

Saving money as well as the planet



Introducing INSTAR ITS



INSTAR is a Czech IT company with more than 25 years of experience in energy management. Professional orientation of the activities has gradually developed from automated control systems in the area of thermal processes through production information systems to information system ENERGIS, which has become the key product of the company.

INSTAR is a global leader in energy management and monitoring software solutions with over 20 years of experience in the market and \$1 billion of savings for our customers. Our solutions have consistently offered paybacks of under 2 years to our customers. We are looking for energy professionals who can deliver our solutions to industrial, commercial and residential customers and be part of our international team.

How ENERGIS works – in Real-Time

20
YEARS OF
EXPERIENCE

\$1
BILLION
OF ENERGY
SAVINGS

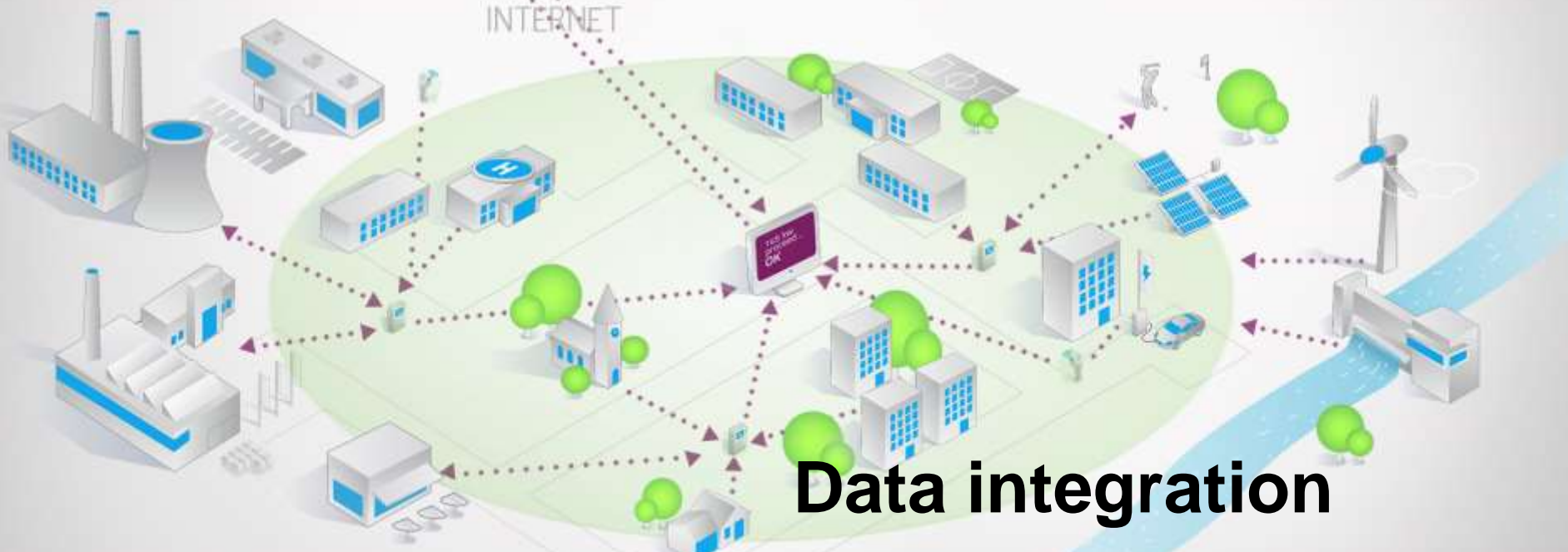
Data processing

Data analytics/reporting



INTERNET

INTERNET



Data integration

Target markets

Combined heat & power generation

Utilities

Industry sectors (automotive, chemical, metallurgy,...)

Commercial area

Small & Medium Businesses

Municipalities

Households



ENERGIS Major References

20
YEARS OF
EXPERIENCE

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ArcelorMittal



Plzeňský Prazdroj



Das Auto.



