HOW TO GUIDE

Loading wholesale electricity prices into energyPRO





© Copyright and publisher:

EMD International A/S Niels Jernes vej 10 9220 Aalborg Ø Denmark Phone: +45 9635 44444 e-mail: emd@emd.dk web: www.emd.dk

About energyPRO

energyPRO is a Windows-based modeling software package for combined techno-economic analysis and optimisation of complex energy projects with a combined supply of electricity and thermal energy from multiple different energy producing units.

The unique programming in energyPRO optimises the operations of the plant including energy storage (heat, fuel, cold and electrical storages) against technical and financial parameters to provide a detailed specification for the provision of the defined energy demands, including heating, cooling and electricity use.

energyPRO also provides the user with a detailed financial plan in a standard format approved by international banks and funding institutions. The software enables the user to calculate and produce a report of the emissions by the proposed project.

energyPRO is very user-friendly and is the most advanced and flexible software package for making a combined technical and economic analysis of multi-dimensional energy projects.

For further information concerning the applications of energyPRO please visit www.emd.dk.

Terms of application

EMD has made every attempt to ensure the accuracy and reliability of the information provided in this Guide. However, the information is provided "as is" without warranty of any kind. EMD does not accept any responsibility or liability for the accuracy, content, completeness, legality, or reliability of the information contained in this guide.

No warranties, promises and/or representations of any kind, expressed or implied, are given as to the nature, standard, accuracy or otherwise of the information provided in this guide nor to the suitability or otherwise of the information to your particular circumstances. In no event shall EMD be liable for any loss or damage of whatever nature (direct, indirect, consequential, or other) whether arising in contract, tort or otherwise, which may arise as a result of your use of (or inability to use) this guide, or from your use of (or failure to use) the information in this guide.

EMD International A/S, June 2016

Contents

When modelling electricity producing units in energyPRO, it is relevant to know how to download and incorporate electricity market prices into energyPRO. This guide will provide a detailed step-by-step manual on how to download market data from either Nord Pool's or ELEXON's homepage and how to use these data in energyPRO.

Click the bullets below to jump to the relevant chapter.

•	Download wholesale prices from Nord Pool	3
•	Download wholesale prices from ELEXON	6
•	Annex: How to change the comma-separated CSV-file to energyPRO format	12

Download wholesale prices from Nord Pool

Nord Pool is Europe's leading power market and offers a long range of market prices in both day-ahead and intraday markets across nine European countries. This guide will go through the steps in downloading data from Nord Pool's homepage and how to copy the data to a time series in energyPRO.

The first step is to open the website: <u>www.nordpoolspot.com</u>. Next, click "Market data" in the menu, as shown in Figure 1.



Figure 1. Nord Pool's homepage

In the left-hand side, click "Data Downloads" and the page shown in Figure 2 will appear.

						Join Our I	Aarkets	Press	Download Center	Contac	tus Help
NORD POOL			MARKET DATA	NEWS	TRADING	SERVICES	THE PO	WER MARKE	T ABOUT US	Q	MARKET UPDATES
QUICK LINKS	۲								CHOOSE C/	ATEGORY	
	۲	Historical Market Data						AUTOMA	TIC ACTIVATED RES	ERVE (4) 25 (12)	
ELSPOT DAY-AHEAD	Ð	Filter by category						CONSUM CONSUM	IPTION (34) IPTION PROGNOSIS (OW (4)	(6)	
NORD POOL INTRADAY	۲	Filename ♀ Elspot flow EE_2016_Hourly	Type 🗢 xis	Size ≑ 1 MB		Timestan Today 0	ip ▲ 3:25	ELBAS IN ELBAS VI	ITIAL CAPACITY (4) OLUMES (8)		
N2EX DAY-AHEAD	۲	Exchange NO connections_2016_Hourly Elbas volumes_2016_Hourly Consumition proposis E2_2016_Hourly	xis xis xis	3 MB 7 MB 1 MB		Today 0 Today 0 Today 0	3:25 3:25 3:24	ELSPOT (CAPACITIES (36) CAPACITIES FRE (2)		
REGULATING POWER	٠	Elspot Prices_2016_Dally_SEK Elspot Prices_2016_Dally_NOK	xis xis	147 KB 147 KB		Today 0 Today 0	3:24 3:24	ELSPOT I	FLOW FRE (2) PRICES (116)		
POWER SYSTEM DATA	۲	Elspot Prices, 2016, Dally, DKK Elspot Prices, 2018, Dally, EUR NZEX Dav Ahand Auction Prices, 2016, Daily, EUR	xis xis xis	147 KB 143 KB 20 KB		Today 0 Today 0 Today 0	3:24 3:24 3:24	ELSPOT 1 EXCHAN	VOLUMES (8) GE (8)	79)	
DATA DOWNLOADS	۲	NZEX Day Ahead Auction Prices_2016_Daily_GBP Elspot flow LV_2016_Hourty	xis xis	20 KB 1 MB		Today 0 Today 0	3:24 3:24	EXCHAN	GE RATES (4) AL NORDIC CAPACIT	1ES (4)	
MAPS	٠	Elspot capacities EE_2016_Houriy Automatic activated reserve_2016_Houriy Production DK asses 2016_Deally	xis xis	1 MB 4 MB		Today 0 Today 0 Today 0	3:23 3:23 3:23	HYDRO R	COUPLING CAPACIT	TIES (4)	
		Regulating Power FI,2016;Hourty,SEK Regulating Power FI,2016;Hourty,NOK	xis xis	2 MB 2 MB		Today 0 Today 0	3:23 3:23	N2EX BLO	OCK AUCTION PRICE Y AHEAD AUCTION I	, :S (8) PRICES (16)	
		Regulating Power FI_2016_Hourly_DKK Regulating Power FI_2016_Hourly_EUR	xis	2 MB 2 MB		Today 0 Today 0	3:23 3:22	N2EX DA N2EX MA	Y AHEAD AUCTION RKET COUPLING CA	VOLUMES (8) PACITIES (4)	
		Elspot flow LT_2016,Hourly Elspot Prices_2016,Hourly_SEK Elspot Prices_2016,Hourly_NOK	xis xis	2 MB 4 MB 4 MB		Today 0 Today 0 Today 0	3:22 3:22 3:22	PRODUC PRODUC	TION (40) TION PROGNOSIS (4) TING POWER (192))	
		Elspot Prices_2016_Hourly_DKK Elspot Prices_2016_Hourly_EUR	xis xis	4 MB 4 MB		Today O Today O	3:22 3:21	REGULAT	TING PRICES (16) TING VOLUMES (4)		
		Elspot capacities LV_2016_Hourly Regulating Power SE4_2016_Hourly_SEK	xis xis	1 MB 2 MB		Today 0 Today 0	3:21 3:21	SPECIAL SYSTEM NORDE	REGULATION VOLU PRICE FLOW FOR ES BALT (3)	ME (4) TLINK, SWEP	OL LINK AND
		1 2 3 4 5 6 7 _ 30 >						VOLUME WIND PO WIND PO	CHEDULED FLOW (4 OF REGULATING BID WER (40) WER PROGNOSIS (2)))S (4) 0)	

Figure 2. Select from the dropdown menu the type of data you wish to download

Select "Elspot Prices" and "Hourly" in the two drop-down menus and the available data will be filtered, showing only hourly spot prices.

