

EBS & MAED

Hands-on 2: EBS Mauritius Case Study

Learning outcomes

By the end of this exercise, you will be able to:

- 1) Use an official Energy Statistics publication to compile basic energy statistics in EBS
- 2) Identify energy forms and energy flows (from primary energy requirements)
- 3) Identify appropriate data and input them into EBS
- 4) Produce an Energy Balance

Preparation

To complete this exercise, you must have available:

- EBS
- the Mauritius Demo Case empty.ebsz
- the pdf "Mauritius Energy Statistics"

The objective of this exercise is to use real data on energy production, import/export, and consumption to demonstrate use of the EBS tool for energy balance compilation. To do this, we will conduct a real case example, based on the annual Digest of Energy and Water Statistics published by the Central Statistics Office of the Ministry of Finance and Economic Empowerment of the Republic of Mauritius.

We will use 2008 data because there are fewer fuels to enter compared to the more recent balances.

In this exercise the publication is used to compile basic energy statistics using EBS and check whether energy balance corresponds to the published energy balance. The United Nations Statistical Division questionnaire is referred to at points throughout this hands-on exercise as the UNSD questionnaire.

The steps are as follows:

- Check the different sections in the energy section of the publication
 - Energy Balance (to be used for checking our results at the end of the exercise)
 - Primary energy requirements
 - Transformation of energy
 - Final energy consumption



- Identify energy forms and energy flows (from primary energy requirements)
- Use specific energy coefficients (if available)
- Identify appropriate data and input them into EBS
- Check the energy balance (i.e., compare EBS results to the publication)
- Save your work

Open the empty case study

For the exercise, again go to "File" and click "Open". Change "Files of type" to "EBS Country Package File".

Select: Mauritius Demo Case – empty.ebsz

Press "Open"

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The Country name is in the top bar



8 ↓ ✓ ▼ ② E.Quest. E	Balance 2011 E.Balance 2012 E.Ba	ance 2013 E.E	alance 2014	E.Balance	2015 E.B	alance 2016 El	ectricity Stati	stics	
Fuel Id	Fuel Name	Unit			Standar	rd Conversion Fa	actor	Hid	e
CL	Hard Coal	Metric to	ins, thousand	(WSR)				25.8	
AT	Anthracite	Metric to	ins, thousand	(WSR)				26.7	
cc	Coking coal	Metric to	ins, thousand	(WSR)				28.2	
OB	Other bituminous coal	Metric to	ins, thousand	(WSR)				25.8	
Item	Label		2011	2012		2013	2014	2015	2016
CL01	Production								
CL022	Receipts from other sources								
CL03	Imports								
CL04	Exports								
CL051	International marine bunkers								
CL06	Stock changes								
CLGA	Total energy supply			0	0		0	0	0
CLSD	Statistical differences		1	0	0		0	0	0
CL08	Transformation		1	0	0		0	0	0
CL088	Transformation in electricity, CHP	and heat plants							
CL08811	Electricity plants - Main activity pr	oducers							
CL08812	Electricity plants - Autoproducers								
CL08821	CHP plants - Main activity produc	ers							
CL08822	CHP plants - Autoproducers								
CL08831	Heat plants - Main activity produc	ers							
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The Upper part of the screen shows the list of fuels organized by:

- Fuel ID
- Fuel Name
- Unit (standard metric unit)
- Standard Conversion Factor

E.Quest. E	Balance 2011 E.Balance 2012 E.Balance 2013	3 E.Balance 2014	E.Balance 2	015 E.Balance 201	6 Electricity Stati	stics	
Fuel Id	Fuel Name Ur	nit		Standard Convers	ion Factor	Hide	
CL	Hard Coal Me	etric tons, thousand (WSR)			25.8	
AT		etric tons, thousand (26.7	
CC	Coking coal Me	etric tons, thousand (WSR)			28.2	
OB	Other bituminous coal Me	etric tons, thousand (WSR)			25.8	
Item	Label	2011	2012	2013	2014	2015	2016
CL01	Production						
CL022	Receipts from other sources						
CL03	Imports						
CL04	Exports						
CL051	International marine bunkers						
CL06	Stock changes						
CLGA	Total energy supply		0	0	0	0	0
CLSD	Statistical differences		0	0	0	0	0
CL08	Transformation		0	0	0	0	0
CL088	Transformation in electricity, CHP and heat p	plants					
CL08811	Electricity plants - Main activity producers						
CL08812	Electricity plants - Autoproducers						
CL08821	CHP plants - Main activity producers						
CL08822	CHP plants - Autoproducers						
CL08831	Heat plants - Main activity producers						
01.00000	Handalanda A. Ananada						

You may hide fuels that are not of interest to your country.