Kimberly-Clark

Main functions

Data integration – smart meters, data loggers, SCADAs, data archives, ERPs, web services

Meter Data Management – validation, data replacement, manual data correction, meters administration

Energy management – monitoring, targeting, warning system, billing, demand control, utilization of machinery, emissions management, energy balances, forecasting, controlling, analytics, reporting, benchmarking

BEMS – integration of HVAC, lighting system, access control system,

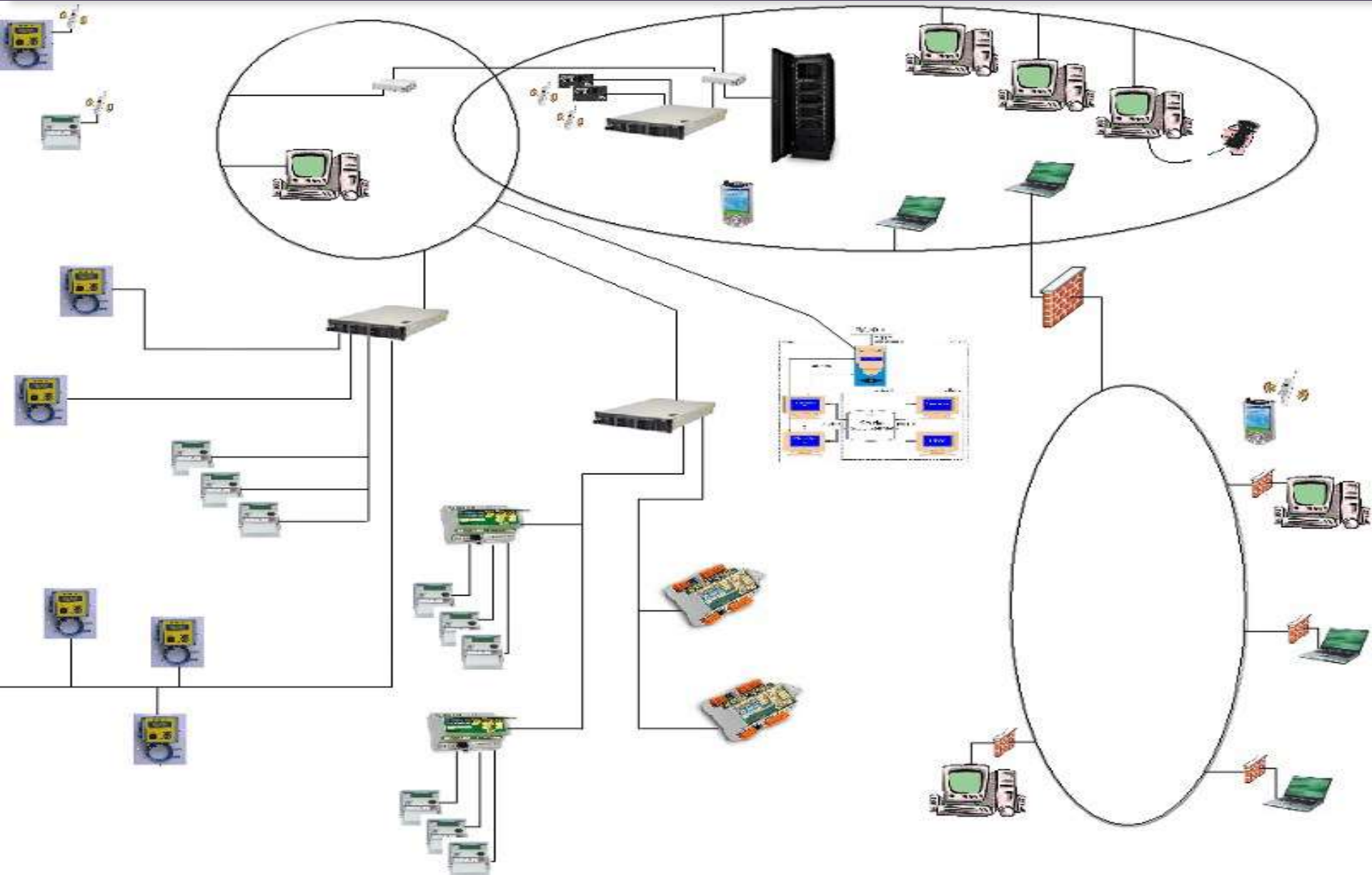
local power generators (solar, wind, NG, etc.), smart grid

