

# "Либерализацията на енергийния пазар: възможности за енергийни услуги, енергиен мениджмънт, енергийна ефективност"

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ЗВМ ЕООД

## Съдържание

- ✓ Новият закон за енергийната ефективност,  
Директиви
- ✓ Цени
- ✓ Енергийни услуги – възможности, примери
- ✓ Изисквания на ENTSO\_E от 01.01.2015
- ✓ Въпроси

# Новият закон за енергийната ефективност

**Задължени лица:**

**Търговци на енергия (електро, топло, газ, течни, твърди) – от 75 GWh свалено на 25 GWh;**

**Собственици на сгради за обществено обслужване в експлоатация с РЗП над 500 m<sup>2</sup>, а от 09.07.2015 г. – над 250 m<sup>2</sup>;**

**Собственици на промишлени системи (ПС) с годишно потребление на енергия над 3000 MWh**

**Системи за външно изкуствено осветление в населени места са над 20 000 жители.**

# Новият закон за енергийната ефективност

Някои неясни моменти:

Как АУЕР ще установява размера на продажбите (без транспорта)?!

Как ще се определят задълженията след като няма механизъм за контрол на продажбите?!

Няма възможност за прехвърляне на енергийни спестявания м/у незадължени лица!

На кого се издават сертификатите: реципиента на ЕЕ мерки, финансиралият мерките, изпълнителят на мерките, ...?!

А задълженията по стария закон? Остават ли?

# Малко директиви и регламенти

## Директива 2010/31/EU of 19/05/2010 за енергийното потребление на сградите (преработена)

Транспониране от страните членки до 2 години след влизане в сила  
(Юли 2012)

Член 9: сгради с почти нулево потребление на енергия, страните членки трябва да осигурят:

- (a) до 31 Декември 2020, всички нови сгради да бъдат с почти нулево потребление на енергия ; и
- (b) след 31 Декември 2018, новите сгради, използвани за публична дейност или публична трябва да бъдат с почти нулево потребление на енергия

## Малко директиви и регламенти

**Директива 2010/31/EU of 19/05/2010 за енергийното потребление на сградите (преработена)**

**Почти нулевото потребление на енергия изисква:**

**използването на значително ниво ВЕИ интегрирани в сградите;  
(а енергийните спестявания в мрежите от намалени загуби при пренос и разпределение?!)**

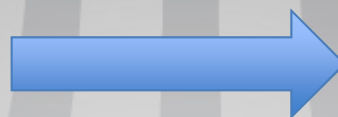
**интегрирани EMS;**

**Нови бизнес отношения потребител/клиент – доставчик/снабдител**

# Малко директиви и регламенти

Директива 2010/31/EU създава коренно различна бизнес среда за **ВСИЧКИ** участници на пазарите на енергия

Продажби на енергия



Развитие на енергийни услуги

## Малко директиви и регламенти

Регламент (ЕС) № 714/2009 относно условията за достъп до мрежата за трансграничен обмен на електроенергия

Регламент (ЕС) 1227/2011 относно интегритета и прозрачността на пазара за търговия на едро с енергия

**REMIT, Implementing Act 7 януари 2015, deadline, 7 октомври 2015**

Регламент(ЕС) № 543/2013 а представяне и публикуване на данни на пазарите за електроенергия

**ETR - Electricity Transparency Regulation, 4 януари 2015**

EMIR – European Market Infrastructure Regulation

MiFiD II – Markets in Financial Instruments Directive

CRD IV - Capital Requirements Directive IV

MAD II/ MAR - Update to Market Abuse Directive



# REMIT

**REMIT Table 1 (Standard Trades) – Part 1**

Field Number	Field Name (in TRUM)	Comment
1	ID of the market participant/counterparty	Our ID
2	Type of ID used in field 1	As in the CEREMP
3	Trader ID as identified by the Organised Market Place	Do we have this?
4	ID of the other market participant or counterparty	Their ID
5	Type of code used in field 5	This is also from the CEREMP!
6	Reporting Entity ID	Which RRM?
8	Beneficiary of the party in field 1	When trading as agent
10	Trading capacity of the party in field 1	Agent or Principal
11	Buy/Sell Indicator	See TRUM for guidance
12	Initiator/Aggressor	Where do you get this from?
21	ContractID	Provided by OMP or counterparties
22	Contract Name	Determined by OMP
23	Contract Type	See TRUM for guidance
24	Energy Commodity	Gas or power?
25	Fixing Index or reference price	
26	Settlement Method	Cash or physical
27	Organised Market Place ID/OTC	MIC code of exchange/broker
28	Contract Trading hours	When the contract trades
29	Last trading date and time	
30	Transaction time stamp	To the millisecond (for on venue)
31	Transaction ID	This is the UTI
32	Linked Transaction ID	Use for spark spread etc.
33	Linked Order ID	Do we have this?
34	Voice Brokered	

# REMIT

## REMIT Table 1 (Standard Trades) – Part 2

35	Price	Per unit
36	Index Value	Relative value e.g. Platts + 2bp
37	Price Currency	Can also be a percentage
38	Notional Amount	See TRUM
39	Notional Currency	
40	Quantity/Volume	In this trade/order
41	Total Notional Contract Quantity	Number of units in the contract
42	Quantity Unit	For both 40 and 41.
43	Termination Date	Early terminations
44	Option Style	European/ Asian etc
45	Option Type	Call, put or other
46	Option Exercise Date	
47	Option Strike Price	
48	Delivery Zone or point	EIC code
49	Delivery Start Date	Multiple
50	Delivery End Date	Multiple
51	Duration	1e Hour, Week etc
52	Load Type	Baseload, peak etc
53	Days of the week	
54	Load Delivery Intervals (Time)	Multiple
55	Delivery Capacity	1,1,1,etc
56	Quantity Unit	For delivery capacity
57	Price/Time Interval Quantity	For 54 and 55
58	Lifecycle Information	New/Modify/Cancel/Error

# REMIT

## REMIT Table 2 (Non Standard Trades) – Part 1

Field Number	Field Name (in TRUM)	Comment
	No trader ID	
11	Contract ID	
12	Contract date	Agreed by the counterparties
13	Contract type	
15	Price or price formula	Fixed or formula
16	Estimated notional	Currently not mandatory
18	Total notional contract quantity	Estimated total volume
19	Volume optionality capacity	Units per time delivery interval
21	Volume optionality	Variable/Fixed/Minmax/Complex
22	Volume optionality frequency	Daily/Monthly etc
23	Volume optionality intervals	e.g. Jan-Mar, Apr-Jun
24	Type of index price	Fixed/Simple Index/Complex Formula
24	Load type	Baseload/Peak/Off peak/Block/Shape/gas Day
25	Fixing index	Could be a list
26	Fixing index types	Spot/forward etc ...
27	Fixing index sources	e.g. Argus.
28	First fixing date	
29	Last fixing date	
30	Fixing frequency	Daily/weekly etc.
31	Settlement method	Physical, cash, both

„Либерализацията на енергийния пазар: участници, прогнози, добри европейски практики“, София, 23 Юни 2015 г.