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E.Quest. E	Balance 2011 E.Balance 2012 E.Bala	ance 2013 E.E	Balance 2014 E.	Balance 2	2015 E.B	alance 2016	Electricity Stati	stics	
Fuel Id	Fuel Name	Unit			Standar	d Conversion	n Factor		Hide
CL	Hard Coal	Metric to	ins, thousand (W	SR)				25.8	
AT	Anthracite		ns, thousand (W					26.7	0
cc	Coking coal	Metric to	ns, thousand (W	SR)				28.2	[
OB	Other bituminous coal	Metric to	ns, thousand (W	SR)				25.8	[
Item	Label		2011	2012		2013	2014	201	5 2
CL01	Production		2011	LOIL		2010	2014	2011	
CL022	Receipts from other sources			-					
CL022	Imports								
CL04	Exports								
CL051	International marine bunkers								
CL06	Stock changes			-					
CLGA	Total energy supply			0	0		0	0	0
CLSD	Statistical differences		1	0	0	-	0	0	0
CL08	Transformation		1	0	0		0	0	0
CL088	Transformation in electricity, CHP a	nd heat plants	-	1			-		
CL08811	Electricity plants - Main activity pro								
CL08812	Electricity plants - Autoproducers								
CL08821	CHP plants - Main activity produce	ers							
CL08822	CHP plants - Autoproducers								
CL08831	Heat plants - Main activity produce	rs							
0100001	Heat plants - main activity produce	40							

Energy flows for selected fuels are visible on the left of the screen. Each fuel has an ID consisting of fuel ID and row number.

♣ ✓ マ § E.Quest.	E.Balance 2011 E.Balance 2012 E.Bal	ance 2013 E B	alance 2014 E B	alance 20	15 E Balance 2016	Electricity Stat	istics	
Fuel Id	Fuel Name	Unit	addree 2014 (2.0		Standard Conversion	,	Hide	
CL	Hard Coal		ns, thousand (WS		olandara oomersit	actor	25.8	
AT	Anthracite		ns, thousand (WS				26.7	
cc	Coking coal		ns. thousand (WS				28.2	
OB	Other bituminous coal		ns, thousand (WS				25.8	
Item	Label		2011	2012	2013	2014	2015	2016
			2011	2012	2013	2014	2015	2010
CL01 CL022	Production							
	Receipts from other sources							
CL03	Imports							
CL04	Exports							
CL051	International marine bunkers							
CL06	Stock changes							
CLGA	Total energy supply				0	0	0	0
CLSD	Statistical differences				0	0	0	0
CL08	Transformation				0	0	0	0
CL088	Transformation in electricity, CHP							
CL08811	Electricity plants - Main activity pr							
CL08812	Electricity plants - Autoproducers							
CL08821	CHP plants - Main activity produc	ers						
CL08822	CHP plants - Autoproducers							
CL08831	Heat plants - Main activity produc	ers						
0.00000	IEC code: 01 - Coals with a gross calorific value			_				

The right side of the screen shows editable cells, with one column for each year. Cells in green can be edited, those in yellow are calculated.

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	E.Balance 2011 E.Balance 2012 E.Balar	re 2013 E F	Balance 2014	F Balance 3	2015 E Balanc	e 2016 Electricity St	atistics	
FuelId	Fuel Name	Unit		E.Dulunce I	-	nversion Factor	Hi	de
CL	Hard Coal	Metric to	ons, thousand (WSR)			25.8	
AT	Anthracite		ons, thousand (26.7	
CC	Coking coal		ons, thousand (28.2	
OB	Other bituminous coal		ons, thousand (25.8	
Item	Label		2011	2012	201	3 2014	2015	2016
CL01	Production							
CL022	Receipts from other sources							
CL03	Imports							
CL04	Exports			-				
CL051	International marine bunkers							
CL06	Stock changes							
CLGA	Total energy supply			0	0	0	0	0
CLSD	Statistical differences		1	0	0	0	0	0
CL08	Transformation			0	0	0	0	0
CL088	Transformation in electricity, CHP an	d heat plants						
CL08811	Electricity plants - Main activity prod	lucers						
CL08812	Electricity plants - Autoproducers							
CL08821	CHP plants - Main activity producer	s						
CL08822	CHP plants - Autoproducers							
CL08831	Heat plants - Main activity producers	p						

The lower part of the screen shows the fuel description. On the right side there is a field to provide notes as needed.

E.Quest. E	E.Balance 2011 E.Balance 2012 E.Bal Fuel Name	Unit		alarice 2	Standard Conver		151105	Hide
CL	Hard Coal		ns, thousand (WS	D)	otandard conver	310111 40201	25.8	
AT	Anthracite		ns, thousand (WS				26.7	
cc	Coking coal		ns, thousand (WS				28.2	
OB	Other bituminous coal		ns, thousand (WS	,			25.8	_
Item	Label		2011	2012	2013	2014	201	5 2016
CL01	Production							
CL022	Receipts from other sources							
CL03	Imports							
CL04	Exports			-			-	
CL051	International marine bunkers							
CL06	Stock changes							
CLGA	Total energy supply				0	0	0	0
CLSD	Statistical differences				0	0	0	0
CL08	Transformation			o i	o	0	0	0
CL088	Transformation in electricity, CHP	and heat plants		· · · ·				
CL08811	Electricity plants - Main activity pr	oducers						
CL08812	Electricity plants - Autoproducers							
CL08821	CHP plants - Main activity produc	ers						
CL08822	CHP plants - Autoproducers							
CL08831	Heat plants - Main activity produc	ers						
01 00000	the state of a descent state of the second							

Note that some energy forms are not available in the list (e.g., wind, solar) – this will be explained later.