Click on the data you are interested in and begin to download the data. Once downloaded, open the xls.file in a spreadsheet application. You will now see the following data.

elspot-prices_2015_hourly_eur.xls - Excel	Sign in	m – o ×
File Home Insert Page Layout Formulas Data Review View Developer 🗘 Tell me what yo mant to do		۾ <u>Star</u> e
A A A A B W Calibri • 10 A A B B Calibri • 10 A A B A B B Calibri • 10 A A B B A A B B A A B B A A B B A A B B A A B B A A B B A A B B A A B A A B A A A A A A A A A A A A	AutoSum * AT Z Fill * Sort & Find Clear * Filter * Select	20 & *
Clipboard & Font & Alignment & Number & Styles Cells	Editing	^
$A1 \bullet \vdots X \checkmark f_x Elspot Prices in EUR/MWh$		*
A B C D E F G H I J K L M N O P Q R S T U	v w	Х Ү 🔺
1 Elspot Prices in EUR/MWh		
2 Data was last updated 12-01-2016		
3 Hours SYS SE1 SE2 SE3 SE4 FI DK1 DK2 Oslo Kr.sand Bergen Molde Tr.heim Tromsø EE LV LT FRE		
4 01-01-2015 00 - 01 27,48 27,38 27,38 27,38 27,38 27,38 27,38 25,02 27,38 27,4 27,4 27,4 28,16 28,16 28,16 27,38 30,03 30,03		
5 01-01-2015 01-02 26,68 23,37 23,37 23,37 23,37 23,37 23,37 18,29 18,29 27,07 27,07 27,07 28,05 28,05 28,05 23,37 29,59 29,59		
6 01-01-2015 02-03 26,23 19,33 19,33 19,33 19,33 19,33 16,04 16,04 26,93 26,93 26,93 27,98 27,98 27,98 19,33 29,56 29,56		
7 01-01-2015 03-04 25,95 17,66 17,66 17,66 17,66 14,6 14,6 24,62 26,83 26,83 27,94 27,94 27,94 17,66 29,5 29,5 29,5 29,5 29,5 29,5 29,5 29,5		
0 01401-2015 00 5 25 4 10 7 10 7 10 7 10 7 10 7 10 7 10 7 10		
2 01-01-2013 00 - 00 20,24 10,01 10,01 10,01 10,01 10,01 14,01 14,3 20,31 24,3 20,31 20,31 20,01 20,01 20,01 30,02 30,32 30,32 30,32 10,10 11,10 10,100,10		
10 01-01-2013 00-00 20,01 23,23 23,23 23,23 23,23 23,23 10,70 10,70 27,07 20,07 20,03 20,53 23,23 30,31 30,51 11 01,101,101,101 100 100 20,00 20,03 20,53 20,53 20,53 30,51 30,51 11 01,101,101 100 100 20,58 100 100 100 100 100 100 100 100 100 10		
13 01-01-2015 09 - 10 26.74 26.29 26.29 26.29 26.29 26.29 14.04 14.04 26.98 26.98 26.98 28.49 28.49 28.49 26.29 26.29 26.29 26.29		
14 01-01-2015 10 - 11 26.75 26.06 26.06 26.06 26.06 26.06 14.68 14.68 27.06 27.06 27.06 28.5 28.5 28.5 26.06 26.06 26.06		
15 01-01-2015 11 - 12 26,77 25,56 25,56 25,56 25,56 25,56 25,56 16,08 16,08 27,13 27,13 27,13 28,53 28,53 28,53 25,56 25,56 25,56		
16 01-01-2015 12 - 13 26,79 25,91 25,91 25,91 25,91 25,91 25,91 16,08 16,08 27,09 27,09 27,09 28,57 28,57 28,57 25,91 25,91 25,91 25,91		
17 01-01-2015 13 - 14 26,59 25,42 25,42 25,42 25,42 25,42 25,42 16,05 25,42 27,01 27,01 27,01 28,6 28,6 28,6 25,42 25,42 25,42		
18 01-01-2015 14 - 15 27,01 26,78 26,78 26,78 26,78 26,78 26,78 16,04 26,78 26,98 26,98 26,98 28,65 28,65 28,65 26,78 45,01 45,01		
19 01-01-2015 15 - 16 27,62 27,51 27,51 27,51 27,51 27,51 27,51 16,1 27,51 27,51 27,51 27,51 27,51 28,7 28,7 28,7 27,51 45,08 45,08		
20 01-01-2015 16 - 17 28,29 28,32 28,32 28,32 28,32 28,32 28,32 28,32 28,32 28,32 28,32 28,32 28,32 28,32 28,32 28,32 28,58 28,58 28,58 28,58 28,58 46 46		
21 01-01-2015 17 - 18 28,34 28,36 28,36 28,36 28,36 28,36 28,36 26,9 28,36 28,36 28,36 28,36 28,35 28,55 28,55 28,55 28,56 46 46		
22 01-01-2015 18 - 19 28,22 28,18 28,18 28,18 28,18 28,18 28,18 28,18 26,36 28,18 28,18 28,18 28,18 28,18 28,52 28,52 28,52 28,18 46,01 46,01		
23 01-01-2015 19 - 20 27,91 27,81 27,81 27,81 27,81 27,81 27,81 27,81 27,81 23,98 27,81 27,81 27,81 27,81 28,51 28,51 28,51 28,51 27,81 46,02 46,02		
24 01-01-2015 20 - 21 27,54 27,46 27,46 27,46 27,46 27,46 27,46 16,09 16,09 27,46 27,46 27,46 28,63 28,63 28,63 28,63 27,46 45,08 45,08		
25 01-01-2015 21 - 22 27,13 27,06 27,06 27,06 27,06 27,06 14,08 14,08 27,06 27,06 27,06 28,78 28,78 28,78 27,06 31,57 31,57		
26 01-01-2015 22 - 23 26,92 26,4 26,4 26,4 26,4 26,4 12,44 12,44 27 27 27 27 28,66 28,66 28,66 26,4 28,05 28,05		
2/ 11-11-2115 23 - 10 25 90 18,36 18,36 18,36 18,36 18,36 18,36 10,44 0,04 26,83 26,83 26,84 28,49 28,49 28,49 18,36 28,07 28,07		
20 02-01-2015 001-01 24,79 17,78 17,78 17,78 17,78 17,78 17,78 17,18 17,18 17,21,11 26,71 26,71 26,71 26,71 28,16 28,16 28,16 17,78 28,1 28,1 20 02-01-2015 01 0-21 24,79 17,78 17,78 17,78 17,78 17,78 17,78 17,18 17,21 12,11 26,71 26,71 26,71 28,16 28,16 28,16 17,78 28,1 28,1		
27 UC-UI-2UI3 UI-UZ 22,22 3,02 3,02 3,02 3,02 3,02 3,02 -14,03 -14,03 20,41 20,41 20,41 28,22 28,22 28,22 9,62 9,62 9,62		•
eispot-prices_zuta_nouny_eur (+)		
Ready 🛅		+ 100 %

Figure 3. Hourly Elspot prices from Nord Pool.

The data consists of hourly spot prices in different areas, indicated with an area code. Hourly prices for the West Denmark price area can be found under "DK1".

Depending on the settings in your Window's Regional and Language Options in Control Panel, this format is probably not readable by energyPRO. If Windows uses the following date and time format: (dd-mm-yyyy) and (hh:mm), then the data should be divided into three columns: Date (dd-mm-yyyy), Time (hh:mm) and Value, as shown in in Figure 4.

If you are unsure how to change the data format in Excel to the needed data format, please refer to "Annex: How to change the comma-separated CSV-file to energyPRO format" on page 12.

