements for IEA's ETP Model

◆ “Operator Parameter” facilities for x, +, override of _LIBRARY region parameter numeric values

- new “Operator Parameters” Subset Items setting on Parameter tab



ABARE

ANSWERv5 Enhancements for IEA's ETP Model

- ◆ “Operator Parameter” facilities for x, +, override of `_LIBRARY` region parameter numeric values

- user-defined “Operator Parameters” via New or Edit

Scenario	Parameter	Region	Value
BASE	START_ADDN_CON_EZ	AFR	10.0000

ABARE

ANSWERv5 Enhancements for IEA's ETP Model

- ◆ “Operator Parameter” facilities for x, +, override of `_LIBRARY` region parameter numeric values

- eg Edit `START_ADDN_CON_EZ` to see/alter its definition

ABARE

ANSWERv5 Enhancements for IEA's ETP Model

◆ Result of applying "Operator Parameter" facilities

- eg copy EZCCGT115 in _LIBRARY region to AFR region
(note that START value for AFR = START value for _LIBRARY + 10)

Scenario	Parameter	Region	Technology	Item2	Value
BASE	CAPUNIT	? LIBRAI	EZCCGT115	-	31.5360
L	CAPUNIT	? AFR	EZCCGT115	-	31.5360
BASE	DISCRATE	? LIBRAI	EZCCGT115	-	0.0970
L	DISCRATE	? AFR	EZCCGT115	-	0.0970
BASE	LIFE	? LIBRAI	EZCCGT115	-	30
L	LIFE	? AFR	EZCCGT115	-	30
BASE	OUT(ELC)_TID	? LIBRAI	EZCCGT115	ELC	1.0000
L	OUT(ELC)_TID	? AFR	EZCCGT115	ELC	1.0000
BASE	START	? LIBRAI	EZCCGT115	-	2,015
+ BASE	START	? AFR	EZCCGT115	-	2,025
Add	BASE	?	?		

ABARE

ANSWERv5 Enhancements for IEA's ETP Model

◆ Enhancements that are still in progress, or under consideration

- more extensive bulk copying facilities
e.g. from non-BASE to BASE scenario, from regions to _LIBRARY
- Operator Parameter facility to allow more powerful naming,
e.g. UPS* or HH*
- compatibility/integrity check between _LIBRARY and local regions
- refresh link between _LIBRARY and local regions
- tidy up other loose ends associated with _LIBRARY region concept
- speed up response time (if possible for this huge database)
- template-type ADRATIO definition (under consideration)

ABARE