Note that fuel names may differ from the Standard International Energy Product Classification (SIEC) names.

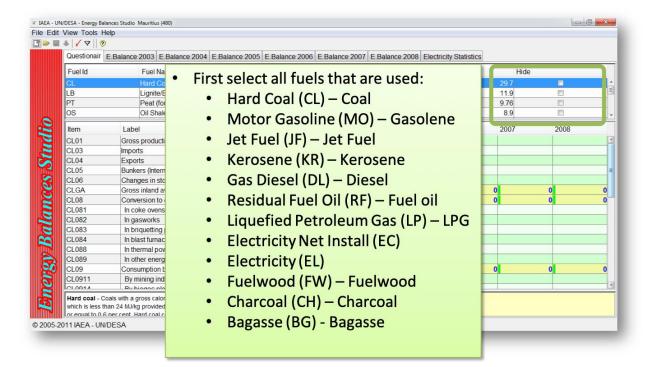
Note that the years you will see on your screen will differ.

Before you start, you must organize your workspace by hiding unused energy forms.

In order to hide unused energy forms, it is possible to use "hide" checkbox and "revert" selection from the View menu, as follows.



Hide used energy forms:



Fuel Id	Fuel Name	Unit	Standa	rd Conversion Factor	Hide		-
	Hard Coal	Metric tons,	Otarida	d Conversion ractor	2 4.7	178	
LB	Lignite/Brown Coal		 When desi 	ired fuels are	2 1.9		_
PT		Metric tons,	which des	in cu rucis ur	5 76		_
OS	Peat (for fuel use) Oil Shale	Metric tons,	selected g	o to menu	3.9	6	_
OK	Coke Oven Coke	Metric tons,	Scietteug	o to menu	23.2	8	_
GK	Gas Coke	Metric tons, Metric tons,	View and	select option	3.2		
BK	Brown Coal Coke						
BC		Metric tons, Metric tons	"Rovert fil	ter selection	11 - 20.7	10	_
BB	Hard Coal Briquettes		Nevertin	Let selection	20.7		_
BP	Lignite-Brown Coal Briquettes	Metric tons,					_
CR	Peat Briquettes		housand (WSR)		23	10 10	_
GR	Crude Petroleum		housand (WSR)				
	Total Refinery Output		housand (WSR)		1.0		
AV	Aviation Gasoline		housand (WSR)		4.3		
MO	Motor Gasoline		housand (WSR)		4 4.3		
NT	Natural Gasoline		housand (WSR)		44.8 92		
JF	Jet Fuel		housand (WSR)		44.1	V	
KR	Kerosene		housand (WSR)		4 4.8	1	_
DL	Gas Diesel		housand (WSR)		4 3.0		
BD	Biodiesel	Metric Tons (\$ 3.8		
BD RF	Residual Fuel Oil	Metric tons, 1	housand (WSR)		4 3.0	V	
Item	Label	200	3 2004	2005 2006	2007	2008	

Revert selection from View menu:



> E	View Tools Help Filter questionna	ir								
	Revert filter selec	tion	lance 2004 E Bala	Ince 2005 E.Balance 2006 E	Balance 200	7 F Balance 2008 F	ectricity Statistics			
	 English commod French commodi 			Unit		Standard Conversio	•	Hide		
	• TJ		• Afte	er selection is	rovor	ted all pr	aviously	29.7	V	
	toe			a selection is	reven	ieu, an pr	eviously			
	ktoe		مامى	cted energy f	orme	will be de	-	9.76		_
	MWvr		3010	cieueneigyi	UTITS	will be de	-	8.9	<u> </u>	
2	low	Gas Coke	مامى	cted, and un	usod f	orms will	ho	28.2		_
3	GK BK	Brown Coa		cicu, and un	uscun		DC	20.2		
3	BC	Hard Coal	مامی 🖁	cted				20.7		-
Stual	BB	Lignite-Bro		licu				20.7		
	BP	Peat Brigu		Metric tons, thousand	WSR)	1		9.76	8	
2	CR	Crude Petr		Metric tons, thousand				42.3		
<u> </u>	GR	Total Refin		Metric tons, thousand				1.0		
balances	AV	Aviation G		Metric tons, thousand				44.3	(m)	
	MO	Motor Gas		Metric tons, thousand				44.3	V	
	NT	Natural Ga	soline	Metric tons, thousand	WSR)			44.8992		
	JF	Jet Fuel		Metric tons, thousand	WSR)			44.1	1	
	KR	Kerosene		Metric tons, thousand	WSR)			44.8		
	DL	Gas Diese		Metric tons, thousand	WSR)			43.0		
	BD	Biodiesel		Metric Tons (WSO)				36.8		
20	RF	Residual F	uel Oil	Metric tons, thousand	(WSR)			43.0	V	
<u>s</u>	Item L	abel		2003	2004	2005	2006	2007	2008	
Energy	Bagasse - The fuel o	btained from the	fibre which remains af	ter juice extraction in sugar cane	processing.					