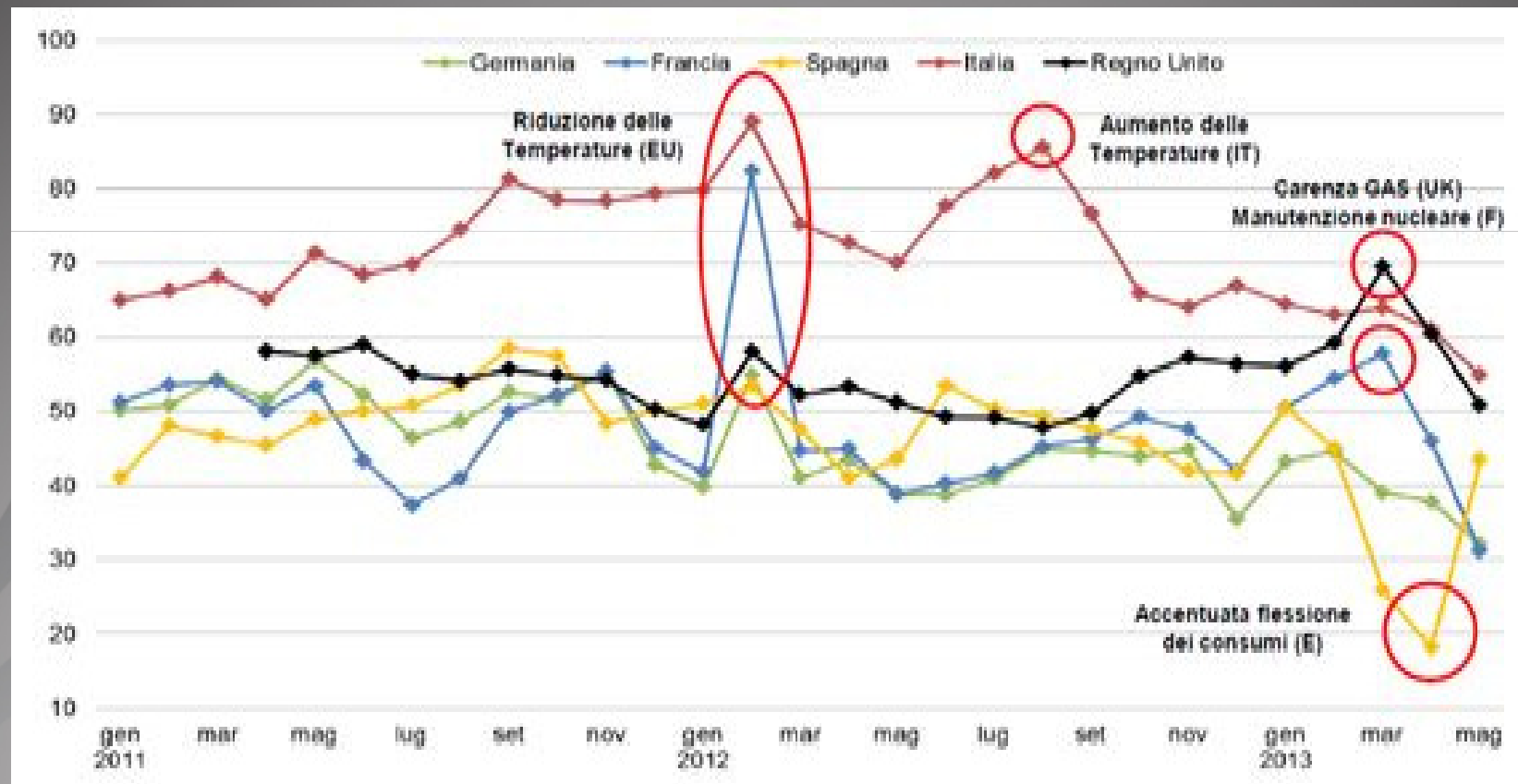
# REMIT

## REMIT Table 2 (Non Standard Trades) – Part 2

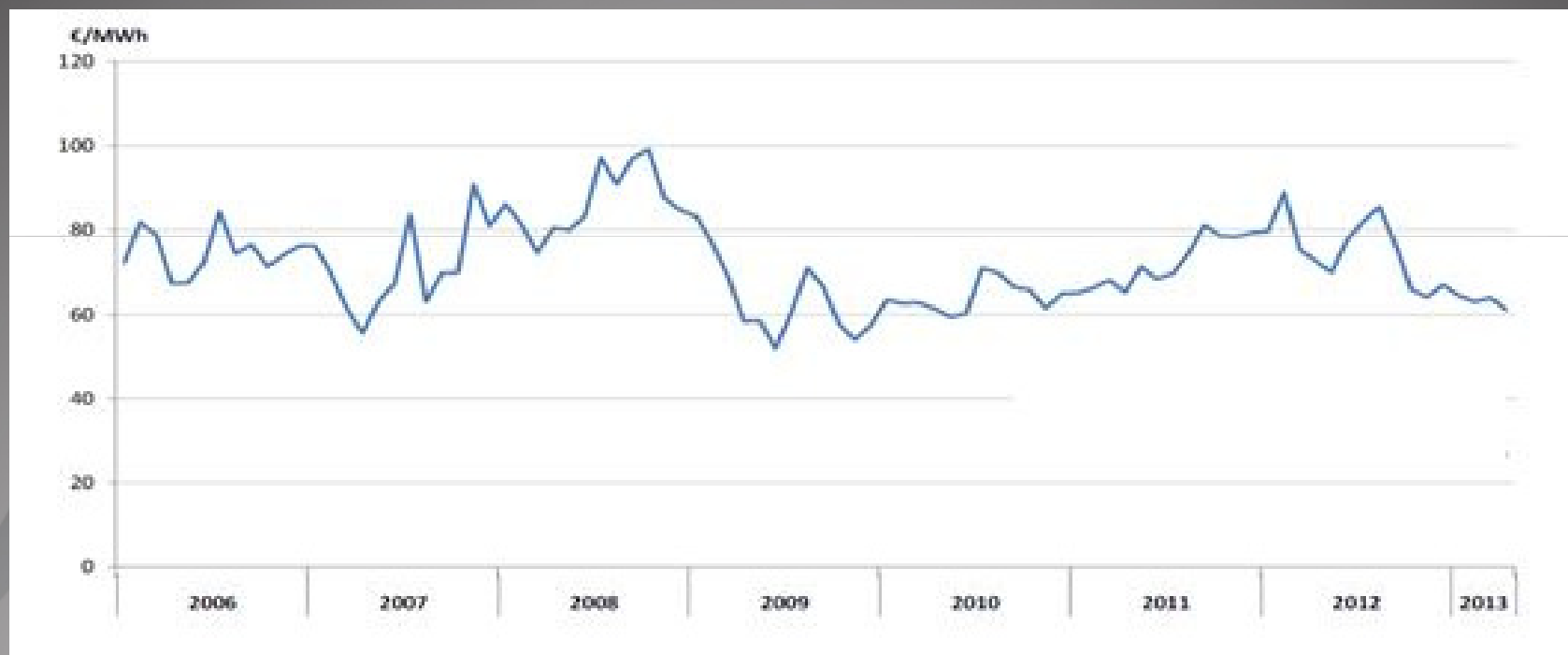
Field Number	Field Name (in TRUM)	Comment
32	Option style	European, Asian
33	Option type	Call, put
34	First option exercise date	
35	Last option exercise date	
36	Option exercise frequency	Daily, weekly etc.
37	Option strike index	Can be multiple
38	Option strike index type	Spot/forward etc
39	Option strike index source	
40	Option strike price	
41	Delivery point(s) or zone(s)	EIC Code(s)
42	Delivery start date	

Field	Description
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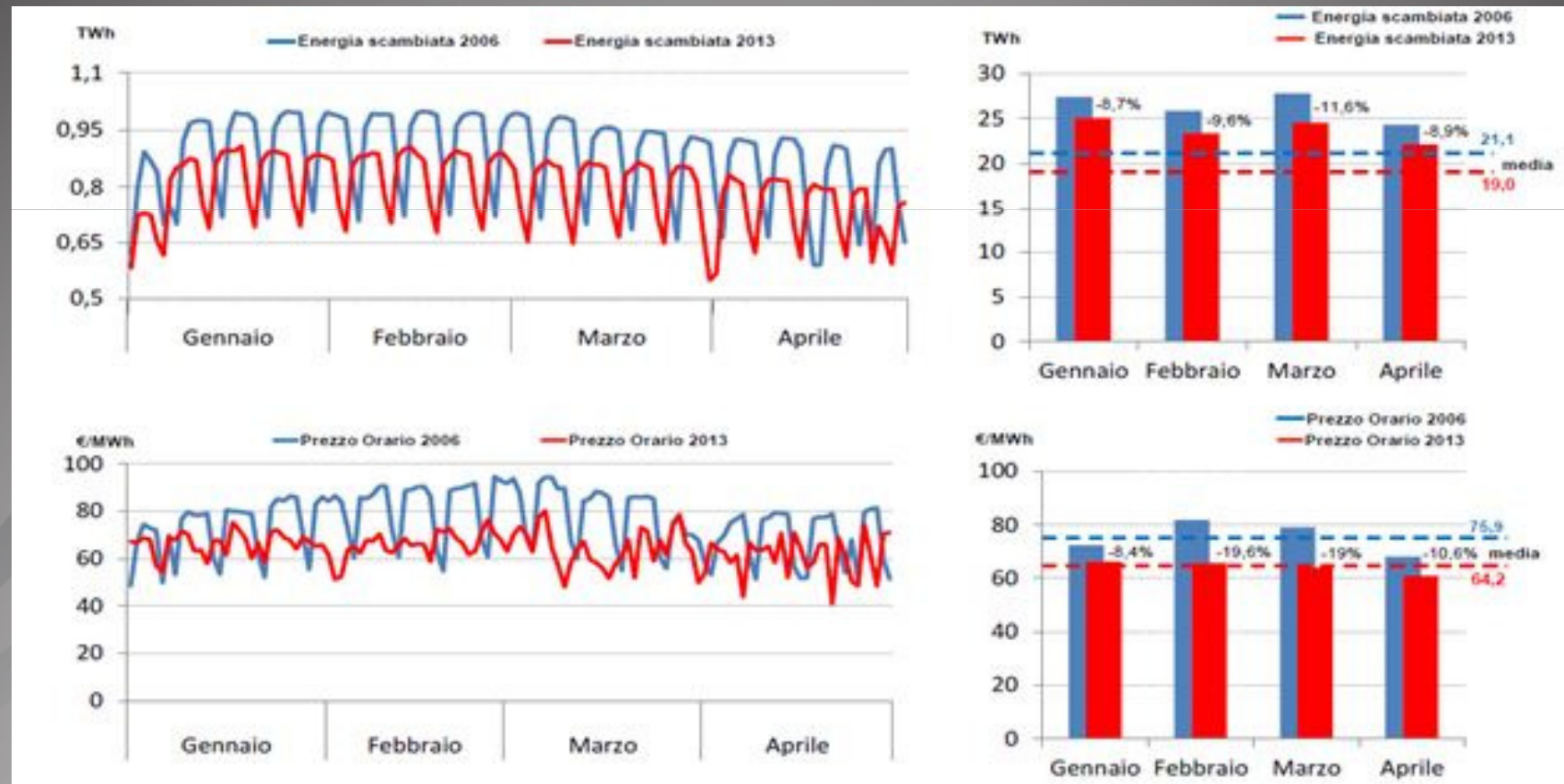
# Цени: влияещи фактори



