

The US-EIA SAGE Project: an update

KanORS Consulting Inc.

How SAGE is different from MARKAL

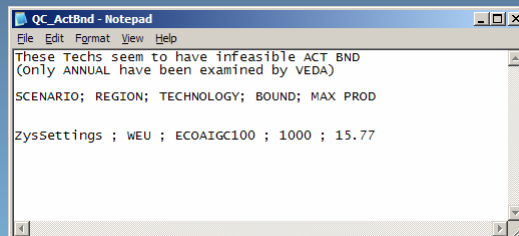
- Time-stepped
- Market Shares
- Tight control of fuel shares in end-use sectors

What's new

- Recalibration to EMEU 2003
- Regional reconfiguration
 - FSU/EEU/CSA to RUS/EEA/BRZ/CSA
- QC routines identified and implemented
- Streamlining of the reporting process

- Oil/Gas extraction and Refinery
- Streamlining Share ADRATIOs

QC: Activity Bound



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QC_ActBnd - Notepad
File Edit Format View Help
These Techs seem to have infeasible ACT BND
(Only ANNUAL have been examined by VEDA)
SCENARIO; REGION; TECHNOLOGY; BOUND; MAX PROD
ZysSettings ; WEU ; ECOAIGC100 ; 1000 ; 15.77
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QC: ADRATIO - LO

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QC_ADR_LO-GT-1 - Notepad
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The following ADRATIOS MIGHT shut down the entire BigSet of Technologies
as the sum of LO shares over the BigSets is > 1
(These have been disabled to ensure a feasible run)

REGION ; ADRATIO ; YEAR ; TOTAL SHARE ; ID

BRZ ; S_TRT_ELC ; 2035 ; 1 ; TRT**_AFV.#---
BRZ ; S_TRT_ETH ; 2035 ; 1 ; TRT**_AFV.#---
BRZ ; S_TRT_FUC ; 2035 ; 1 ; TRT**_AFV.#---
BRZ ; S_TRT_HYB ; 2035 ; 1 ; TRT**_AFV.#---
BRZ ; S_TRT_LPG ; 2035 ; 1 ; TRT**_AFV.#---
BRZ ; S_TRT_MET ; 2035 ; 1 ; TRT**_AFV.#---
BRZ ; S_TRT_NGA ; 2035 ; 1 ; TRT**_AFV.#---
BRZ ; S_MGAS10N ; 2035 ; 1.16 ; MINGAN#_IMPGAN#----
BRZ ; S_MGAS10P ; 2035 ; 1.16 ; MINGAN#_IMPGAN#----
BRZ ; S_MOILupN ; 2035 ; 1.33 ; MINOIN#_IMPOIN#----
BRZ ; S_MOILupP ; 2035 ; 1.33 ; MINOIN#_IMPOIN#----
BRZ ; S_BIOREN1 ; 2035 ; 1.48 ; ---ELCGEO,ELCBIO,ELCSOL,ELCWIN,ELCHYD,ELCBGS,EL
BRZ ; S_HYDREN1 ; 2035 ; 1.48 ; ---ELCGEO,ELCBIO,ELCSOL,ELCWIN,ELCHYD,ELCBGS,EL
BRZ ; S_HYDREN2 ; 2035 ; 1.48 ; ---ELCGEO,ELCBIO,ELCSOL,ELCWIN,ELCHYD,ELCBGS,EL
BRZ ; S_TRT_DEG ; 2040 ; 1.01 ; TRT**_AFV.#---
BRZ ; S_TRT_DMG ; 2040 ; 1.01 ; TRT**_AFV.#---
BRZ ; S_TRT_ELC ; 2040 ; 1.01 ; TRT**_AFV.#---
BRZ ; S_TRT_ETH ; 2040 ; 1.01 ; TRT**_AFV.#---
BRZ ; S_TRT_FUC ; 2040 ; 1.01 ; TRT**_AFV.#---
BRZ ; S_TRT_HYB ; 2040 ; 1.01 ; TRT**_AFV.#---
BRZ ; S_TRT_LPG ; 2040 ; 1.01 ; TRT**_AFV.#---

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QC: ADRATIO - UP

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QC_ADR_LO-GT-UP - Notepad
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The following ADRATIOS WILL result in infeasibilities,
as LO Share/Limit is > UP Share/Limit for the same BigSet/Subset

REGION ; ADRATIO ; YEAR ; SHARE/Lim-LO ; SHARE/Lim-UP ; ID

WEU ; A_MAXNUC ; 2010 ; 2805.736 ; 1000 ; ---ELCNUC-----
WEU ; A_MINNUC ; 2010 ; 2805.736 ; 1000 ; ---ELCNUC-----
WEU ; A_MAXNUC ; 2020 ; 3217.2144 ; 1000 ; ---ELCNUC-----
WEU ; A_MINNUC ; 2020 ; 3217.2144 ; 1000 ; ---ELCNUC-----
WEU ; A_MAXNUC ; 2030 ; 3215.4632 ; 1000 ; ---ELCNUC-----
WEU ; A_MINNUC ; 2030 ; 3215.4632 ; 1000 ; ---ELCNUC-----
WEU ; A_MAXNUC ; 2040 ; 2607.3896 ; 1000 ; ---ELCNUC-----
WEU ; A_MINNUC ; 2040 ; 2607.3896 ; 1000 ; ---ELCNUC-----