Activate filter from View menu

FuelId	Fuel Name	Unit		Standard Conversio	n Factor		Hide	
CL	Hard Coal	Metric tons, thousand			and detoi	29.7		
LB	Lignite/Brown Coal	menic tons, mousance	1 (WSR)			29.1		_
PT	Peat (for fuel use)	Note that sel	Action	is now in	vortad			-
os	Oil Shale	Note that set	ection	113 110 00 111	venteu		 ⊽	
OK	Coke Oven Coke							
GK	Gas Coke						2	
BK	Brown Coal Coke	Go to menu	View	and select	ontion		V	
BC	Hard Coal Briquette	do to menu		ind sciect	option		V	_
BB	Lignite-Brown Coal	"Filter questi	ionnai	ro"			V	
BP	Peat Briguettes	The quest	onnai				1	
CR	Crude Petroleum						V	
GR	Total Refinery Output	Metric tons, thousand	d (WSR)			1.0	1	
AV	Aviation Gasoline	Metric tons, thousand	d (WSR)			44.3		
MO	Motor Gasoline	Metric tons, thousand	d (WSR)			44.3		
NT	Natural Gasoline	Metric tons, thousand	d (WSR)			44.8992	V	
JF	Jet Fuel	Metric tons, thousand	d (WSR)			44.1	171	
KR	Kerosene	Metric tons, thousand	d (WSR)			44.8	1	
DL	Gas Diesel	Metric tons, thousand	d (WSR)			43.0	V	_
BD	Biodiesel	Metric Tons (WSO)				36.8		
RF	Residual Fuel Oil	Metric tons, thousand	d (WSR)			43.0		
Item	Label	2003	2004	2005	2006	2007	2008	

> [Filter questionna	ir								
	Revert filter select	tion	anco 2004 E Balanco	2005 E.Balance 2006	E Balanco 200	7 E Balanco 2009 E	loctricity Statistic	~		
	 English commod French commodi 	lity description		Unit		Standard Conversion	n Factor	Hide		
	 TJ toe ktoe MWyr 		1	t option "Fi <mark>f visible fue</mark>				23.7 11.9 9.76 8.9 28.2		
OTHER	GK	Gas Coke	selec	ted ones				28.2	V	
2	BK	Brown Coal	CURE	שוכעות נטווס, נווטעסמווע				20.7		
	BC	Hard Coal E	Briquettes	Metric tons, thousand	(WSR)			20.7	v	
3	BB	Lignite-Brow	vn Coal Briquettes	Metric tons, thousand	(WSR)			20.7		
	BP	Peat Brique	ttes	Metric tons, thousand	(WSR)			9.76	V	
Dulunces	CR	Crude Petro	bleum	Metric tons, thousand	(WSR)			42.3	1	
	GR	Total Refine	ry Output	Metric tons, thousand	(WSR)			1.0		
	AV	Aviation Ga	soline	Metric tons, thousand	(WSR)			44.3		
	MO	Motor Gaso	line	Metric tons, thousand	(WSR)			44.3		
	NT	Natural Gas	oline	Metric tons, thousand	(WSR)			44.8992	v	
3	JF	Jet Fuel		Metric tons, thousand	(WSR)			44.1	1	
	KR	Kerosene		Metric tons, thousand	(WSR)			44.8	(m)	
	DL	Gas Diesel		Metric tons, thousand	(WSR)			43.0	1	
	BD	Biodiesel		Metric Tons (WSO)				36.8	V	
29	RF	Residual Fu	iel Oil	Metric tons, thousand	(WSR)			43.0		
2	Item L	abel		2003	2004	2005	2006	2007	2008	
WINNER	Bagasse - The fuel o	obtained from the fi	bre which remains after j	uice extraction in sugar cane	e processing.					

How to enter data

All inputs into questionnaire should be in natural units. To input the data, you must:

- 1. Select the appropriate fuel under Questionnaire view.
- 2. Provide specific conversion data if available.
- 3. Enter data for different energy flows.
- 4. Repeat these actions for all fuels.



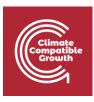
Fuel Id		Unit		Standard Conversi	on Factor	Hide	۵
CL	Fuel Name Hard Coal	Metric tons, thousand (V	VSR)	Standard Conversi	onnacion	29.7	
MO	Motor Gasoline	Metric tons, thousand (V				44.3	
JE	Jet Fuel	Metric tons thousand (V	,			44 1	
KR	Kerosene	Metric tons, thousand (V	VSR)			44.8	
)			43.0	
1. Sele	ect the fuel – bl	ue highlight	.)			47.3	
						1.0	
EL	Total Electricity	Kilowatt-hours, million (H	IWU)			3.6	
FW	Fuelwood	Cubic metres, thousand	(CSR)			9.768	
СН	Charcoal	Metric tons, thousand (V				29.5	
BS	Bagasse	Metric tons, thousand (V	VSR)			7.7221	
Itom	Labol	2003	2004	2005	2006	2007	2008
CL01	Gross production						
CL03	Imports						• 606.5
CL04	Exports						
CL05	Bunkers (International)						
ICI GA	Gross inland availability		ol	0	0	0	0 6
2. Loc	ate appropriate	row and enter		0	0	0	0 609
2. LUC	are appropriate						