# Цени: влияещи фактори



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# Енергийни услуги

## Прогнозиране, графици

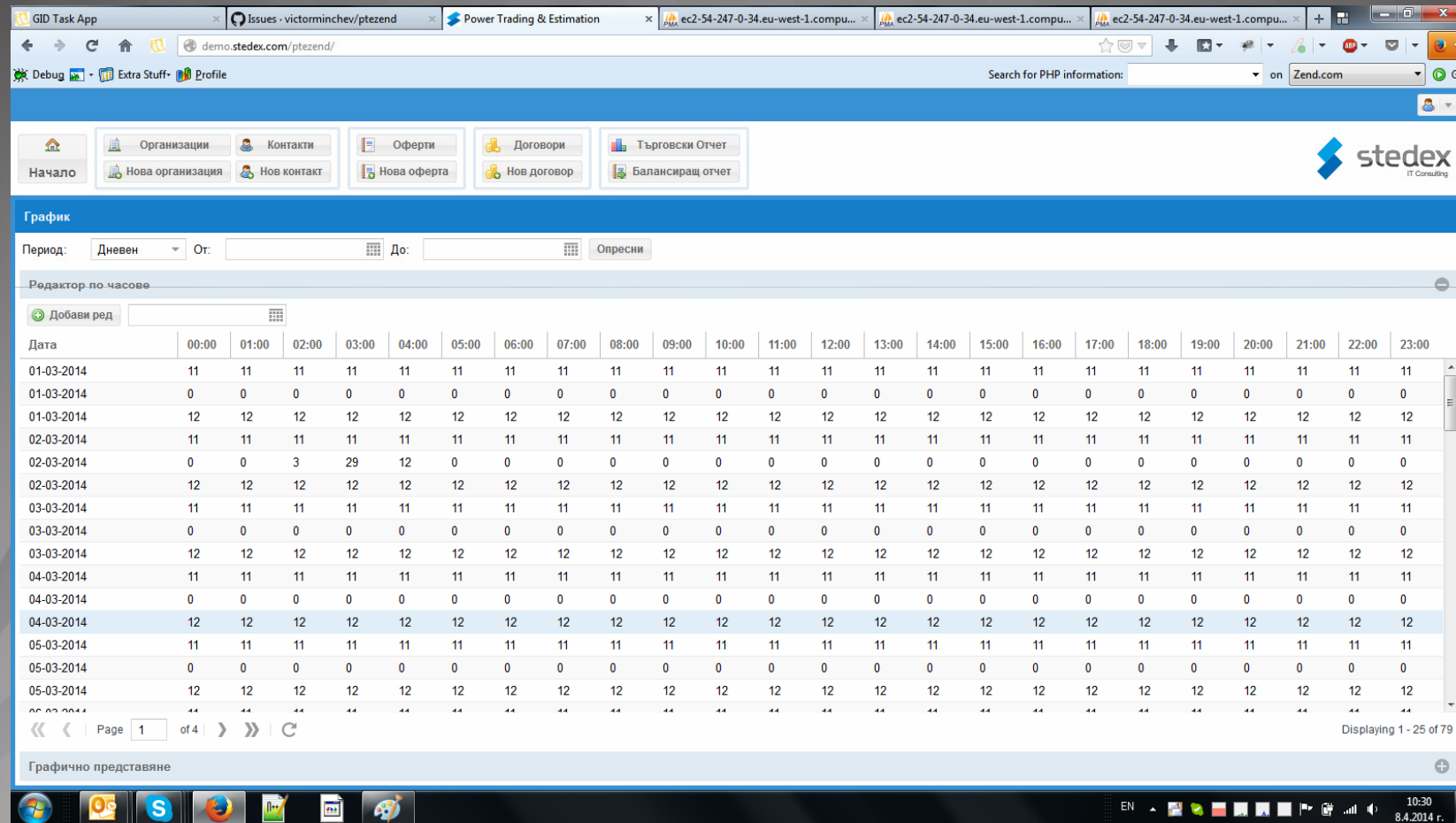


„Либерализацията на енергийния пазар: участници, прогнози, добри европейски практики“, София, 23 Юни 2015 г.



# Енергийни услуги

## Прогнозиране, графици



The screenshot shows a web browser window displaying a Stedex IT Consulting application. The browser tabs include "GID Task App", "Issues - victorminchev/ptezend", "Power Trading & Estimation", and several "ec2-54-247-0-34.eu-west-1.compu..." tabs. The application URL is "demo.stedex.com/ptezend/".

The application interface features a navigation menu with buttons for "Начало", "Организации", "Контакти", "Оферти", "Договори", "Търговски Отчет", "Нова организация", "Нов контакт", "Нова оферта", "Нов договор", and "Балансиращ отчет". The Stedex logo is visible in the top right corner.

The main section is titled "График" (Chart) and includes a "Период:" dropdown set to "Дневен" (Daily), "От:" and "До:" date pickers, and an "Опресни" (Refresh) button. Below this is a "Редактор по часове" (Hourly Editor) section with a "Добави ред" (Add row) button and a grid for editing data.

Дата	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
01-03-2014	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
01-03-2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01-03-2014	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
02-03-2014	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
02-03-2014	0	0	3	29	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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03-03-2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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04-03-2014	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
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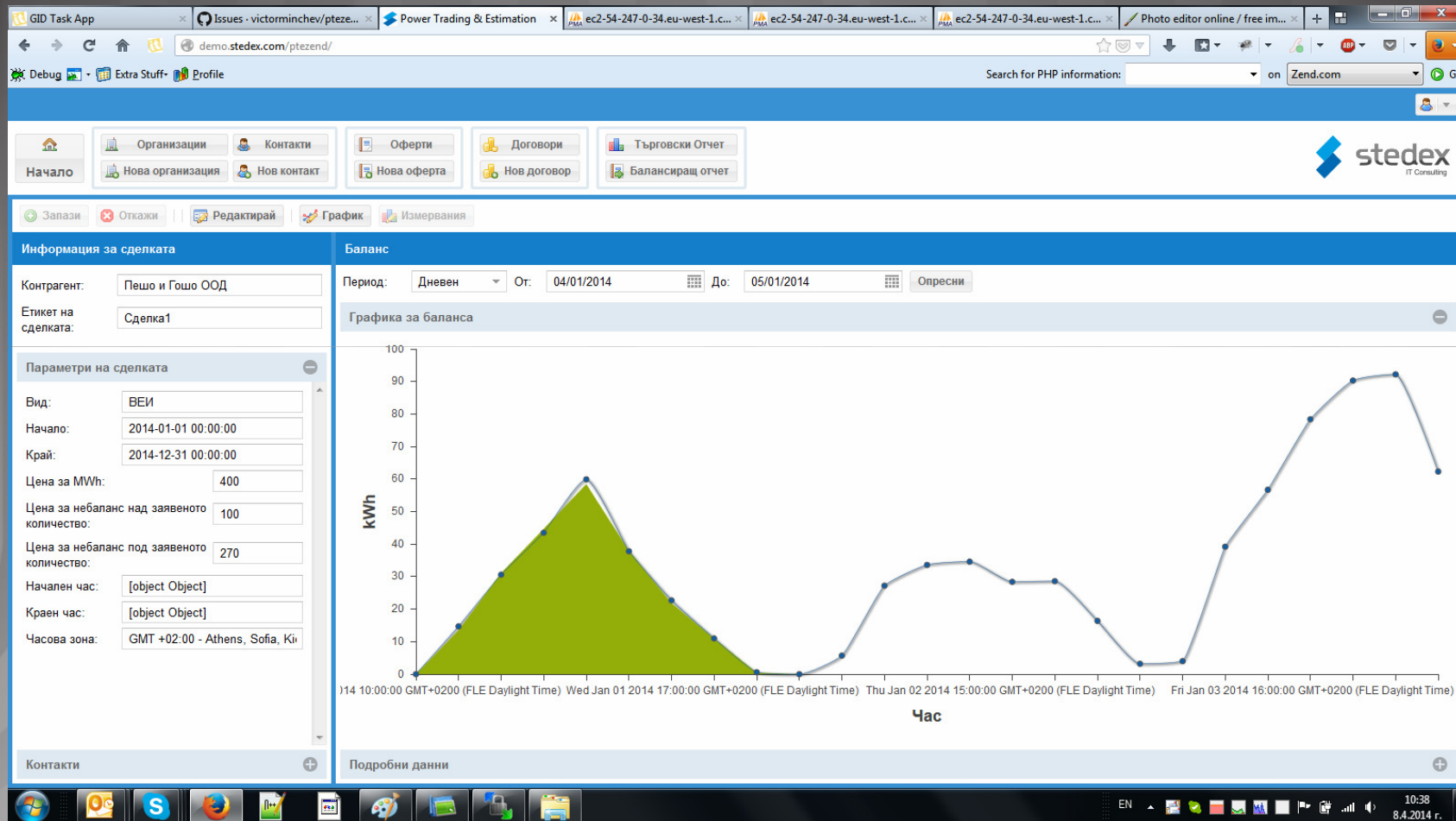
Navigation: Page 1 of 4. Displaying 1 - 25 of 79.