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Results: IEO Tables

Table Name: A4_Oil									
Active Unit: Million Barrels per Day									
-Scenario-	Region/Tir	2003	2005	2010	2015	2020	2025	2030	Avg Ann Percent Change (2003-2030)
05_10_28a	AFR	2.9	3.7	4.6	5.4	6.0	6.5	6.9	3.34
05_10_28a	AUS	1.1	1.1	1.2	1.3	1.3	1.4	1.4	0.93
05_10_28a	BRZ	2.2	2.5	2.9	3.3	3.7	4.0	3.7	1.92
05_10_28a	CAN	3.4	3.3	3.6	3.7	3.9	4.0	4.0	0.64
05_10_28a	CHI	5.1	6.8	8.6	10.0	11.7	13.4	15.0	4.04
05_10_28a	CSA	3.5	3.2	3.7	4.2	4.7	5.2	5.3	1.53
05_10_28a	EEA	2.0	1.9	2.3	2.6	2.8	3.0	3.3	1.92
05_10_28a	IND	2.2	2.3	2.8	3.3	3.8	4.2	4.7	2.83
05_10_28a	JPN	5.5	5.1	5.0	5.1	5.1	5.1	5.0	-0.32
05_10_28a	MEA	5.3	6.0	6.7	7.4	8.0	8.6	9.1	2.05
05_10_28a	MEX	1.6	1.9	2.2	2.5	2.7	3.0	3.3	2.72
05_10_28a	ODA	4.6	5.1	6.2	7.2	8.2	9.3	10.3	2.98
05_10_28a	RUS	2.3	2.1	2.3	2.4	2.7	2.7	2.8	0.68
05_10_28a	SKO	2.1	1.7	1.9	2.1	2.3	2.4	2.6	0.70
05_10_28a	USA	19.5	20.2	21.9	23.7	25.3	27.3	28.8	1.45
05_10_28a	WEU	15.2	14.1	14.7	15.1	15.5	16.1	16.8	0.38
	World	78.5	80.9	90.7	99.3	107.7	116.3	123.1	1.68

Apr05_v1_(fuelcat) (Res-U) [Read-Only]									
		2002(PJ)	2005(PJ)	2010(PJ)	2015(PJ)	2020(PJ)	2025(PJ)	2002(Quad)	2005(C)
Fuel		13,216	14,617	17,531	20,451	22,772	24,927		12,526
Commercial		236	328	426	504	565	625		0,224
	Coal	39	47	49	48	46	44		0,037
	Electricity	165	239	315	375	420	460		0,156
	Gas	3	4	21	39	59	80		0,003
	Heat		0	0	0	0	0		
	Oil	29	37	40	41	40	40		0,028
	Renewables & Other (non-Biomass)		1	1	1	1	2		
Electricity Related Losses		183	3,426	4,180	4,914	5,586	6,124		3,301
	Electricity Related Losses	183	3,426	4,180	4,914	5,586	6,124		3,301
Industrial		5,003	5,488	6,214	6,859	7,476	8,118		4,741
	Coal	1,759	1,848	1,893	1,920	1,944	1,950		1,667
	Electricity	846	871	986	1,089	1,183	1,280		0,802
	Gas	824	1,039	1,333	1,624	1,902	2,207		0,781
	Heat		0	0	0	0	0		
	Oil	1,561	1,718	1,991	2,217	2,439	2,673		1,480
	Renewables & Other (non-Biomass)	13	12	11	10	9	7		0,012
Residential		1,486	1,689	2,376	2,950	3,435	3,993		1,408
	Coal	167	100	101	98	94	94		0,158
	Electricity	466	558	922	1,235	1,500	1,768		0,442
	Gas	321	396	704	1,013	1,296	1,633		0,304
	Heat		0	0	0	0	0		
	Oil	532	635	649	603	545	498		0,504
	Renewables & Other (non-Biomass)		0	0	0	0	0		
Consumption									
	A2_DeliveredEnergyConALLSectors								
	A2_DeEnConALLSec(w_ELosses)								
	A2_ElectricPower								
	A2_TotalEnergyConsumption								
	A2_TotEnC								

Streamlining Share ADR RATIOS

BASE YEAR SHARES (%)																	
Segment	Fuel	AFR	AUS	BRZ	CAN	CHI	CSA	EEA	IND	JPN	MEA	MEX	ODA	RUS	SKO	USA	WEU
RH1	RESBIO	94	17	83	1	78	42	2	97	0	0	99	58	0	0	2	5
RH1	RESCOA	1	0	0	0	21	4	3	1	0	0	0	2	3	4	0	3
RH1	RESDST	2	1	0	4	0	2	3	1	0	15	0	1	1	2	38	23
RH1	RESELC	1	32	16	6	0	12	4	0	32	5	1	6	2	10	5	8
RH1	RESGEO	0	10	0	0	0	0	0	0	0	0	0	0	0	0	1	3
RH1	RESHET	0	0	0	0	0	0	28	0	0	0	0	4	60	27	0	13
RH1	RESHFO	0	0	0	0	0	4	0	0	0	0	0	1	1	8	0	1
RH1	RESKER	0	0	0	1	0	0	0	0	28	10	0	14	0	10	2	1
RH1	RESLPG	2	2	0	1	0	0	1	0	10	43	0	8	1	0	1	3
RH1	RESNGA	0	37	1	88	0	36	58	0	29	27	0	7	32	39	51	41
RH2	RESBIO	26			2	3			13			1				2	
RH2	RESCOA	12			0	27			15			0				0	
RH2	RESDST	24			7	1			11			0				8	
RH2	RESELC	0			9	3			5			7				35	
RH2	RESGEO	0			0	0			0			0				1	
RH2	RESHET	0			0	51			0			0				0	
RH2	RESHFO	0			0	0			42			0				0	
RH2	RESKER	0			0	0			0			0				2	
RH2	RESLPG	22			1	8			14			88				7	
RH2	RESNGA	16			81	8			0			5				45	