Edit specific conversions where data are available.

	specific conversion factors	2005 E.Balance 2006	E.Balance 2007	E.Balance 2008	Electricity Statistic	s		
Fuel Id	Fuel Name	Unit		Standard Convers	ion Factor	Hide	3	
CL	Hard Coal	Metric tons, thousan	d (WSR)			29.7		
MO	Motor Gasoline	Metric tons, thousan	d (WSR)			44.3		
JF	Jet Fuel	Metric tons, thousan	d (WSR)			44.1		
KR	Kerosene	Metric tons, thousan	d (WSR)			44.8		
RF	Residual Fuel Oil	Metric tons, thousan	d (WSR)			43.0		
LP	Liquified Petroleum Gas	Metric tons, thousan	d (WSR)			47.3		
EC	Electricity, net installed capacity of	e Kilowatts, thousand	Kilowatts, thousand (ESR)					
EL	Total Electricity	Kilowatt-hours, millio	n (HWU)			3.6		
FW	Fuelwood	Cubic metres, thousa	Cubic metres, thousand (CSR)					
СН			d (WSR)	29.			5 📖	
BS	Bagasse	Metric tons, thousan	d (WSR)			7.7221		
BS Item CL01 CL03 CL04	Label	2003	2004	2005	2006	2007	2008	
CL01	Gross production							
CL03	Imports							60
CL04	Exports							
CL05	Bunkers (International)							
CL06	Changes in stocks							
CLGA	Gross inland availability		0	0	0	0	0	60
CL08	Conversion to other forms of energy		0	0	0	0	0	609.
CL081	In coke evene							
which is less t	oals with a gross calorific value (moist, ash-free bas nan 24 MJ/kg provided that the coal has a vitrinite n oper cent. Hard coal comprises anthracite and bitur	nean random reflectance gr						



ucria	- ucritaine	Ont	Standard So	Nersion Fe	icioi	_
CL	Hard Coal	Metric tons, thousand (WSR)				29.7
.В	Lignite/Brown Coal	Metric tons, thousand (WSR)				11.9
PΤ	Peat (for fuel use)	Metric tons, thousand (WSR)				9.76
DS	Oil Shale	Metric tons, thousand (WSR)				8.9
Type Use	d for conversion of	2003 20	04 2005	2006	2007	2008
· · · · ·		of all fuels (note that				
uni	ised/hidden fuels	are also visible here)				
Val	ues for default cor	nversion factors are gi	ven			
V GI		recision nuccons are gi	VCII			
	nals with a gross calorific value (mo	st ash-free basis) which is not less than 24	M//kg.or.which i	s less than 2	24 MJ/kg pr	wided that
Hard coal - C	- · · ·	st, ash-free basis) which is not less than 24 reater than or equal to 0.6 per cent. Hard c				



Fuel Id	fuel Name	Unit		Sta	Indard Con	version Fa	ctor	
L	Hard Coal	Metric tons, thou	sand (WS	R)				29.7
В	Lignite/Brown Coal	Metric tons, thou	sand (WS	R)				11.9
Т	Peat (for fuel use)	Metric tons, thou	sand (WS	R)				9.76
S	Oil Shale	Metric tons, thou	sand (WS	R)				8.9
уре	Used for conversion of		2003	2004	2005	2006	2007	2008
	production, exports and stock change of	data						
	import data							
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	all data							
•	Lower part shows a ta		pecifi	ic				
•		fuel n change fror en different g ill use specifi	n yea group <mark>c con</mark>	r to ye s of fu versio	uel		24 MJ/kg pro	



Fuel lo	d	Fuel Name	Unit		5	Standard Conversion Factor					
CL		Hard Coal	Metric tons, thou	Metric tons, thousand (WSR)			* 29.7				
LB		Lignite/Brown Coal	Metric tons, thou	Metric tons, thousand (WSR)					11.9		
PT		Peat (for fuel use)	Metric tons, thou	Metric tons, thousand (WSR)					9.76		
OS		Oil Shale	Metric tons, thou	sand (WS	R)				8.9 -		
Туре	Used for c	conversion of		2003	2004	2005	2006	2007	2008		
A	production	, exports and stock o	change data								
В	import data	a									
С	all data oth	er than production, i	mports, exports and stock cha	-							
	all data								25.958		
		[Enter specific in row "all data		/ersi	on fact	or for	year 2	2008		
Hard c	coal - Coals wi	th a gross calorific ve	 Enter specific in row "all dates and the same the will appear n for coal. Press "OK" to 	ita" time, ext to	in th stai	e uppe ndard c	er part conver	a stairsion f	r "*"		

After editing specific conversion factors, you should save the case.