Графично представяне

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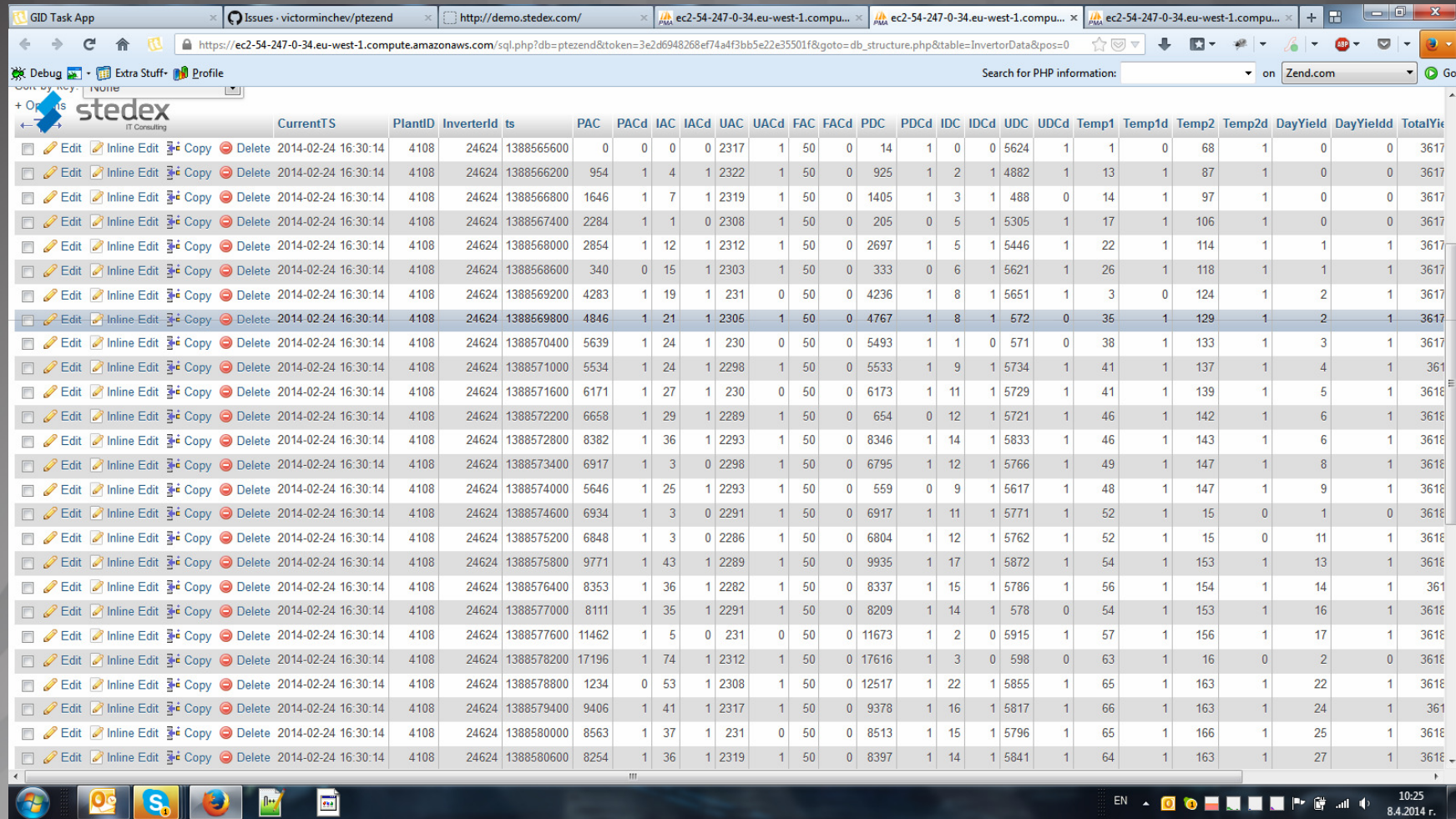
# Енергийни услуги

## Прогнозиране, графици



# Енергийни услуги

## Прогнозиране, графици



CurrentTS	PlantID	InverterId	ts	PAC	PACd	IAC	IACd	UAC	UACd	FAC	FACd	PDC	PDCd	IDC	IDCd	UDC	UDCd	Temp1	Temp1d	Temp2	Temp2d	DayYield	DayYieldd	TotalYield
2014-02-24 16:30:14	4108	24624	1388565600	0	0	0	0	2317	1	50	0	14	1	0	0	5624	1	1	0	68	1	0	0	3617
2014-02-24 16:30:14	4108	24624	1388566200	954	1	4	1	2322	1	50	0	925	1	2	1	4882	1	13	1	87	1	0	0	3617
2014-02-24 16:30:14	4108	24624	1388566800	1646	1	7	1	2319	1	50	0	1405	1	3	1	488	0	14	1	97	1	0	0	3617
2014-02-24 16:30:14	4108	24624	1388567400	2284	1	1	0	2308	1	50	0	205	0	5	1	5305	1	17	1	106	1	0	0	3617
2014-02-24 16:30:14	4108	24624	1388568000	2854	1	12	1	2312	1	50	0	2697	1	5	1	5446	1	22	1	114	1	1	1	3617
2014-02-24 16:30:14	4108	24624	1388568600	340	0	15	1	2303	1	50	0	333	0	6	1	5621	1	26	1	118	1	1	1	3617
2014-02-24 16:30:14	4108	24624	1388569200	4283	1	19	1	231	0	50	0	4236	1	8	1	5651	1	3	0	124	1	2	1	3617
2014-02-24 16:30:14	4108	24624	1388569800	4846	1	21	1	2305	1	50	0	4767	1	8	1	572	0	35	1	129	1	2	1	3617
2014-02-24 16:30:14	4108	24624	1388570400	5639	1	24	1	230	0	50	0	5493	1	1	0	571	0	38	1	133	1	3	1	3617
2014-02-24 16:30:14	4108	24624	1388571000	5534	1	24	1	2298	1	50	0	5533	1	9	1	5734	1	41	1	137	1	4	1	3617
2014-02-24 16:30:14	4108	24624	1388571600	6171	1	27	1	230	0	50	0	6173	1	11	1	5729	1	41	1	139	1	5	1	3617
2014-02-24 16:30:14	4108	24624	1388572200	6658	1	29	1	2289	1	50	0	654	0	12	1	5721	1	46	1	142	1	6	1	3617
2014-02-24 16:30:14	4108	24624	1388572800	8382	1	36	1	2293	1	50	0	8346	1	14	1	5833	1	46	1	143	1	6	1	3617
2014-02-24 16:30:14	4108	24624	1388573400	6917	1	3	0	2298	1	50	0	6795	1	12	1	5766	1	49	1	147	1	8	1	3617
2014-02-24 16:30:14	4108	24624	1388574000	5646	1	25	1	2293	1	50	0	559	0	9	1	5617	1	48	1	147	1	9	1	3617
2014-02-24 16:30:14	4108	24624	1388574600	6934	1	3	0	2291	1	50	0	6917	1	11	1	5771	1	52	1	15	0	1	0	3617
2014-02-24 16:30:14	4108	24624	1388575200	6848	1	3	0	2286	1	50	0	6804	1	12	1	5762	1	52	1	15	0	11	1	3617
2014-02-24 16:30:14	4108	24624	1388575800	9771	1	43	1	2289	1	50	0	9935	1	17	1	5872	1	54	1	153	1	13	1	3617
2014-02-24 16:30:14	4108	24624	1388576400	8353	1	36	1	2282	1	50	0	8337	1	15	1	5786	1	56	1	154	1	14	1	3617
2014-02-24 16:30:14	4108	24624	1388577000	8111	1	35	1	2291	1	50	0	8209	1	14	1	578	0	54	1	153	1	16	1	3617
2014-02-24 16:30:14	4108	24624	1388577600	11462	1	5	0	231	0	50	0	11673	1	2	0	5915	1	57	1	156	1	17	1	3617
2014-02-24 16:30:14	4108	24624	1388578200	17196	1	74	1	2312	1	50	0	17616	1	3	0	598	0	63	1	16	0	2	0	3617
2014-02-24 16:30:14	4108	24624	1388578800	1234	0	53	1	2308	1	50	0	12517	1	22	1	5855	1	65	1	163	1	22	1	3617
2014-02-24 16:30:14	4108	24624	1388579400	9406	1	41	1	2317	1	50	0	9378	1	16	1	5817	1	66	1	163	1	24	1	3617
2014-02-24 16:30:14	4108	24624	1388580000	8563	1	37	1	231	0	50	0	8513	1	15	1	5796	1	65	1	166	1	25	1	3617
2014-02-24 16:30:14	4108	24624	1388580600	8254	1	36	1	2319	1	50	0	8397	1	14	1	5841	1	64	1	163	1	27	1	3617