G	<u>ه د</u>	⇒ ÷ <u> </u>			_	_		_	elspot-p	prices_2015_ho	ourly_eur.x	s - Excel					Sig	nin 🖭		٥	×
Fi	le Hom	ne Insert	Page Layout	Formulas	Data	Review	View	Developer	🗘 Tel												Share
Past	L K Cut Copy e ✓ Forma Clipboard	at Painter	Calibri •	11 • A /	A = : - ≡ :	* = * •	 ₩ W Image: M Alignment 	frap Text erge & Cente	Ge er • 🗣	neral • % • •	• Ci 00 • 00 Fo	onditional For rmatting - Ta styl	rmat as Cell able - Styles	En Insert	Delete Format	∑ AutoS ↓ Fill ~ ♦ Clear	Sum * A Z Sort Filte Editing	& Find & r * Select *			~
. 03	2		fr																		^
0.5	-		, , , , , , , , , , , , , , , , , , ,																		
	А	В	С	D	Е	F	G	Н	I	J	к	L	м	N	0	Р	Q	R	s	т	
1	Date	Time	Price																		
2	01-01-2015	00:00	25,02																		
3	01-01-2015	01:00	18,29																		
4	01-01-2015	02:00	16,04																		
5	01-01-2015	03:00	14,6																		
6	01-01-2015	04:00	14,95																		
7	01-01-2015	05:00	14,5																		
8	01-01-2015	06:00	10,76																		
9	01-01-2015	07:00	12,01																		
10	01-01-2015	08:00	12,39																		
11	01-01-2015	09:00	14,04																		
12	01-01-2015	10:00	14,68																		
13	01-01-2015	11:00	16,08																		
14	01-01-2015	12:00	16,08																		
15	01-01-2015	13:00	16,05																		
16	01-01-2015	14:00	16,04																		
17	01-01-2015	15:00	16,1																		
18	01-01-2015	16:00	23,93																		
19	01-01-2015	17:00	26,9																		
20	01-01-2015	18:00	26,36																		
21	01-01-2015	19:00	23,98																		
22	01-01-2015	20:00	16,09																		
23	01-01-2015	21:00	14,08																		
24	01-01-2015	22:00	12,44																		
25	01-01-2015	23:00	0,04																		
26	02-01-2015	00:00	-12,11																		
27	02-01-2015	01:00	-19,63																		
, 28	02-01-2015	02:00	-19,37																		
29	02-01-2015	03:00	-31,41																		-
	-	elspot-pri	ces_2015_hourly	y_eur ene	ergyPR	O format	+						4								Þ
Read	у 🛅																	≝ -	-	+	100 %

Figure 4. Data in a readable format

Once the data is in the correct format, mark the date, time and price columns and copy the data. The data can be pasted into a "Time series" in energyPRO, and you now have the DK1 electricity prices to be used in your model as seen in Figure 5.

C Time	e series			-				_ 0
Name:	I ime series							
Develo	opment of time se	eries in Pl	lanning perio	d				
Time	e series							
Sym	ibol	TS1						
Unit								
	Data	0	TC1 []		^	Conv all		
#	01-01-2015 0	U.00.00	121[]	25.0200		Сору ан		
2	01-01-2015 0	1.00.00		19 2000		Copy selected		
3	01-01-2015 0	2.00.00		16,2900		Paste		
4	01-01-2015 0	3:00:00		14,6000		Delete ell		
5	01-01-2015 04	4:00:00		14,9500		Delete all		
6	01-01-2015 0	5:00:00		14,5000		Delete selected		
7	01-01-2015 0	6:00:00		10,7600				
8	01-01-2015 0	7:00:00		12,0100				
9	01-01-2015 0	8:00:00		12,3900		Time series is in d	aylight saving time	e
10	01-01-2015 0	9:00:00		14,0400		Define location		
11	01-01-2015 1	0:00:00		14,6800				
12	01-01-2015 1	1:00:00		16,0800				
13	01-01-2015 1	2:00:00		16,0800				
14	01-01-2015 13	3:00:00		16,0500		Different time zone	a	
15	01-01-2015 14	4:00:00		16,0400	\sim		-	
Mari	Add line	Dele	te line					
	Weekly basis Date basis			Develo	ping	over the years		8
Commer	nts:							
	•						ОК	Cancel

Figure 5. Data from Nord Pool inserted into a time series in energyPRO

Download wholesale prices from ELEXON

Several types of pricing data for the UK electricity market are centrally available on the website <u>www.elexonportal.co.uk</u>. In order to get access to the market data, one first has to register on the homepage. The link for registering can be found in the right side of the website as shown in Figure 6.



Figure 6. Main page of ELEXON Portal

This opens the following page, where name, phone number, email, etc. have to be entered.

ΕL	E	Portal		site searc	:h Q
HOME	FAQS	USER GUIDE	SEARCH		
	DECISTON			100	
New U	ser Reg	istration		Pleas	e login to get more out of the Portal. onalisation, operational data and more!
Thank you	ı for decidinç	y to create an account	, Please enter your details below.	Login	now. nail Address
Please be to follow t	aware that one of the instruction of the instructio	once you have registe ns in order to activate ide). Your account will	red your account, an activation email will be sent to your account (we need to confirm that you are the or every in one week if it is not activated	rou, and you will need wner of the email	ssword
By registe	ring your ac	count, you acknowled	ge that you accept the website's terms of use.	- R	emember Me 👔 more information
lf you do email pro	not receive vider), you	your activation email can contact the BSC	(it may be incorrectly be seen as "spam" and qua ervice Desk on 0870 010 6950 to arrange a manua	antined by your activation.	g in Forgot Password? Not yet a member?
Your Emai Your usema	I Address	(This Will Be Your ite will be your email a	Username) ddress. Enter it here. Please ensure that this is a va	lid email address - we	Register now
will be sendi Enter you	ing an email Ir email add	to you in order to con Iress	im your registration and unlock your account once i	is created.	
					Financial and Credit
Your First Please ente	And Last N	lames nd last names.			Operational Data
First nam	e/s	Last	ame		Downloads
	-				Applications
Your Chos Please ente	en Passw r and confim	ora n your chosen passwo E character, one low	rd. Your password must be at least 6 characters lo	ng, and must contain	xpand All Collapse All View Site Map
at reast one	OFFERENS		r case character, and one number.		
Your Tele p Please provi parties.	ohone Con ide your tele	tact Number phone number. Like a	information provided here, your number will not be p	assed on to any third	
Enter you	r contact te	elephone number			
Your "Sec If you ever t answer to yo	ret Questic forget your p our secret qu	on" assword or accidenta iestion. Enter a quest	ly lock your account, you will be able to unlock it age on that only you would know the answer to.	in by providing the	
Enter you	ir secret qu	estion			
Your "Sec Please ente	ret Answer	r" to the secret questio	i that you provided above.		
Enter you	ir secret an	swer			
				Crasta Account	

Figure 7. Fill out the required information to register.

You will now have to follow the instructions for registering, and after having successfully registered you should be able to login in the right side of the website in the section "My portal".

After logging in, new submenus will be available in the menu "Portal content" on the right side of the website. There are two price data on this site that could be relevant for an energyPRO model. These are the "System Prices", which covers prices on the balancing market and the other is "Market Index Price", which is calculated by ELEXON and reflects the price of the wholesale electricity in the short-term market. The approach for retrieving these data is the same, and in this document retrieving "Market Index Data" is shown as an example.

In order to download the "Market Index Price" data you will need to open the menu "Financial and credit" and then choose "Market Index Price and Volume" as seen on Figure 8.

			ELEXON.co.uk	ELEXON Portal	BM Reports	TAAMT
ELE	Porta			sit	e search	
HOME FAQS	USER GUIDE	SEARCH	FEEDBACK			
YOU ARE HERE	Content Financia	l and Credit				
VIEW CATEGORY	and Credit les information on previe ad/used.	ous Trading Cha	rges calculated for your BSC Party, Aι	dvice Notices issued and	MY PORTAL Christian Frandsen > My Profile > My Download Basket (e Bookmarks (manage)	<i>mpty)</i> Volume
Title 🛓				Last Modified 🛓	A ELEXON Portal User G	uide
Credit / Credit Aler	ting			-	Residual Cashflow Rea SSP/SBP/NIV	lloca
FAA Forms				- 28/11/2011		
FAA Payment Cale	ndars			19/02/2016		log of
Funding Shares				25/01/2012	PORTAL CONTENT	
Market Financial Inf	formation			25/01/2012	🖻 BMRS API & Data F	Push
Market Index Price	and Volume			03/07/2016	Financial and Cree	dit
Residual Cashflow	Reallocation Cashflow			03/07/2016	Credit / Credit Ale	erting
					System Prices	-
					E C LDSO Data	
					National Grid Data	
					Operational Data	
					Applications	
					C Site Information	
					Expand All Collapse All	View Site Ma

Figure 8. Price data relevant for energyPRO

This brings out the website shown below.