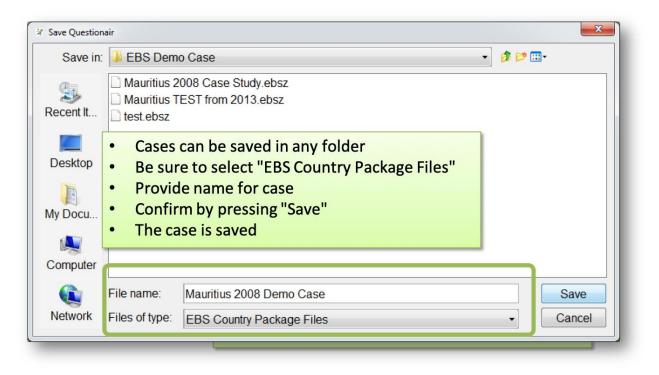
ative config	select optionNew window					* 29.7		
	New window	will appea						
			r					
						44.3		
		Madaia dama dhannan				44.1		
s	Kerosene Residual Fuel Oil	Metric tons, thousand				44.8 43.0		
· · · ·	Liquified Petroleum Gas	Metric tons, thousand				47.3		
		Metric tons, thousand						
		,						
Labe	el la	2003	2004	2005	2006	2007	2008	
1 Gross	s production							
3 Impor	ts							606.
4 Expor	rts							
5 Bunke	ers (International)							
	ges in stocks							
A Gross	s inland availability		0	0	0	0	0	606.
	ersion to other forms of energy		0	0	0	0	0	609.745
81 In co	ka avans							
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Each time you want to save the case, the option to provide case name will appear. You will have to select from the list of cases and confirm by pressing "Save".

The model will not warn you if you have by mistake selected the wrong case name, so pay attention.

It is advisable to select ".ebsz" file type, especially if specific conversion factors are provided.





In this case study, the following must be considered for certain fuel types.

Coal

For coal, the natural unit is thousands of metric tons. Coal is imported; therefore, it is assumed it belongs to Hard Coal type. (High calorific coals are traded internationally, while low calorific coals such as lignite are usually extracted and consumed locally)

The specific conversion factor for coal is on p. 12 of the Mauritius Energy Statistics

- 0.62 toe/ton; this value must be recalculated to have the units TJ/thousand tons
- 1 toe = 0.041868 TJ
- 1000 ton = 1000 * 0.62 toe = 620 * 0.041868 TJ = 25.95816 TJ
- Therefore, the specific conversion factor is 25.95816 TJ/thousand ton

Imports – p. 26, Table 2.2

- Value for 2008 is 606.5 [thousand tons]
- Value to be entered into row CL03

Use for electricity generation – p. 39, Table 3.7

- Value for 2008 is 609.745 [thousand tons]
- Value to be entered into row CL088

Use in final consumption – p. 43, Table 4.3



- Used in Manufacturing (Industry)
- Value for 2008 is 41.672 [thousand tons]

Value to be entered into row CL1214

Independent Data Input

For all subsequent energy forms, you need to enter data independently. Try to research and understand the publication.

Wood

This is a locally produced energy form. The specific conversion factor is on p. 12 of the Mauritius Energy Statistics.

- 1 ton = 0.38 toe (tons of oil equivalent)
- For use in EBS (i.e. in UNSD questionnaire), it must be recalculated into TJ.
- 1 toe = 0.041868 TJ
- 1000 tons = 1000 * 0.38 toe = 380 * 0.041868 TJ = 15.90984 TJ
- Therefore, the specific conversion factor is 15.90984 TJ/thousand tons

Production – p. 24, Table 2.1

- Production is given in thousand tons, while in the UNSD questionnaire the required unit is cubic meters [m³]
- For the time being, the assumption is that we provide data in thousand tons and the specific conversion factor in TJ/thousand ton (the final calculation of the energy balance will be correct as the conversion factor is also adjusted)
- Fuel wood production has to be entered in row FW01 value 20.8 thousand tons

Final consumption – p. 43, Table 4.3

- Fuel wood is used in industry (it is not specified in which industry). Industrial consumption is therefore entered into FW1214, value 1.425 thousand tons
- Fuel wood is used in household sector. Household consumption is therefore entered into FW1231, value 16.726 thousand tons

Bagasse

Domestic primary fuel. Bagasse is a by-product of sugar production, but it is treated as a primary energy form.

The specific conversion factor is on p. 12 of the Mauritius Energy Statistics.

- 1 ton = 0.16 toe (tons of oil equivalent)
- For use in EBS (i.e. in UNSD questionnaire), it has to be recalculated into TJ



- 1 toe = 0.041868 TJ
- 1000 tons = 1000 * 0.16 toe = 160 * 0.041868 TJ = 6.699 TJ
- Therefore, the specific conversion factor is 6.699 TJ/thousand tons

Production

- p. 24, Table 2.1 (values are estimated) Row BS01 value 1540.2
- p. 39, Table 3.7 IPP (sugar factory) Row BS088 value 1300.939 thousand tons

Final consumption

• p. 43, Table 4.3 – only in industry

Note, it is not clear for which purposes it is used in industry.