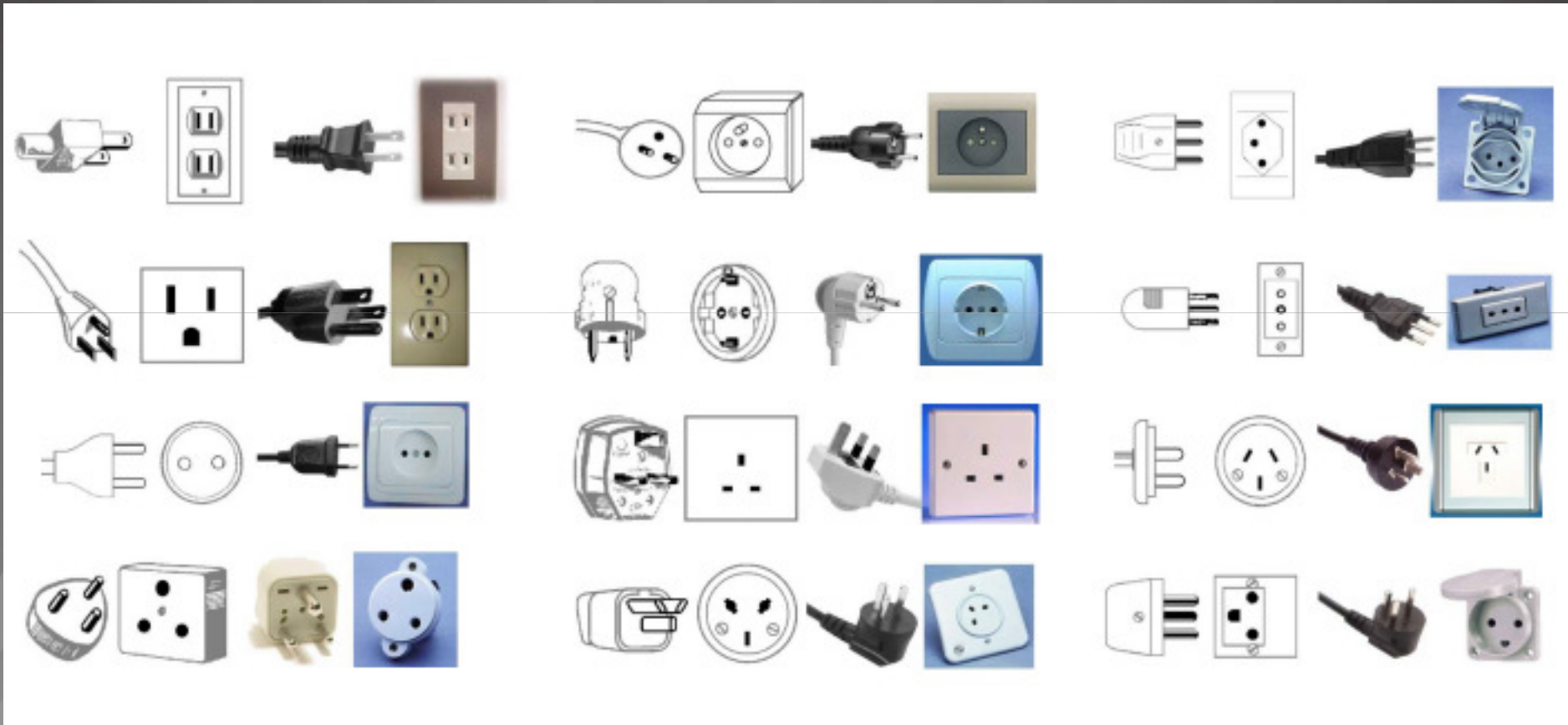
# Енергийни услуги

Пазарът е **навременен** обмен и анализ на  
**надеждна** и **сигурна** информация



# Енергийни услуги

## Стандарти, норми, правила



# Енергийни услуги

Security!



**The Smart Grid is watching you...**

„Либерализацията на енергийния пазар: участници, прогнози, добри европейски практики“, София, 23 Юни 2015 г.

# Енергийни услуги

Сигурността и поверителността - голямо предизвикателство за “либерализиран пазар”

ISO 27001 / PCI DSS / COBIT

Information gathering

Network mapping

Vulnerability scanning

Vulnerability testing

Management reporting

# Енергийни услуги

## Правни “предизвикателства”

**В момента в българската нормативна уредба, касаеща енергетиката:**

Няма стандарти и процедури за ИТ и дори НЕ може да се докаже наличието на търговска сделка, вкл.

цена, количество, периоди...

няма изискване за период на съхранение на информацията,

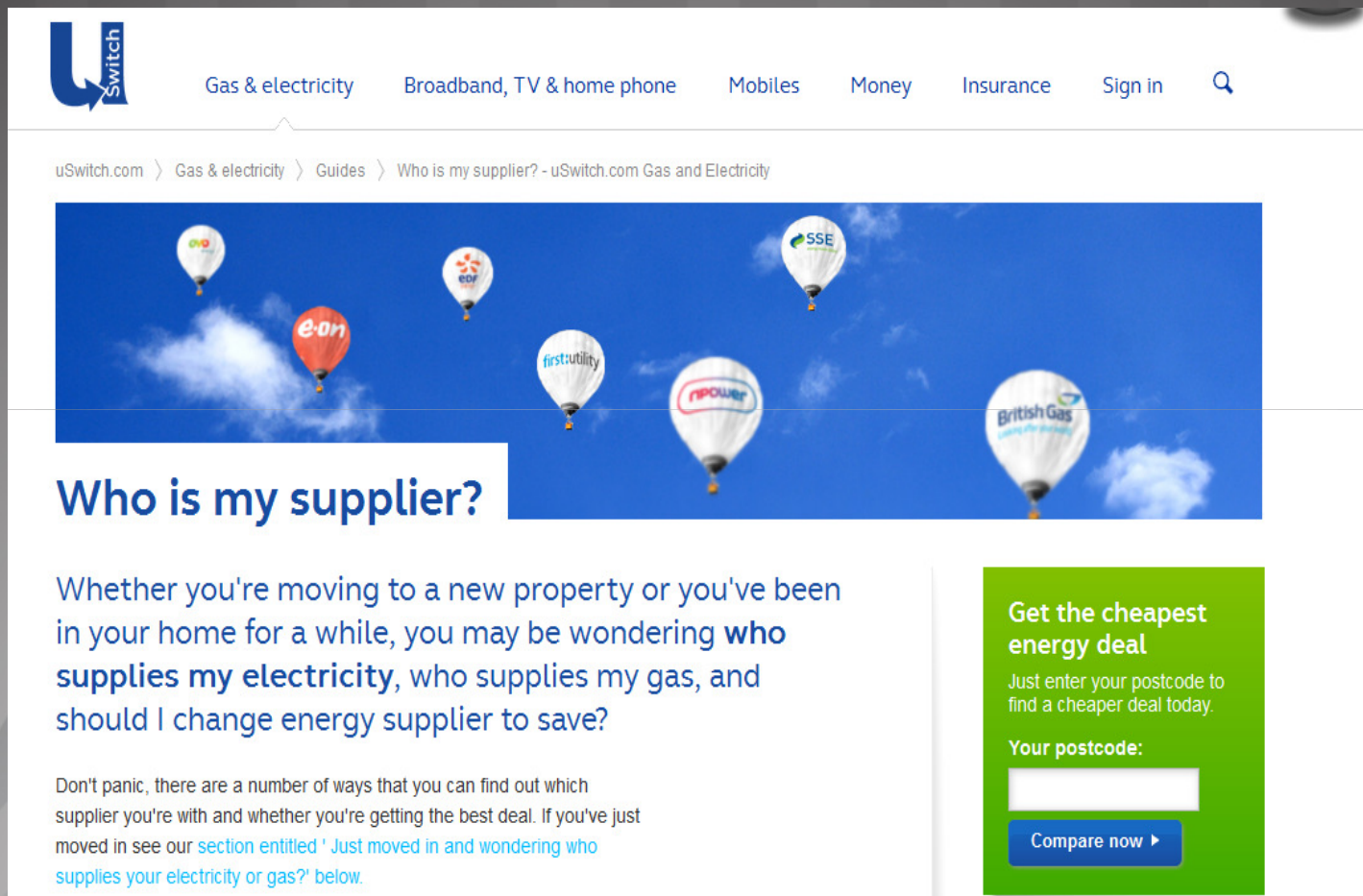
за електронен подпис,

за получаване, ...

за сървърите на които се съхранява информацията...



# Енергийни услуги



uSwitch.com > Gas & electricity > Guides > Who is my supplier? - uSwitch.com Gas and Electricity

## Who is my supplier?

Whether you're moving to a new property or you've been in your home for a while, you may be wondering **who supplies my electricity**, who supplies my gas, and should I change energy supplier to save?

Don't panic, there are a number of ways that you can find out which supplier you're with and whether you're getting the best deal. If you've just moved in see our [section entitled 'Just moved in and wondering who supplies your electricity or gas?' below.](#)

**Get the cheapest energy deal**  
Just enter your postcode to find a cheaper deal today.

Your postcode:

[Compare now ▶](#)

<http://www.uswitch.com>

# Енергийни услуги



The screenshot shows the homepage of the Choose Energy website. At the top, there is a red navigation bar with the "CHOOSE ENERGY" logo on the left and the phone number "855-419-3586" followed by links for "RESIDENTIAL", "COMMERCIAL", "SUPPLIERS", and "LOGIN" on the right. The main content area features a large green and blue background image of power lines with the headline "FIND CHEAPER ENERGY FOR YOUR HOME OR BUSINESS" and the sub-headline "COMPARE ELECTRICITY AND NATURAL GAS RATES AND SAVE TODAY!". Below this is a search bar with the placeholder "Enter your zip" and a "Home - Get Rates" button. A "Contact us!" link is visible in the bottom right of the main area. The page is divided into three columns: "HOW IT WORKS" with a factory icon, "WHY SWITCH?" with a circular arrow icon, and "LOCATIONS" with a map of the USA icon. Below these columns, a text block explains how Choose Energy helps save money on energy bills, followed by a numbered list of four points. The footer contains a grid of links for "ABOUT", "LOCATIONS", "RESIDENTIAL", "COMMERCIAL", and "SUPPLIERS", along with social media icons for Facebook and Twitter, and the company's address: "CHOOSE ENERGY, Choose Energy, Inc., 330 Townsend St., Suite 212, San Francisco, CA 94107".