Εl	E	ON Portal					site	e search (
IOME	FAQS	USER GUIDE	SEARCH	FEEDBACK				
YOU ARE	HERE	Content > Financial	and Credit	Market Index Price and	Volume			
IEW ART	ICLE rket Inc odified by Ar link: www.ele	Iex Price and utomatic System Upda xonportal.co.uk/marke	te - 03/07/2016 tindexpricedata	15:00:08	dd Subscripf	ton * A	dd Bookmark	MY PORTAL
eflects th alculated 'ou can v s updated	dex Data (M le price of v l and used i riew Market d automatic	ID) is used in the ca vholesale electricity in the Market Index I Index Data by year ally every day. The r	lculation of the in the short-ter Definition State since 2003 in th nodification tin	e Reverse Price for ea rm market. You can f ement (MIDS). ne spreadsheets belo ne on this article is t	ach Settle find an exp w. The file the last tin	ment Period planation of e for the curr ne that the fi	, and how it is rent year le was	☆ ELEXON Portal User Guide ☆ Residual Cashflow Realloca ☆ SSP/SBP/NIV
fou can v s updated ile	dex Data (M le price of v l and used i view Market d automatic	ID) is used in the ca wholesale electricity in the Market Index I Index Data by year : ally every day. The r	lculation of the in the short-ter Definition State since 2003 in th nodification tir	e Reverse Price for ea rm market. You can f ement (MIDS). ne spreadsheets belo ne on this article is t	ach Settler find an exp w. The file the last tin Size	ment Period planation of e for the curr ne that the fi Date	, and how it is rent year le was Basket	
ile mid_200	dex Data (M le price of v l and used i riew Market d automatic 03.csv	ID) is used in the ca wholesale electricity in the Market Index I Index Data by year : ally every day. The r	Iculation of the in the short-ter Definition State since 2003 in th nodification tir	e Reverse Price for ea rm market. You can f ment (MIDS). ne spreadsheets beloo me on this article is t	w. The file the last tim Size 984 KB	ment Period planation of e for the currine that the fil Date 01/09/2010	, and how it is rent year le was Basket tig Add	
ile indicated indica	dex Data (M le price of v l and used i riew Market d automatic 03.csv 04.csv 05.csv	ID) is used in the ca wholesale electricity in the Market Index I Index Data by year ally every day. The r	Iculation of the in the short-ler Definition State since 2003 in th nodification tir	e Reverse Price for es rm market. You can f ement (MIDS). ne spreadsheets beloo ne on this article is t	w. The file the last tim Size 984 KB 940 KB 884 KR	ment Period planation of e for the currine that the fil Date 01/09/2010 01/09/2010 01/09/2010	, and how it is rent year le was Basket TEO Add TEO Add	A ELEXON Portal User Guide A Residual Cashflow Realloca A SSP/SBP/NIV Iog out PORTAL CONTENT BMRS API & Data Push E Financial and Credit
ile ile ile ind_200 ind_200 mid_200 mid_200 mid_200 mid_200 mid_200 mid_200	dex Data (M e price of w l and used i riew Market d automatic 03.csv 04.csv 05.csv 08.csv	ID) is used in the ca vholesale electricity in the Market Index I Index Data by year : ally every day. The r	loulation of the in the short-ter Definition State since 2003 in th nodification tir	e Reverse Price for es rm market. You can f ment (MIDS). ne spreadsheets below ne on this article is t	ach Settle find an exp w. The fild the last tim Size 984 KB 940 KB 684 KB 685 KB	ment Period planation of e for the currine that the fi Date 01/09/2010 01/09/2010 01/09/2010 01/09/2010	, and how it is rent year le was Basket tig Add tig Add tig Add	
Vou can v supdated pdated. ile mid_200 mid_200 mid_200 mid_200 mid_200 mid_200	dex Data (M e price of v I and used i riew Market d automatic 03.csv 04.csv 05.csv 06.csv 07.csv	ID) is used in the ca vholesale electricity in the Market Index I Index Data by year : ally every day. The r	Iculation of the in the short-ter Definition State since 2003 in th nodification tir	Reverse Price for es rm market. You can f ment (MIDS). es spreadsheets belon es on this article is t	ach Settle find an exp w. The filt the last tin 984 KB 940 KB 084 KB 085 KB	ment Period planation of e for the currine that the fil Date 01/09/2010 01/09/2010 01/09/2010 01/09/2010	, and how it is rent year le was Basket tro Add tro Add tro Add tro Add	LLEXON Portal User Guide A Residual Cashflow Realloca SSP/SBP/NIV
ile ile ile ind_200 ind_200 imi	dex Data (M le price of v l and used i riew Market d automatic 03.csv 04.csv 05.csv 06.csv 07.csv 08.csv	ID) is used in the ca vholesale electricity in the Market Index I Index Data by year ally every day. The r	Iculation of the in the short-ter Definition State since 2003 in th nodification tin	Reverse Price for es rm market. You can f ment (MIDS). te spreadsheets belon me on this article is t	ach Settle find an exp w. The file he last tim Size 984 KB 940 KB 084 KB 085 KB 085 KB 085 KB	ment Period planation of e for the currine that the fil 01/09/2010 01/09/2010 01/09/2010 01/09/2010 01/09/2010	, and how it is rent year le was Basket tro Add tro Add tro Add tro Add tro Add tro Add	LLEXON Portal User Guide Aresidual Cashflow Realloca SSP/SBP/NIV Iog out PORTAL CONTENT BMRS API & Data Push Financial and Credit Credit / Credit Alerting System Prices USO Data
effects the alculated pdated. pdated. mid_200 mid_200 mid_200 mid_200 mid_200 mid_200 mid_200 mid_200 mid_200	dex Data (M le price of v l and used i riew Market d automatic 03.csv 04.csv 05.csv 06.csv 07.csv 08.csv 08.csv	ID) is used in the ca vholesale electricity in the Market Index I Index Data by year ally every day. The r	Iculation of the in the short-ter Definition State since 2003 in th nodification tin	Reverse Price for es rm market. You can f ment (MIDS). te spreadsheets belon me on this article is t	ach Settle find an exp w. The fild the last tin 984 KB 940 KB 940 KB 965 KB 665 KB 665 KB 666 KB	ment Period planation of e for the currine that the fil 01/09/2010 01/09/2010 01/09/2010 01/09/2010 01/09/2010 01/09/2010	, and how it is rent year le was Basket too Add too Add too Add too Add too Add too Add too Add too Add too Add	LEXXN Portal User Guide Aresidual Cashflow Realloca SSP/SBP/NIV Iog out PORTAL CONTENT BMRS API & Data Push Financial and Credit Credit / Credit Alerting System Prices USO Data National Grid Data
<pre>intervent ()) intervent () intervent ()</pre>	dex Data (M le price of v J and used i riew Market d automatic 03.csv 04.csv 05.csv 05.csv 08.csv 08.csv 08.csv 08.csv	ID) is used in the ca vholesale electricity in the Market Index I Index Data by year ally every day. The r	Iculation of the in the short-ter Definition State since 2003 in th modification tin	Reverse Price for es rm market. You can f ment (MIDS). te spreadsheets belon me on this article is t	ach Settle find an exp w. The fild the last tin 984 KB 940 KB 085 KB 085 KB 085 KB 085 KB 086 KB 086 KB 561 KB	ment Period planation of e for the currine that the fil 01/09/2010 01/09/2010 01/09/2010 01/09/2010 01/09/2010 01/09/2010 01/09/2010 01/09/2010 01/09/2010	, and how it is rent year le was Basket top Add top Add top Add top Add top Add top Add top Add top Add top Add top Add	LLEXON Portal User Guide Aresidual Cashflow Realloca SSP/SBP/NIV Dog out PORTAL CONTENT BMRS API & Data Push Financial and Credit Credit / Credit Alerting System Prices UDSO Data National Grid Data Derational Data
<pre>illect thi alculatec 'ou can v s update updated. ile ille inid_200 ini</pre>	dex Data (M e price of v J and used i riew Market d automatic 03.csv 04.csv 05.csv 05.csv 06.csv 07.csv 08.csv 08.csv 09.csv 10.csv	ID) is used in the ca vholesale electricity in the Market Index I Index Data by year ally every day. The r	Iculation of the in the short-ter Definition State since 2003 in th modification tin	Reverse Price for es rm market. You can f ment (MIDS). te spreadsheets belon me on this article is t	ach Settle find an exp w. The fill the last tin 984 KB 940 KB 940 KB 085 KB 085 KB 085 KB 085 KB 086 KB 088 KB 088 KB 088 KB 088 KB	ment Period planation of e for the currine that the fil 01/09/2010 01/09/2010 01/09/2010 01/09/2010 01/09/2010 01/09/2010 01/09/2010 08/01/2011 02/12/2011	, and how it is rent year le was Basket tray Add tray Add	
ile ile ile ile ind_200 ind_200	dex Data (M e price of v J and used i riew Market d automatic 03.csv 04.csv 05.csv 06.csv 07.csv 08.csv 08.csv 08.csv 10.csv 10.csv 11.csv 12.csv	ID) is used in the ca vholesale electricity in the Market Index I Index Data by year : ally every day. The r	loulation of the in the short-ter Definition State since 2003 in th nodification tir	e Reverse Price for es rm market. You can f menet (MIDS). ne spreadsheets below ne on this article is t	ach Settle find an exp w. The fill the last tin 984 KB 940 KB 940 KB 940 KB 665 KB 665 KB 665 KB 665 KB 666 KB 561 KB 933 KB 1 MB	ment Period planation of e for the currine that the fil 01/09/2010 01/09/2010 01/09/2010 01/09/2010 01/09/2010 01/09/2010 01/09/2010 01/09/2010 02/12/2011 22/01/2013	, and how it is rent year le was Basket tag Add tag Add tag Add tag Add tag Add tag Add tag Add tag Add	
effects the alculated fou can v s updated ppdated. ile ile imid_200 mid_200 mid_200 mid_200 mid_200 mid_200 mid_200 mid_200 mid_200 mid_200 mid_200 mid_200 mid_200 mid_200 mid_200 mid_200 mid_200 mid_200	dex Data (M e price of v J and used i riew Market d automatic 03.csv 04.csv 05.csv 06.csv 07.csv 08.csv 08.csv 08.csv 10.csv 11.csv 11.csv 13.csv	ID) is used in the ca vholesale electricity in the Market Index I Index Data by year : ally every day. The r	loulation of the in the short-ter Definition State since 2003 in th nodification tir	e Reverse Price for es rm market. You can f menet (MIDS). ee spreadsheets belor ne on this article is t	ach Settle find an exp w. The fill the last tim 984 KB 984 KB 984 KB 984 KB 885 KB 885 KB 885 KB 885 KB 886 KB 886 KB 886 KB 983 KB 1 MB 1 MB	ment Period planation of e for the currine that the fil 01/09/2010 01/09/2010 01/09/2010 01/09/2010 01/09/2010 01/09/2010 01/09/2010 02/12/2011 02/12/2011 22/01/2013 26/03/2014	, and how it is rent year le was Basket tip Add tip Add tip Add tip Add tip Add tip Add tip Add tip Add tip Add tip Add	
effects the alculated four can v s updated. ile ile imid_200 mid_200	dex Data (M lex price of v l and used i riew Market d automatic 03.csv 04.csv 05.csv 06.csv 06.csv 07.csv 08.csv 10.csv 10.csv 11.csv 11.csv 13.csv	ID) is used in the ca vholesale electricity in the Market Index I Index Data by year : ally every day. The r	loulation of the in the short-ter Definition State since 2003 in th nodification tir	Reverse Price for es rm market. You can f ment (MIDS). te spreadsheets belon me on this article is t	ach Settle find an exp w. The fild the last tin 984 KB 940 KB 94	ment Period planation of e for the currine that the fil 01/09/2010 01/09/2010 01/09/2010 01/09/2010 01/09/2010 01/09/2010 01/09/2010 02/12/2011 02/12/2011 02/12/2011 22/03/2014 21/04/2015	, and how it is rent year le was Basket too Add too Add	LEEXON Portal User Guide Aresidual Cashflow Realloca SSP/SBP/NIV Iog out PORTAL CONTENT BMIRS API & Data Push Financial and Credit Credit / Credit Alerting System Prices DSO Data National Grid Data Applications Site Information Expand All Collapse All View Site Map
effects the adculated fou can v s updated ppdated. ile ile imid_20 mid_20	dex Data (M lex Data (M I and used i iew Market d automatic 03.csv 04.csv 05.csv 06.csv 06.csv 07.csv 08.csv 10.csv 10.csv 11.csv 11.csv 13.csv 14.csv	ID) is used in the ca vholesale electricity in the Market Index I Index Data by year : ally every day. The r	loulation of the in the short-ter Definition State since 2003 in th nodification tin	Reverse Price for es rm market. You can f ment (MIDS). te spreadsheets belon me on this article is t	ach Settle find an exp w. The fild the last tin 984 KB 940 KB 940 KB 940 KB 940 KB 065 KB 065 KB 065 KB 066 KB 561 KB 933 KB 1 MB 1 MB 1 MB 1 MB 1 MB	ment Period planation of e for the currine that the fil 01/09/2010 01/09/2010 01/09/2010 01/09/2010 01/09/2010 01/09/2010 01/09/2010 02/12/2011 22/01/2013 28/03/2014 21/04/2015 04/02/2016	, and how it is rent year le was Basket too Add too Add	 ☆ ELEXON Portal User Guide ☆ Residual Cashflow Realloca ☆ SSP/SBP/NIV Igg out PORTAL CONTENT © BMRS API & Data Push © Financial and Credit © Credit / Credit Alerting © System Prices © LDSO Data © National Grid Data © Operational Data © Operational Data © Site Information Expand All Collapse All View Site Map