Charcoal (Secondary)

Charcoal is secondary (transformed) energy form and can be produced locally (from fuel wood) or it can be imported.

There are no data on import of charcoal (p. 26, Table 2.2).

Transformation of energy – there are no data on charcoal production (i.e., no data on transformation of fuel wood to charcoal).

Energy balance (p. 19, Table 1.1) shows transformation data – fuel wood in Other transformation – (822) toe and respective production of charcoal – 400 toe.

The specific conversion factor is on p. 12 of the Mauritius Energy Statistics.

- 1 ton = 0.74 toe (tons of oil equivalent)
- For use in EBS (i.e. in UNSD questionnaire), it has to be recalculated into TJ
- 1 toe = 0.041868 TJ
- 1000 tons = 1000 * 0.74 toe = 740 * 0.041868 TJ = 30.98 TJ
- Therefore, the specific conversion factor is 30.98 TJ/thousand tons

According to the energy balance table, it was assumed that production is equal to consumption (consumption data most probably estimated) and statistical difference is zero.

- Therefore, there is a need to assess consumption of fuel wood for charcoal production and charcoal production.
- For our demo case we assume the same: availability (in this case assumption is that charcoal is imported) equals consumption Row CH01 value 0.543 thousand tons.

Final consumption

- p. 43, Table 4.3 commercial sector Row CH1234 (other) value 0.422 thousand tons;
- residential (household) sector Row CH1231 value 0.119 thousand tones



Motor Gasoline

The assumption is that gasoline is motor gasoline according to the UNSD questionnaire.

The specific conversion factor is on p. 12 of the Mauritius Energy Statistics.

- 1 ton = 1.08 toe (tons of oil equivalent)
- For use in EBS (i.e. in UNSD questionnaire), it has to be recalculated into TJ
- 1 toe = 0.041868 TJ
- 1000 tons = 1000 * 1.08 toe = 1080 * 0.041868 TJ = 45.22 TJ
- Therefore, specific conversion factor is 45.22 TJ/thousand tons

There is no data on stock changes.

No export. It is an imported fuel:

• p. 26, Table 2.2 – Row MO03 – value 108.5 thousand tons

Final consumption:

• p. 43, Table 4.3 (transport only, assume road) – Row MO1221 - value 101.406 thousand tons

Dual Purpose Kerosene (S) – Jet fuel

The assumption is that it is kerosene-type jet fuel (JF) and other kerosene (KR) according to the UNSD questionnaire. Jet fuel is used for aircrafts, kerosene mainly for households

The specific conversion factor is on p. 12 of the Mauritius Energy Statistics.

- 1 ton = 1.04 toe (tons of oil equivalent)
- For use in EBS (i.e. in UNSD questionnaire), it has to be recalculated into TJ
- 1 toe = 0.041868 TJ
- 1000 tons = 1000 * 1.04 toe = 1040 * 0.041868 TJ = 43.54 TJ
- Therefore, the specific conversion factor is 43.54 TJ/thousand tons

Imported fuel:

• p. 26, Table 2.2 – Row JF03 – value 262.2 thousand tons

No data on stock changes.

International bunkers:

 p. 29, Table 2.6 – re-export to international (aviation) bunkers – Row JF052 – value 125.5 thousand tons

Final consumption:



• p. 43, Table 4.3 (domestic aviation) – Row JF1223 – value 131.631 thousand tons

Dual Purpose Kerosene (S) – Kerosene

Imported fuel.

Specific conversion factor (the same as for Jet Fuel) – p. 12

Import

• p. 26, Table 2.2 – Row KR03 – value 5.9 thousand tons

No export.

No stock changes.

Transformation:

• For electricity generation (transformation in electricity) – p. 39, Table 3.7 – Row KR088 – value 2.059 thousand tons

Final consumption:

• In households – p. 43, Table 4.3 – Row KR1231 – value 1.772 thousand tons

Diesel

Gas diesel in UNSD Questionnaire. Imported fuel.

The specific conversion factor is on p. 12 of the Mauritius Energy Statistics.

- 1 ton = 1.01 toe (tons of oil equivalent)
- For use in EBS (i.e. in UNSD questionnaire), it has to be recalculated into TJ
- 1 toe = 0.041868 TJ
- 1000 tons = 1000 * 1.01 toe = 1010 * 0.041868 TJ = 42.29 TJ
- Therefore, the specific conversion factor is 42.29 TJ/thousand tons

Import:

• p. 26, Table 2.2 – Row DL03– value 328.5 thousand tons

International (marine) bunkers:

• p. 29, Table 2.6 – Row DL051 – value 117.3 thousand tons

Transformation:

• Electricity generation (transformation), p. 39, Table 37 (both islands) – Row DL088 – value 1.580 thousand tons



Final consumption (p. 43, Table 4.3)

- Industry Row DL124 value 46.301 thousand tons
- Transport (not indicated mode of transport assume road, but can be also boats) Row DL1221
 – value 152.910 thousand tons
- Agriculture p. 43, Table 4.3 Row DL1232 value 2.241 thousand tons

Fuel Oil (Secondary)

Residual fuel oil (RF) in UNSD Questionnaire. Imported fuel.