<https://www.chooseenergy.com/>

„Либерализацията на енергийния пазар: участници, прогнози, добри европейски практики“, София, 23 Юни 2015 г.

# Енергийни услуги

## VIRTUAL ENERGY STORAGE



# Енергийни услуги



**VIRTUAL ENERGY STORAGE**



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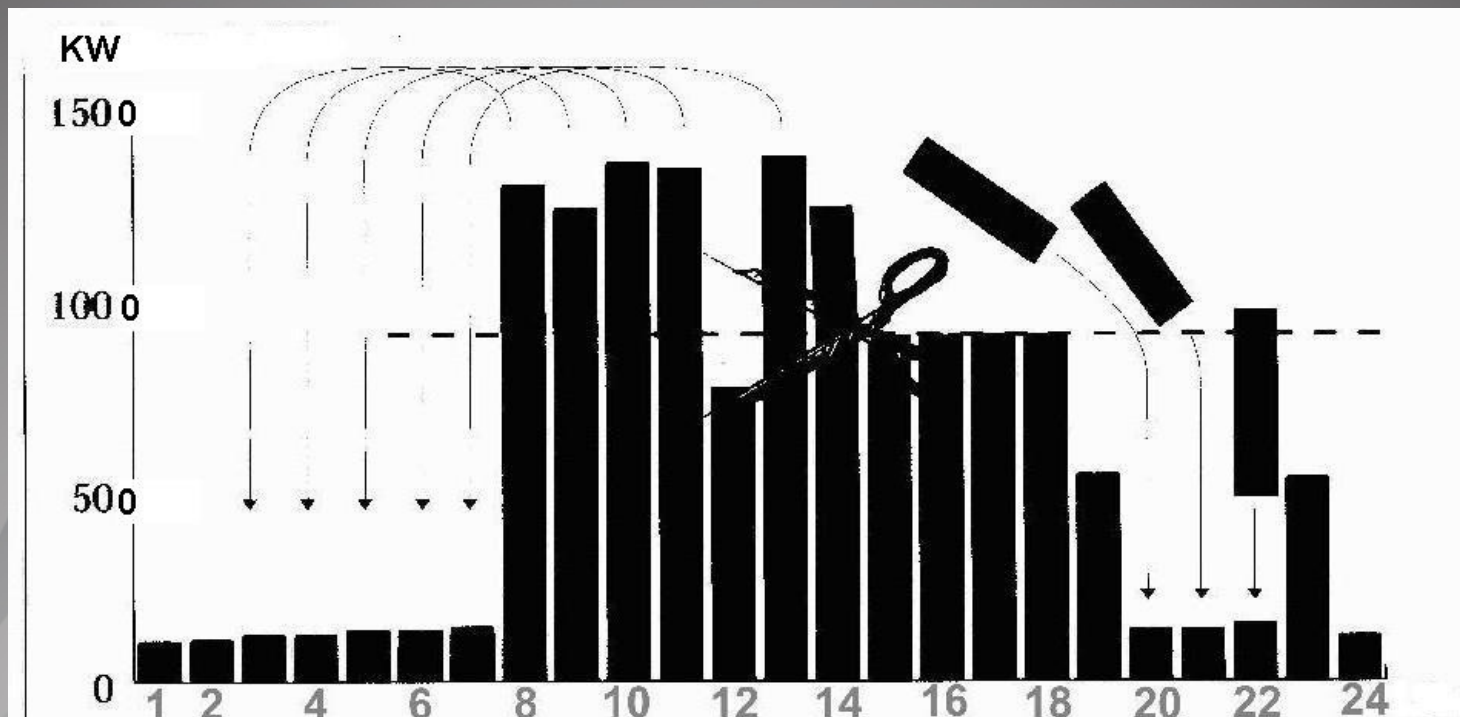
# Енергийни услуги

**Energy Efficiency / Energy Performance Services**



# Енергийни услуги

## Управление на натоварването





# Енергийни услуги

*Пример за управление на консуматорите чрез система за управление на натоварването*

Охлаждане на склад1

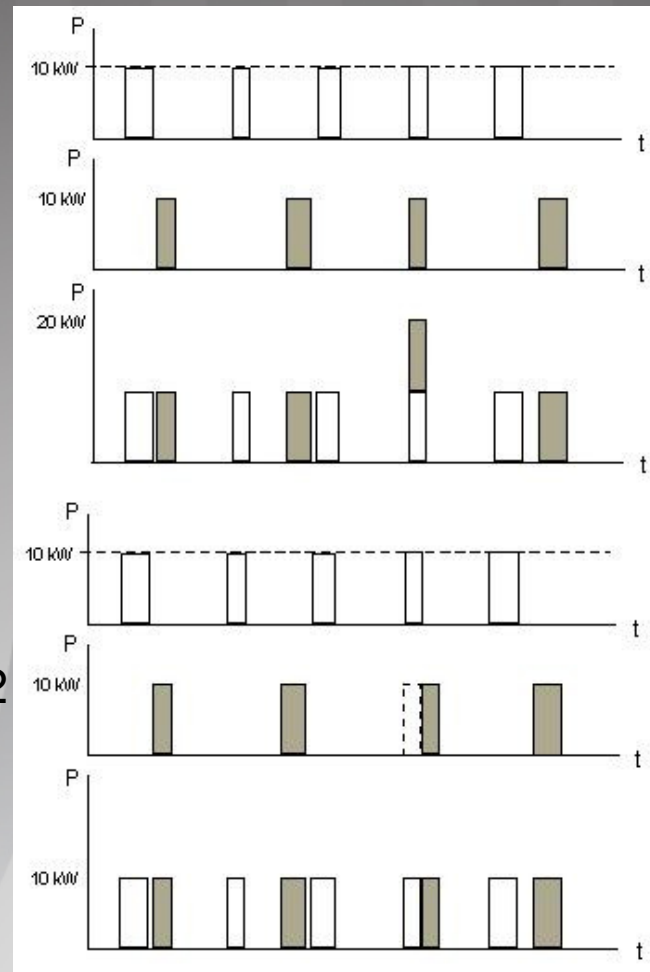
Охлаждане на склад2

Сума

Охлаждане на склад1

Охлаждане на склад 2

Сума



Без управление  
на натоварването

С управление на  
натоварването



# Енергийни услуги



Вече и в София... 😊

# Енергийни услуги

**Застрахователни продукти:**

**За доставки  
За прогнози**

**Тръжни платформи**

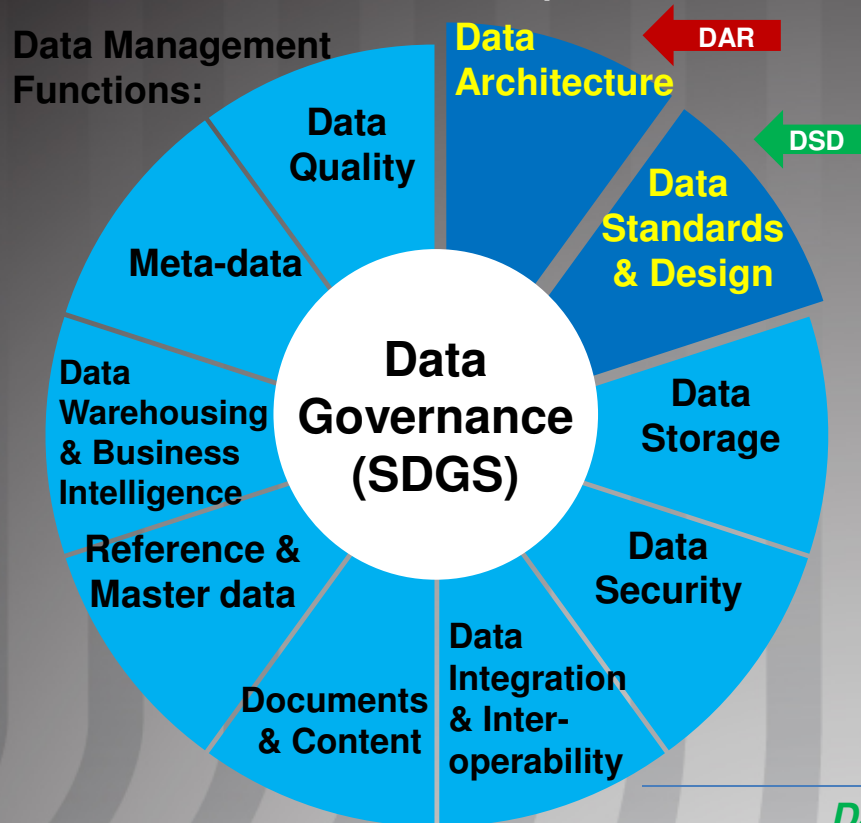
**За доставки на енергия  
За доставки на услуги  
За доставки енергийни продукти  
За доставки на финансови продукти  
.....**

# Енергийни услуги



„Либерализацията на енергийния пазар: участници, прогнози, добри европейски практики“, София, 23 Юни 2015 г.