Figure 9. Market index Price and Volume

Find the year of data you are interested in and press on the corresponding file. You will now have a comma-separated CSV-file, which you can open with a spreadsheet application e.g. Microsoft Excel. If your spreadsheet application does not separate the data into columns automatically, the format will have a similar format to that shown on the below figure.

	A1		- (***	f_x	Settlement D	ate,Settlem	nent Period	l,Market In	dex Data P	rovider Id	,Market Ind	lex	‡ ×
	А	В	С	D	E	F	G	Н	1	J	K	L	
1	Settleme	t Date,Se	ttlement P	eriod,N	Market Index	Data Provid	ler Id, Mark	et Index V	olume(MV	vh),Marke	t Index Pric	e(£/MWh)
2	01-Jan-10	,1,APXMID	P,680,32.9	1									
3	01-Jan-10	,2,APXMID	P,734.5,33.	25									
4	01-Jan-10	,3,APXMID	P,682.5,32.	07									
5	01-Jan-10	,4,APXMID	P,555.5,31	99									
6	01-Jan-10	,5,APXMID	P,520.5,31	47									
7	01-Jan-10	,6,APXMID	P,750,30.8										
8	01-Jan-10	,7,APXMID	P,532,29.2										
9	01-Jan-10	,8,APXMID	P,267,28.6	5									
10	01-Jan-10	,9,APXMID	P,261,27.5	3									
11	01-Jan-10	,10,APXMI	DP,187.5,2	7.45									
12	01-Jan-10	,11,APXMI	DP,189.5,2	7.38									
13	01-Jan-10	,12,APXMI	DP,174.5,2	7.04									
14	01-Jan-10	,13,APXMI	DP,200.5,2	7.59									
15	01-Jan-10	,14,APXMI	DP,337.5,2	7.68									
16	01-Jan-10	,15,APXMI	DP,1186,26	.27									
17	01-Jan-10	,16,APXMI	DP,868.5,2	5.33									
18	01-Jan-10	,17,APXMI	DP,838.5,2	5.26									
19	01-Jan-10	,18,APXMI	DP,1277,26	.12									
20	01-Jan-10	,19,APXMI	DP,636,26.	59									
21	01-Jan-10	,20,APXMI	DP,563.5,2	5.68									
22	01-Jan-10	,21,APXMI	DP,559.5,2	5.67									
23	01-Jan-10	,22,APXMI	DP,555,26.4	44									
24	01-Jan-10	,23,APXMI	DP,663,28.9	94									-
N	🗘 🕅 mi	d_2010 /	8 / F P	`		1	1		1				▶ 1
Re	ady										00% 🗩		+

Figure 10. Non-separated data from Elexon Portal in Excel

This format is however not readable by energyPRO, so it will have to be changed in order for it to be similar to that shown on Figure 10. If you are unsure how to change the data format in Excel to the needed data format, please refer to Annex: How to change the comma-separated CSV-file to energyPRO format on page 12.