The specific conversion factor is on p. 12 of the Mauritius Energy Statistics.

- 1 ton = 0.96 toe (tons of oil equivalent)
- For use in EBS (i.e. in UNSD questionnaire), it has to be recalculated into TJ
- 1 toe = 0.041868 TJ
- 1000 tons = 1000 * 0.96 toe = 960 * 0.041868 TJ = 40.2 TJ
- Therefore, specific conversion factor is 40.2 TJ/thousand tons

Import:

• p. 26, Table 2.2 – Row RF03 – value 291.0 thousand tons

International (marine) bunkers:

• p. 29, Table 2.6 – Row RF051 – value 96.2 thousand tons

Transformation:

 Electricity generation – p. 39, Table 3.7 (for both islands) – Row RF088 – value 167.547 thousand tons

Final consumption:

• Industry, p. 43, Table 4.3 – Row RF1214– value 54.639 thousand tons

LPG (Secondary)

Imported fuel

The specific conversion factor is on p. 12 of the Mauritius Energy Statistics.

- 1 ton = 1.08 toe (tons of oil equivalent)
- For use in EBS (i.e. in UNSD questionnaire), it has to be recalculated into TJ
- 1 toe = 0.041868 TJ
- 1000 tons = 1000 * 1.08 toe = 1080 * 0.041868 TJ = 45.22 TJ
- Therefore, the specific conversion factor is 45.22 TJ/thousand tons



No stock changes

Import

• p. 26, Table 2.2 – Row LP03 – value 63.1 thousand tons

Final consumption (p. 43, Table 4.3)

- Industry (other) Row LP1214 value 4.92 thousand tons
- Transport (assuming road) Row LP1221 value 5.184 thousand tons
- Commercial Row LP1235 value 10.094 thousand tons
- Residential Row LP1231 value 42.394 thousand tons

Hydro and Wind (Primary)

In the UNSD Questionnaire there is a separate part for electricity. Here, generation must be given by primary type of production (public, auto-producers...). The unit in the questionnaire is million kWh (i.e. GWh).

Hydro and wind are used to produce electricity; therefore, they appear in commodity balances as domestic electricity production.

On p. 24, Table 2.1 – electricity production is given in GWh.

On p. 36, Table 3.3 – electricity production is given by primary source, location, and company (two islands, public, IPP...)

Hydro and wind are under CEB (the national electricity company) and the assumption is that those are public generation plants.

Hydro generation should be entered under electricity (EL), row EL015HY – value 108.0 GWh

Wind generation should be entered under electricity (EL), row EL015W – value 0.4 GWh

Electricity

Under the electricity form in the questionnaire only one thermal category exists. Therefore, all thermal power generation must be included as thermal power plants.

The national electricity company is CEB. IPPs produce electricity and sell it to CEB, and part of it is consumed for their own uses (i.e., in this case in sugar factories). Therefore, this generation is placed under auto-producers

- –Row ET015C value 833.7 GWh
- –Row ET016C value 1615.1 GWh



There are values for losses and energy sector own use/consumption in the energy balance (p. 19, Table 1.1, electricity losses are 18.545 ktoe), but not in the rest of the document. There are some data on other consumption and losses (p. 44, Table 4.4) but with no indication of the fuel type.

The electricity sector's own use is also visible only in the energy balance (p. 19, Table 1.1, own use is 3.263 ktoe) and in Table 4.8 there is one part of consumption assigned to CEB (the electricity company).

On p. 48, Table 4.7 there are data on sale to consumers. The same table shows data on electricity sale to industrial consumers which are "different" from the previously given final consumption (probably because of auto-producers)

Electricity consumption – p 48. Table 4.7 (On p. 50, Table 4.8 indicates further division of sales by consumer)

- Domestic Row EL1231, value 652.2 GWh
- Commercial Row EL1235, value 672.7 GWh
- Other Row EL1234, value 40.0 GWh
- Industry
 - The assumption is that the difference between IPP generation and sale to CEB is consumed in the sugar factories (industrial consumption) value 250 GWh (other industry).
 - Industry reported in Table 4.7 is added, so Row EL1214 is 250+688.7 GWh = 938.7 GWh

Note that plants' own consumption is not reported (therefore we cannot fill it in). As this row is calculated in EBS (row EL0927), we enter a value for the net production to have self-consumption of 0.

• Net Production – EL019, value 2557.2

Checking the results

At this point the energy balance studio outputs can be compared to those of the Mauritius Energy Statistics.

It is possible to change the units if needed.



► .Quest. E.Balance 2008 E.	Balance 2009	E.Balance	2010 E.Ba	alance 2011	E.Balance 2	2012 E.Bala	nce 2013	Electricity Sta	tistics		
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Once you have checked the results, you may wish to export them. Click File > Export or Export all.

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