# ENTSO-E Data Governance and Data Management: DMH (Data Model Harmonization) Project



- DAR-01** Develop **SAM** (Subject Area Map), which considers existing CIM standards, existing application data models, and the data needs of the major on-going projects (EMFIP, NMD 1 / 2, PEMMDB 2, TYNDP, Data Portal)
- DAR-02** Development of **Conceptual / Logical Data Models**, supporting the highest-priority subject areas; Work 'opportunity based' with major projects
- DSD-02** Work with **NMD** and **EMFIP** Project Teams, in support of review of work products (Business Requirements Specification, Definitions, Conceptual / Logical Data models)
- DSD-01** Investigate, take inventory, and evaluate the existing **data assets** within the Association, determine potential impacts on the Data Portal

**Data Architecture Function:**  
Data requirements definition and blueprint design. Development of Association Data Architecture and Data Interoperability Architecture

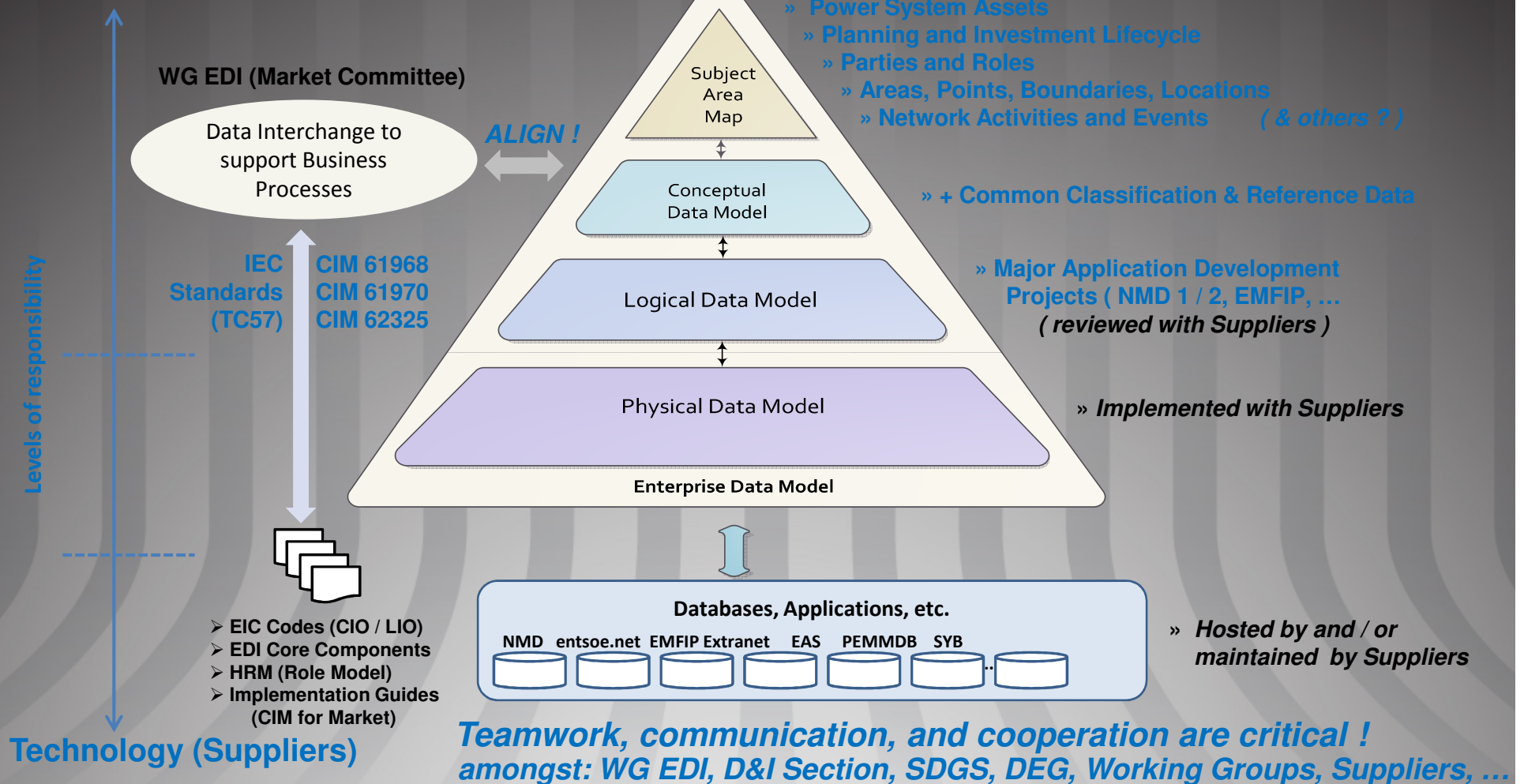
**Data Standards & Design Function:**  
Data Modeling, Analysis and Solution Design, as well as data implementation across the Systems Development Lifecycle. Definition of Common business vocabulary (Glossary), data standards and support for developments related to all important **ENTSO-E projects and products**, such as Network Modeling, Transparency, ...

Wheel above is from DM-BOK: Data Management – Body of Knowledge (DAMA: Data Management Association)

# ENTSO-E Data Architecture

(work in progress: *top-down & bottom-up*)

## Business Information (TSOs, ENTSO-E)



# Subject Areas (Initial Proposal)

## Planning and Investment Lifecycle

- Scenarios
- Cases
- Situations
- Investments
- Projects
- Market Models
- Network Models
- Assembled Model
- Solution + ....

## Power System Assets

- Production Units
- Generation Units
- Consumption Units
- Transmission Assets
  - In country
  - Cross – border
- Transformers
- Substations + ....

## ENTSO-E: Parties and Roles

- Assembly
- Board
- Secretariat
- Organizational Bodies:
  - Committees
  - Working Groups
  - Regional Groups
  - Steering Groups
  - Expert Groups + ....
- Organization Type
- Party - Role
- Role Assignment
- TSO
- Legal Entity
- Regulatory Body
  - National - EU
- Power Exchanges
- Associations + ....

- Calendar: Date Periods / Time Periods (MTU / BTU)
- Generation Technology Types / Fuel Types (+ combos)
- Measurement Units
  - UTC (Time Zones)
- Outage Types
  - Reserve Types
- Auction Types
  - Contract Types
- Tariff Types
  - Price Types (+ others ....)

## Common Classification / Reference Data \*

## Areas, Points, Boundaries, Locations

**Areas:** Pan-European / Regional / Country / Control Block / Bidding Zone / Market Balance Area ...

**Points:** Measurement / Metering / Accounting / Boundary ...

**Relationships:** Area to Area, Point to Point, Point to Area

### GENERATION:

- Installed Capacity
- Forecast / Actual
- Pumped Storage (reserves)

**LOAD:** Forecast / Actual / Margin

### OUTAGE:

- Planned / Unplanned:
- Production Units
  - Generation Units
  - Consumption Units
  - Transmission Assets
  - Offshore Grid Infrastructure

### Network Activities and Events

#### TRANSMISSION:

- Transfer Capacity
- Forecasted / Offered
- Explicit Auctions
- Implicit Auctions
- Physical Flows
- Prices (+ others ....)

#### BALANCING:

- Balancing Reserves / Prices
- Prices, Activated Balancing Energy
- Aggregated Imbalance Volumes / Prices
- Expenses / Incomes
- Cross-Border Balancing: Volumes / Prices / Activated energy (+ others ....)

# Master Data, Structural Data, Classification Data

Data Domain	Subject Area	Data Entities						
Master Data	Areas, Points, Locations, etc.	Area Type	Area	Point Type	Point	Location	Area To Area	Boundary (Set)
	Power System Assets	Transmission Asset Cross-Border Internal		Generation Unit Production Unit		Consumption Unit Substation Transformer & others .....		
	Parties & Roles	Organization Type	Party	Role Assignment		Role		
Structural Data	Entity	TSO	Legal Entity	Regulatory Body National EU		Power Exchange	Other Association	....
	Organizational Structure	Organizational Unit / Committee		Regional Group	Working Group	Expert Group	Steering Group	....
Classification Data	Classification Codes	Country	Currency	Measurement Unit	UTC (Time Zones)	Outage Type	Reserve Type	
		Calendar Date Period Time Period		Auction Type	Contract Type	Tariff Type	Price Type	& others .....