The data must be in the following format.

	🚽 🔊 • (* • • =		~ * *	m	id_2010 (3).c	sv - Microsoft Excel						• <mark>- 2</mark>	x
	File Home 1	Insert Page Layout	Formulas Da	ata Re	view Vie	w					~ (?	- 6	23
	Calibri	~ 11 ~ <i>I</i>		\$\$/	Dat	e *	5			Insert + Delete +	Σ · A Z	A	
Pa	ste 🦪 🖪 ℤ	<u>u</u> - 🗄 - 🌺 -			🖭 - 📆	· % • .00 .00	Formatting *	as Table * S	tyles 🖌 🗒	Format 👻	∠ * Filter	r Select *	
Clip	board 🕞	Font	🗟 Align	ment	Es.	Number 🕞		Styles		Cells	Editi	ng	
	A2	▼ (= <i>f</i> _x	01/01/2010										~
	A	В	С	D	E	F		G	Н	1	J	K	E
1	Settlement Date	Settlement Period			Market In	Market Index Vol	ume(MWh)	Market In	dex Price(£/MWh)			
2	01/01/2010	0:00	D 32.91		APXMIDP		680	32.91					
3	01/01/2010	00:30	0 33.25		APXMIDP		734.5	33.25					
4	01/01/2010	01:00	0 32.07		APXMIDP		682.5	32.07					
5	01/01/2010	01:30	D 31.99		APXMIDP		555.5	31.99					
6	01/01/2010	02:00	0 31.47		APXMIDP		520.5	31.47					
7	01/01/2010	02:30	D 30.8		APXMIDP		750	30.8					
8	01/01/2010	03:00	0 29.2		APXMIDP		532	29.2					
9	01/01/2010	03:30	0 28.65		APXMIDP		267	28.65					
10	01/01/2010) 04:00	0 27.53		APXMIDP		261	27.53					
11	01/01/2010	04:3	0 27.45		APXMIDP		187.5	27.45					
12	01/01/2010	05:00	0 27.38		APXMIDP		189.5	27.38					
13	01/01/2010	05:30	0 27.04		APXMIDP		174.5	27.04					
14	01/01/2010	06:00	27.59		APXMIDP		200.5	27.59					
15	01/01/2010	00:30	27.68		APXMIDP		337.5	27.68					
10	01/01/2010	07:00	26.27		APXMIDP		1186	26.27					
1/	01/01/2010	07:3	0 20.33		APXIMIDP		808.3	20.33					
10	01/01/2010	00.00	20.20				1277	20.20					
20	01/01/2010	00.5	20.12				626	20.12					
20	01/01/2010	09.0	0 20.39				562.5	20.33					
21	01/01/2010	10:00	0 26.67				559.5	26.67					
23	01/01/2010	10:30	25.07				555	26.07					
24	01/01/2010	11:0	28.94		APXMIDP		663	28,94					
25	01/01/2010	11:30	0 29		APXMIDP		635.5	29					-
н	< ▶ ▶ mid_2010) (3) 2				I	4			-		•	I
Re	ady			Aver	age: 13/01/19	37 Count: 52560	Min: 0 Max:	31/12/2010		100% 😑)	÷) .::

Figure 11. Data format applicable in energyPRO

Once the format is correct, mark the date, time and price column and copy it. The prices can now be pasted into a "Time series" in energyPRO. You now have the UK electricity price data in your energyPRO model as can be seen in .

🔿 Tim	ne series	_	_	_		_		_ = 🛛 🔀
Name:	Time series							
Devel	lopment of time s	eries in Pl	anning period	ł				
Tim	ie series		51					
Sur	nhol	TS1						
- Syn								
Unit	t							
#	Date	Û	TS1 []		\sim	Copy all		
1	01-01-2010 0	0:00:00		32,9100	::	Conv selected		
2	01-01-2010 0	0:30:00		33,2500				
3	01-01-2010 0	1:00:00		32,0700		Paste		
4	01-01-2010 0	1:30:00		31,9900		Delete all		
5	01-01-2010 0	2:00:00		31,4700		Delete erletet		
6	01-01-2010 0	2:30:00		30,8000		Delete selected		
7	01-01-2010 0	3:00:00		29,2000		🚧 🔡		
8	01-01-2010 0	3:30:00		28,6500				
9	01-01-2010 0	4:00:00		27,5300		Time series is in da	ylight saving time	
10	01-01-2010 0	4:30:00		27,4500		Define location		
11	01-01-2010 0	5:00:00		27,3800				
12	01-01-2010 0	5:30:00		27,0400				
13	01-01-2010 0	6:00:00		27,5900				
14	01-01-2010 0	6:30:00		27,6800		Different time zone		
15	01-01-2010 0	7:00:00		26,2700	\sim			
	A shall list a	Dalat						
	Add lifte	Delei	le line					
Mov	ve timeseries on			Develo	oping o	ver the years		
	Weekly basis			_				•
	Date basis							
Comme	ents:							
								\sim
È	e						ОК	Cancel

Figure 12. Data from ELEXON Portal inserted into a time series in energyPRO

Annex: How to change the comma-separated CSV-file to energyPRO format

First mark the column with all the data (typical it will be column A). Then go to the menu "Data" and choose "Text to Columns", as shown on Figure 13.

1	1	- (* -	Ŧ		-	-		mid_2010 -	Microsoft	Excel	terre the second of	-	-	- 0	×
	File	Home	Inse	ert Page	e Layou	at 1	Formulas	Data P	leview	View				a 🕜 🗆	@ 13
Get	External Data *	Refrest All *	Pr Pr Conned	onnections operties IR Links tions	2↓ ⊼↓	A Z Z A Sort	Filter Sort & Fil	Vic Clear Vie Reapply Vie Advanced Iter	Text to Columns	Remove Duplicate Da	Data Validati	ion * ysis *	 	93 • #3 5	
	1	41	3	• (**	fx	Setti	ement I	Date, Settlem	e Text to	Columns		der	ld, Market In	dex	\$ ~
1	A Settle	ment D	B ate,Se	C ttlement I	Perio	D d,Mark	E et Inde	F Data Provide	Separa cell int	te the con to separate	tents of one Excel columns.	j Aark	K et Index Pri	L ce(£/MWł	n) =
2 3 4 5 6 7	01-Jan 01-Jan 01-Jan 01-Jan 01-Jan 01-Jan	-10,1,A -10,2,A -10,3,A -10,4,A -10,5,A -10,6,A	PXMID PXMID PXMID PXMID PXMID PXMID	P,680,32.5 P,734.5,33 P,682.5,32 P,555.5,31 P,520.5,31 P,520.5,31	91 3.25 2.07 1.99 1.47 3				For excolumn first and In Wo convertable, column other	ample, you n of full na nd last nam rd, use this t the selec splitting th ns at each character y	can separate a smes into separate le columns. I feature to ted text into a he text into comma, period, or ou specify.				
8	01-Jan 01-Jan	-10,7,A	PXMID	P,532,29.2	2 55				Ø Pre	ss F1 for m	ore help.				
10	01-Jan	-10,9,A	PXMID	P,261,27.5	53										
12	01-Jan	-10 11,	APXMI	DP,187.5,2 DP,189.5,2	27.38										
13	01-Jan	-10,12,	APXMI	DP,174.5,2	27.04										
14	01-Jan	-10,13,/	APXMI	DP,200.5,2	27.59										
15	01-Jan	-10114,	ΔΡΧΜΙ	DP,337.5,2 DP.1186.2	6.27										
17	01-Jan	-10 16,	APXMI	DP,868.5,2	26.33										
18	01-Jan	-10,17,	APXMI	DP,838.5,2	26.26										
19	01-Jan	-10,18,4	APXMI	DP,1277,2	6.12										
20	01-Jan	-1009,	ΑΡΧΜΙ ΔΡΧΜΙ	DP,636,26	.59										
22	01-Jan	-10 21,	APXMI	DP,559.5,2	26.67										
23	01-Jan	-10,22,	APXMI	DP,555,26	.44										
24	01-Jan	-10,23,	APXMI	DP,663,28	.94										
14	4 3 H	mid_2	010	10	10					1		10	15 ¹	-	
Re	ady									Co	ount: 17521		100% -	0	÷ .

Figure 13. Choose column to be separated

This will bring up the "Convert Text to Columns Wizard" as shown below.

🔀 🚼 🤊) - (21 -	-	-		mid_201	0 - Microsof	t Excel						23
File	Home	Insert Pa	age Layout	Formulas	Data	Review	View				۵ () - 6	æ 23
		Connection			🐺 Clear	-	····	📷 Data Vali	dation 👻	🔿 Group 🔹	- 93		
		Properties	Z V Z A		Reappl			📑 Consolid	ate	< Ungroup	- =3		
Get External Data ▼	Refres	h 🖙 Edit Links	Z Sort	Filter	Advance	ed Column	Remove S Duplicate	; 🛃 What-If A	nalysis -	Subtotal			
		Convert Text to (Columns Wizar	d - Step 1	of 3			? ×		Outline	Es.		
	A1	The Text Wizard	has determined	that your da	ata is Delimite	:d.			ider	ld,Market In	dex		\$ ~
A		If this is correct,	choose Next, or	choose the	data type th	at best descril	oes your data	а.	J	K	L		
1 Settle	ement	Original data typ	pe						Mark	et Index Pri	ce(£/M	/Wh)	
2 01-Jan	n-10,1,	Choose the file	type that best o	describes yo	ur data:								
3 01-Jan	n-10,2,	Delimiter	d - Characte	ers such as o	commas or ta	bs separate e	ach field.						
4 01-Jan	n-10,3,	Fixed wi	dth - Fields ar	e aligned in (columns with	spaces betwe	en each field	•					
5 01-Jan	n-10,4,												
6 01-Jan	n-10,5,												
7 01-Jan	n-10,6,												
8 01-Jan	n-10,7,	Preview of sele	cted data:										
9 01-Jan	n-10,8,												
10 01-Jan	n-10,9,	2 01-Jan-10	1t Date, Set 0, 1, APXMIDP,	.680,32.9	/eriod,Ma 91	rket index	Data Pro	vider 1d					
11 01-Jan	n-10,10	301-Jan-10	D, 2, APXMIDP	734.5,33	8.25								
12 01-Jan	n-10,11	4 01-Jan-10 5 01-Jan-10), 3, APXMIDP, 0, 4, APXMIDP,	,682.5,32 .555.5.31	2.07 L.99			-					
13 01-Jan	n-10,12	•						•					
14 01-Jan	n-10,13												
15 01-Jan	n-10,14			Cance		Back	<u>N</u> ext >	Einish					
16 01-Jan	n-10,11		5 36 33	_		_	_						
17 01-Jan	n-10,10,	APXIVIDP,808.	D,20.33	_	_	_	_		-				
18 01-Jan	10,17,	APXIVIDP,030.	2,20.20										
20 01 Jan	10,10,	ADVMIDE 626	20.12										
20 01-Jan	-10,00	APXMIDE 563	5 26 68										
22 01-Jan	n-1021.	APXMIDP.559.	5.26.67										
23 01-Jan	n-1022.	APXMIDP.555	26.44										
24 01-Jan	n-1023.	APXMIDP.663.	28.94										
	mid	010	F 20				1.4						▼ ▶ []
Ready								unt: 17521		100% 🕞	0		÷ •
liceday													• .;

Figure 14. "Convert Text to Columns Wizard"

In step 1, choose "Delimited", if this option is not already chosen, and press "Next".

This will bring you to step 2, where it is possible to choose what kind of delimiter that are used in the cells. Here choose "Comma" under the "Delimiters" as shown below.

2 2 2 . 6	V + y mid_2000 + Microsoft Excel	- 1 Parts - 10	32
File Hor	me Insett Page Layout Formulas Data Review View	- O -	ø 11
Get External Data * A	Convert Text to Columns Waard - Step 2 of 3	As Validation * 4 Group * 9] mosidate 4 Unproup * "] http://www.science.com/ bat.2 Analysis * 13 Subtotal Outline 15	
AI	This screen lets you set the delimiters your data contains. You can see how your text is affer	cted in der Id, Market Index	\$ ×
A 1 Settllemes 2 01-Jan-10 3 01-Jan-10 4 01-Jan-10 5 01-Jan-10 6 01-Jan-10 7 01-Jan-10 8 01-Jan-10 9 01-Jan-10 10 01-Jan-10 11 01-Jan-10 12 01-Jan-10 13 01-Jan-10	The preview bolow. Coloniars Definitors Definitors	K L Market index Price(ÅE/MWh	9
34 01-Jan-10 15 01-Jan-10 16 01-Jan-10 17 01-Jan-10 18 01-Jan-10 19 01-Jan-10 19 01-Jan-10 20 01-Jan-10 21 01-Jan-10 22 01-Jan-10 23 01-Jan-10 24 01-Jan-10 24 01-Jan-10 24 01-Jan-10	14 Cancel < Book		•
Resty	Count 179	121 🛄 🛄 120% 🕞 👘 🔿	

Figure 15. Choose 'Comma' as Delimiters

Now press "Finish" and the wizard will have separated the data into individual columns, as shown on Figure 16.

X	🚽 🤊 -	Ci - 1	Ŧ			-		mid_2010	- M	icrosoft Ex	cel				- 0	×
F	ile	Home	Inser	t Pag	e Layou	ıt	Formulas	Data	Revi	ew Vi	ew				ے 🕥 ۵	æ X3
-		Calib	ri	- 11	- =	=		General	Ŧ	Conc	ditional Form	natting -	¦ater and a sectation and a sectation and a sectation of the sectation of	Σ -	- 44	
	Ľ.	в	JU	- A	<u> </u>	εΞ		<u>₩</u> - %	,	E Form	at as Table	-	Pelete -	a - 2		
Pa	te 🦪		- 3	- A -	4	-	89. v	*.0 .00		Cell S	Styles -		Format -	a S	ort & Find &	
Clip	board G		Font	_	5	Alignm	nent G	Number	G.	-	Styles		Cells	- II	diting	
_	A	1	-	(=	f _x	Sett	lement Da	e		1			1	1		~
	А		В	С		D	E	F		G	Н	I	J	К	L	E
1	Settlen	ien Set	tleme	r Market	In Ma	rket li	n Market Ir	dex Pric	e(£	/MWh)						
2	01-jan	-10	1	APXMI	P	68	0 32,9	L								
3	01-jan	-10	2	APXMI	P	734,	5 33,2	5								
4	01-jan	-10	3	APXMI	P	682,	5 32,0	7								
5	01-jan	-10	4	APXMI	P	555,	5 31,99)								
6	01-jan	-10	5	APXMI	P	520,	5 31,47	7								
7	01-jan	-10	6	APXMI	P	75	0 30,8	3								
8	01-jan	-10	7	APXMI	P	53	2 29,3	2								
9	01-jan	-10	8	APXMI	P	26	7 28,65	5								
10	01-jan	-10	9	APXMI	P	26	1 27,5	3								
11	01-jan	-10	10	APXMI	P	187,	5 27,4	5								
12	01-jan	-10	11	APXMI	P	189,	5 27,38	3								
13	01-jan	-10	12	APXMI	P	174,	5 27,04	L .								
14	01-jan	-10	13	APXMI	P	200,	5 27,5)								
15	01-jan	-10	14	APXMI	P	337,	5 27,68	3								
16	01-jan	-10	15	APXMI	P	118	6 26,2	7								
17	01-jan	-10	16	APXMI	P	868,	5 26,3	3								
18	01-jan	-10	17	APXMI	P	838,	5 26,20	5								
19	01-jan	-10	18	APXMI	P	127	7 26,12	2								
20	01-jan	-10	19	APXMI	P	63	6 26,55)								
21	01-jan	-10	20	APXMI	P	563,	5 26,68	3								
22	01-jan	-10	21	APXMI	P	559,	5 26,6	7								
23	01-jan	-10	22	APXMI	P	55	5 26,44	L .								
24	01-jan	-10	23	APXMI	P	66	3 28,94	L .								-
	► H	mid 20	10 🏄	2	20	COF	r									▶ □
Rea	dy												100)% —		-+ .;

Figure 16. The column has now been separated

Note: If the "Region and Language" settings in Windows are using comma as the decimal symbol, then Excel will not recognize the UK prices as numbers. There are several ways to fix this. However, one of the easiest is to mark the cells with the prices. Then open "Replace" under "Find & Select". In this window write: "." in the "Find what" field, and in "Replace with" write: "," and then press "Replace all". Excel will then search for all the dots and replace them with commas in the selected cells, and Excel will now recognize the prices as numbers. Alternatively, you can change the decimal symbol to dot in the "Region and Language" settings in Windows "Control Panel".