# ENTSO-E Central Information Transparency Platform

## EECS Rules Fact Sheet 5 TYPES OF ENERGY INPUTS AND TECHNOLOGIES:

### Technology

TECHNOLOGY		
Level 1	Level 2	Level 3
Description	Description	Description
Solar	Unspecified	Unspecified
	Photovoltaic	Unspecified
		Classic silicon
		Thin film
	Concentration	Unspecified
Wind	Unspecified	Unspecified
		Onshore
		Offshore
Hydro-electric head installations	Unspecified	Unspecified
	Run-of-river head installation	Unspecified
	Storage head installation	Unspecified
	Pure pumped storage head installation	Unspecified
	Mixed pumped storage head	Unspecified
Marine	Unspecified	Unspecified
	Tidal	Unspecified
		Onshore
		Offshore
	Wave	Unspecified
		Onshore
		Offshore
	Currents	Unspecified
Pressure	Unspecified	

TECHNOLOGY		
Level 1	Level 2	Level 3
Thermal	Unspecified	Unspecified
	Combined cycle gas turbine with heat recovery	Unspecified
		Non CHP
		CHP
	Steam turbine with back-pressure turbine (open cycle)	Unspecified
		Non CHP
		CHP
	Steam turbine with condensation turbine (closed cycle)	Unspecified
		Non CHP
		CHP
	Gas turbine with heat recovery	Unspecified
		Non CHP
		CHP
	Internal combustion engine	Unspecified
		Non CHP
	CHP	
Micro-turbine	Unspecified	
	Non CHP	
	CHP	
Stirling engine	Unspecified	
	Non CHP	
	CHP	
Fuel cell	Unspecified	
	Non CHP	
	CHP	
Steam engine	Unspecified	
	Non CHP	
	CHP	
Organic rankine cycle	Unspecified	
	Non CHP	
	CHP	
Nuclear	Unspecified	Unspecified
	Heavy-water reactor	Unspecified
	Light water reactor	Unspecified
	Breeder	Unspecified
	Graphite reactor	Unspecified
Other	Unspecified	Unspecified



# ENTSO-E Central Information Transparency Platform

## EECS Rules Fact Sheet 5 TYPES OF ENERGY INPUTS AND TECHNOLOGIES:

### Fuel Type

FUEL (or heat source)		
Level 1	Level 2	Level 3
Description	Description	Description
Unspecified	Unspecified	Unspecified
Renewable	Unspecified	Unspecified
	Solid	Municipal waste
		Industrial and commercial waste
		Wood
		Animal fats
		Biomass from agriculture
	Liquid	Unspecified
		Municipal biodegradable waste
		Black liquor
		Pure plant oil
		Waste plant oil
		Refined vegetable oil
	Gaseous	Unspecified
		Landfill gas
		Sewage gas
		Agricultural gas
		Gas from organic waste digestion
		Process gas
	Heat	Solar
		Geothermal
		Aerothermal
		Hydrothermal
		Process heat
	Mechanical source or other	Unspecified
		Wind
		Hydro & marine
	Unspecified	Unspecified

FUEL (or heat source)		
Level 1	Level 2	Level 3
Fossil	Solid	Unspecified
		Hard coal
		Brown coal
		Peat
		Municipal waste
		Industrial and commercial waste 0
	Liquid	Unspecified
		Crude oil
		Natural gas liquids (NGL)
		Petroleum products
	Gaseous	Unspecified
		Natural gas
		Coal-derived gas
		Petroleum products
		Municipal gas plant
		Process gas
	Heat	Unspecified
		Process heat
Nuclear	Solid	Radioactive fuel

# ENTSO-E Central Information Transparency Platform

Unspecified				
Renewable	Unspecified			
	Solar	Unspecified Photovoltaic	Unspecified Classic silicon Thin film	
	Wind	Concentration		
		Unspecified Onshore		
		Offshore		
	Hydro-electric head installations	Unspecified		
		Run-of-river head installation		
		Storage head installation		
		Pure pumped storage head installation Mixed pumped storage head		
	Marine	Unspecified		
		Tidal	Unspecified Onshore Offshore	
		Wave	Unspecified	Unspecified Onshore Offshore
			Currents	
		Pressure		
	Geothermal			
	Aerothermal			
	Hydrothermal			
	Biomass			

			Fuel type 1	Fuel type 2
Biomass				
Thermal	Unspecified			
	Combined cycle gas turbine with heat recovery	Unspecified	Solid	Unspecified
		Non CHP		Hard coal
		CHP		Brown coal/Lignite
	Steam turbine with back-pressure turbine (open cycle)	Unspecified		Peat
		Non CHP		Municipal waste
	Steam turbine with condensation turbine (closed cycle)	Unspecified	Liquid	Industrial and commercial waste
		Non CHP		Unspecified
		CHP		Crude oil
	Gas turbine with heat recovery	Unspecified	Gaseous	Natural gas liquids (NGL)
		Non CHP		Petroleum products
		CHP		Unspecified
	Internal combustion engine	Unspecified		Natural gas
		Non CHP		Coal-derived gas
		CHP		Petroleum products
	Micro-turbine	Unspecified	Heat	Municipal gas plant
		Non CHP		Process gas
		CHP		Unspecified
	Stirling engine	Unspecified	Solid	Process heat
		Non CHP		Municipal waste
CHP			Industrial and commercial waste	
Fuel cell	Unspecified		Wood	
	Non CHP		Animal fats	
	CHP		Biomass from agriculture	
Steam engine	Unspecified	Liquid	Unspecified	
	Non CHP		Municipal biodegradable waste	
	CHP		Black liquor	
Organic rankine cycle	Unspecified		Pure plant oil	
	Non CHP		Waste plant oil	
	CHP		Refined vegetable oil	
Process heat	Unspecified	Gaseous	Unspecified	
	Heavy-water reactor		Landfill gas	
	Light water reactor		Sewage gas	
Breeder			Agricultural gas	
	Graphite reactor		Gas from organic waste digestion	

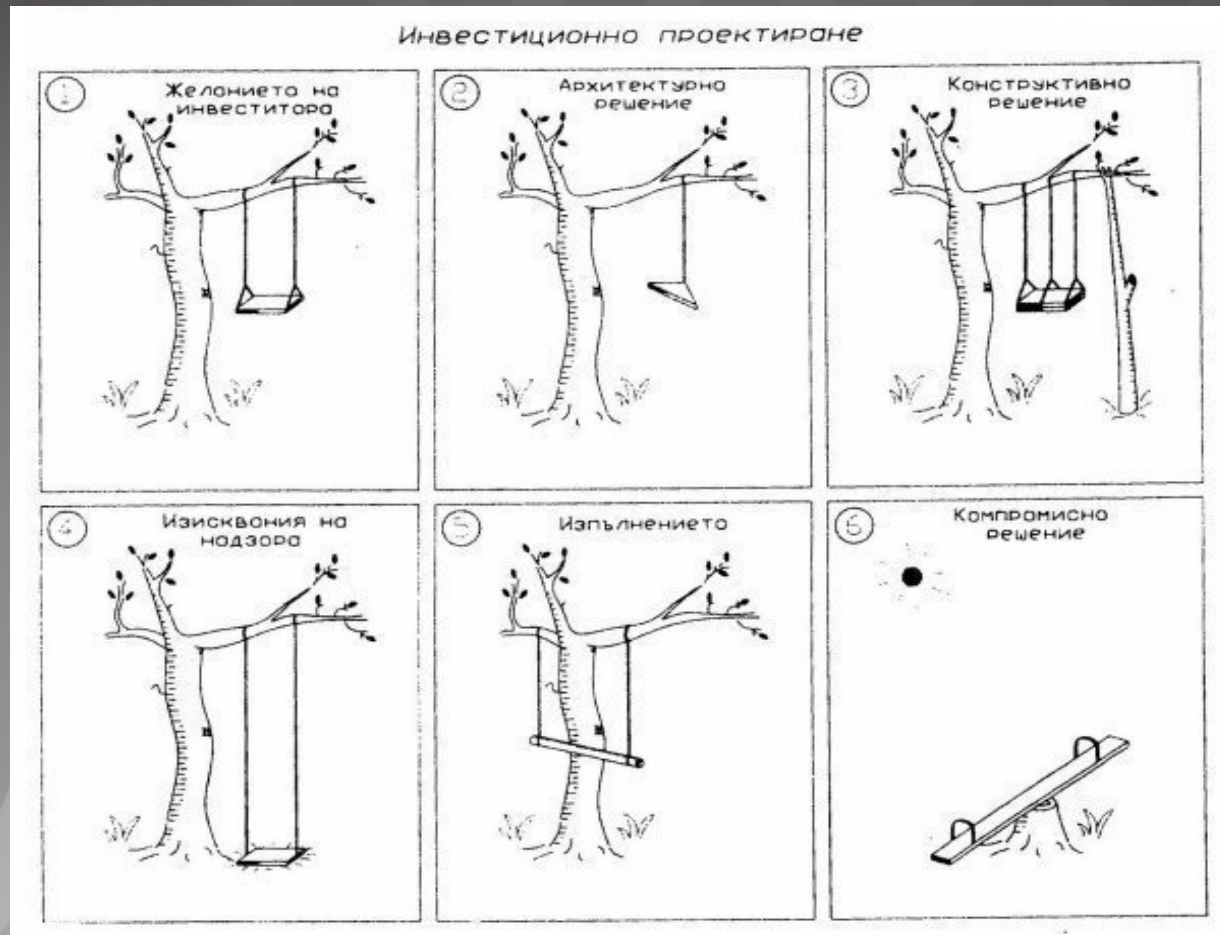


# Двата пътя към либерализиран



„Либерализацията на енергийния пазар: участници, прогнози, добри европейски практики“, София, 23 Юни 2015 г.

# Диалог, дискусия, добра воля



**ВСИЧКИ трябва да участват активно при създаването и развитието на пазара на електроенергия!**



# Предизвикателства на българския електроенергиен пазар



- Нестабилна регулаторна среда
- Краткосрочни договори
- Слаба ликвидност
- Липса на информация за цени и обеми
- Непазарно поведение

## Малко време за въпроси и коментари



Благодаря за вниманието и търпението!

инж. Васил Петев

3VM

[vassil.petev@3vmanage.eu](mailto:vassil.petev@3vmanage.eu)

М: +359 88 722 53 97

“Не можем да решим проблемите, като използваме същия начин на мислене, който сме използвали, когато сме ги създавали.”

Алберт Айнщайн