The next step is to change the date and time formats to the format that energyPRO needs. One way of doing this is by first changing the format of the date. The date should be changed to what Excel refers to as Short Date. First mark the column with the "Settlement Date" then in the "Home" tab of Excel choose the number format dropdown menu and press "Short Date" as shown on Figure 17.

X	📙 🧐	- 0	• -			-	mid_	2010	- Microsoft Excel					×
	File	Hom	ne Inser	rt Page	Layout	Formulas	Data	э	Review View				۔ 😮 ۵	₽ X3
	<u> </u>	C	alibri	· 11 ·	= =				 Conditional I 	Formatting 👻	¦ater and a set a	Σ·Α	7 Å	
	lii 📭	-	B / U	- A A	A A ≣ ≣ ≣ ₫ ₫ -		AB	r l	General	e -	🌁 Delete 🔻	💽 - 🛛		
P	Paste 🛷 🔛 - 🖄 - <u>A</u> -			\$\$/~~	12	3	No specific format		📰 Format 🔻	Sort & Find 8				
Clipboard 🖾 Font 🗔		Alignr	lignment 🛛 🖬			Number		Cells	Edit	ting				
A1 •		<i>f</i> ∗ Sett	lement Da	12	2	Settlement Date								
	(A	L I	В	С	D	E	िया	2	Currency	1	J	К	L	E
1	Settle	men	Settleme	r Market Ir	Market I	n Market Ir	ą		Settlement Date					
2	01-ja	n-10	1	APXMIDP	68	0 32,9	- 16	37	Accounting					
3	01-ja	n-10	2		734,	5 33,2		1	Settlement Date					
4	01-ja	n-10	3	APXMID	682,	5 32,0			Short Date					
5	01-ja	n-10	4	APXMIDP	555,	5 31,9			Settlement Date					
6	01-ja	n-10	5	APXMID	520,	5 31,4			Long Date					
7	01-ja	n-10	6	APXMIDP	75	0 30,			Settlement Date					
8	01-ja	n-10	7	APXMIDP	53	2 29,			-					
9	01-ja	n-10	8	APXMIDP	26	7 28,6	(V)).	Lime Settlement Date					
10) 01-ja	n-10	9	APXMIDP	26	1 27,5	·	9	Settlement Bate					
11	l 01-ja	n-10	10	APXMIDP	187,	5 27,4	07		Percentage					
12	2 01-ja	n-10	11	APXMIDP	189,	5 27,3	-/(0	Settlement Date					
13	01-ja	n-10	12	APXMIDP	174,	5 27,04	17		Fraction					
14	↓ 01-ja	n-10	13	APXMID	200,	5 27,5	12	2	Settlement Date					
15	5 01-ja	n-10	14	APXMIDP	337,	5 27,6		2	Scientific					
16	i 01-ja	n-10	15	APXMIDP	118	6 26,2	10	Ĩ	Settlement Date					
17	7 01-ja	n-10	16	APXMIDP	868,	5 26,3			Tend					
18	8 01-ja	n-10	17	APXMIDP	838,	5 26,2	AB	С	Settlement Date					
19	01-ja	n-10	18	APXMID	127	7 26,1				_				
20) 01-ja	n-10	19	APXMIDP	63	6 26,5		<u>M</u> or	re Number Formats					
21	l 01-ja	n-10	20	APXMIDP	563,	5 26,68	3							
22	2 01-ja	n-10	21	APXMIDP	559,	5 26,6	7							
23	01-ja	n-10	22		55	5 26,44	1							
24	01-ja	n-10	23		66	3 28,94	1							
14	• • •	mid	2010 2		C25	r								
Se	elect dest	inatio	n a Ave	rage: 40354,	97607 Co	unt: 17521	Min:	4017	9 Max: 40543 Sum:	586842062	⊞ □ □ 100	% —		-(+) .:

Figure 17. Date selection in Excel

Now the date is the right format, and now the time will have to be changed. The time column is the column called "Settlement Period". Here the daily settlement periods are referred to as numbers. Each settlement period is 30 minutes. energyPRO needs the start of each of these periods instead of the period number. Therefore write the starting time (as hh:mm) of the first two periods instead of their number, and then select both of them. Now double left click with the mouse on the small black square in the bottom right of the selection as shown below. This will copy the new format all the way down.

	- (v - +	1.1	mid_2010	0 - Mic	losoft Excel				-0	si 80 🍋	C.
File	Hune Inset	Page Layout Formulat	Data	Revie	e Ven					0	1.11
Paste Classes	A Cattor Ra- B Z U I - D- rd S First	- 11 - = = = = = = A' A' = = = = = = = ▲ - = = = = = = = Algement = =	Cuntom 19 - % 14 - 19 Number		E Condition Format a Cell Style	nal Formatting * o Table * o *	Probant Probant Delete Cells	Э	27 Son & There	And & lefect +	
	82 •	- £ 00:00:00									1
4	A	B C	D	3	F.	G	H	1	1.0	×	1
1 50	ttlement Date Set	fement Period Market In N	Aarket In-N	Market	Index Price	e(ÄE/MWh)					- Fi
2	01-01-2010	00:00 PXMIDP	680	32,	91						
3	01-01-2010	CO:30 PXMIDP	734,5	33,	25						
4	01-01-2010	3 APXMIDP	682,5	32,	07						
5	01-01-2010	4 APXMIDP	555,5	31,	99						
6	01-01-2010	5 APXMIDP	520,5	32,	47						
7	01-01-2010	6 APXMIDP	750	30	1,8						
8	01-01-2010	7 APXMIDP	532	25	1,2						
9	01-01-2010	8 APXMIDP	267	28,	65						
10	01-01-2010	9 APXMIDP	261	27,	53						
11	01-01-2010	10 APXMIDP	187,5	27,	45						
12	01-03-2010	11 APXMIDP	189,5	27,	38						
13	01-01-2010	12 APXMIDP	174,5	27,	04						
34	01-01-2010	13 APXMIDP	200,5	27,	59						
15	01-01-2010	34 APXMIDP	337,5	27,	68						
16	01-01-2010	15 APXMIDP	1186	26,	27						
17	01-01-2010	16 APXMIDP	868,5	26,	33						
18	01-01-2010	17 APXMIDP	\$38,5	26,	26						
19	01-01-2010	18 APXMIDP	1277	26,	12						
20	01-01-2010	19 APXMIDP	636	26,	59						
21	01-01-2010	20 APXMIDP	563,5	26,	68						
22	01-01-2010	21 APXMIDP	559,5	26,	67						
23	01-01-2010	22 APXMIDP	555	26,	44						
24	01-01-2010	23 APXMIDP	663	28,	94						
	# mid 2010	A4.47044070	194.0		-	141			-	1	2
Ready	10101	Average 01500 C	ount 2 M	inci i	Aar 0.30.00	Sum 0.30.00	1000	100% (-	> 1) (-51

Figure 18. Double-click to copy the data all the way down

Now the date and time are in the right format for use in energyPRO, now the wanted price column will have to be moved to the right of the time as described earlier.

Please notice, that you can find more information on how to use energyPRO in the How to Guides, User's Guide and tutorials on EMD's website:

http://www.emd.dk/energypro/



Niels Jernes vej 10 · 9220 Aalborg Ø · Denmark tel.: +45 9635 4444 · e-mail: emd@emd.dk · www.emd.dk