HEMS – home display, access from Internet,

ENERGIS – Data Integration

20 YEARS OF EXPERIENCE

\$1 BILLION OF ENERGY SAVINGS



Main functions

Data integration – smart meters, data loggers, SCADAs, data archives, ERPs, web services

Meter Data Management – validation, data replacement, manual data correction, time series, meters administration

Energy management – monitoring, targeting, warning system, billing, demand control, utilization of machinery, emissions management, energy balances, forecasting, controlling, analytics, reporting, benchmarking

BEMS – integration of HVAC, lighting system, access control system,

local power generators (solar, wind, NG, etc.), smart grid

HEMS – home display, access from Internet,

ENERGIS – Time Series



Two-dimensional summaries: Group of nodes and period - Total self consumption

Setup

Chart ^

Group of nodes: 704 Total self consumption

Identification: Node description Number of characters: 30

Period: Quarter

From: 04.04.2013 00:00:00 Till: 04.04.2013 10:45:00 CET

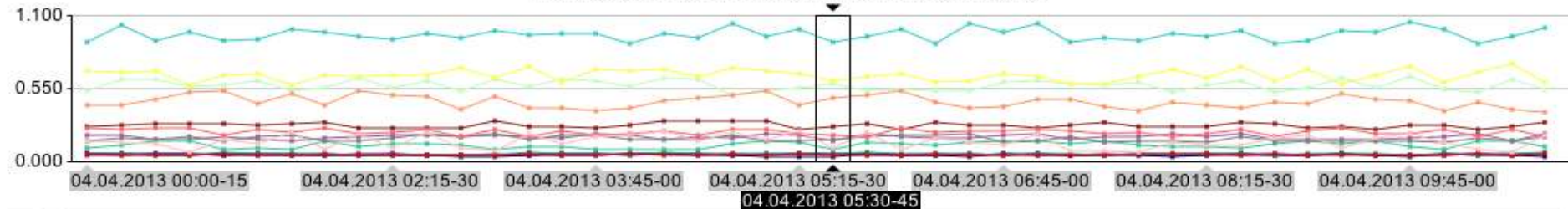
- Legend
- Data
- Chart
- Statistics
- Export
- Including empty lines
- Inclusion sums and calculations
- Validity regarding
- True value Other
- Filter
- Output
- Number of decimal places: 3
- Number of lines: All Else 20

Display

Chart

Evaluation Setup Chart ^

True value: 04.04.2013 00:00-15 - 04.04.2013 10:45-00



+/-	Description	Value
<input checked="" type="checkbox"/>	7028 - Plant1_Electric_energy	0.055
<input checked="" type="checkbox"/>	7012000 - e0072-Plant2_Electric_energy	0.052
<input checked="" type="checkbox"/>	7013000 - e0073-Plant3_Electric_energy	0.037
<input checked="" type="checkbox"/>	7014000 - e0074-Plant4_Electric_energy	0.054

Main functions

Data integration – smart meters, data loggers, SCADAs, data archives, ERPs, web services

Meter Data Management – validation, data replacement, manual data correction, meters administration

Energy management – monitoring, targeting, warning system, billing, demand control, utilization of machinery, emissions management, energy balances, forecasting, controlling, analytics, reporting, benchmarking

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ENERGIS – Monitoring

20
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- ✓ Porucha zaplavení
- ✓ Teplota prostor kot.
- ✓ Přehřátí TO vratnice
- ✓ STOP tlačítko
- ✓ Ovládací fáze kotelna
- ✓ Výpadek plynu
- ✓ Přepět'ová ochrana
- ✓ EPS
- ✓ Mrazovka sahara 2
- ✓ Min. tlak topné vody
- ✓ Max. tlak topné vody
- ✓ Detekce plynu 1st.
- ✓ Detekce plynu 2st.
- ✓ Kotel K1
- ✓ Kotel K2
- ✓ Čerpadlo sahara
- ✓ Čerpadlo vratnice
- ✓ Čerpadlo M8
- ✓ Sahara 1
- ✓ Sahara 2
- ✓ Mrazovka sahara 1
- ✳ SEČ / SELČ

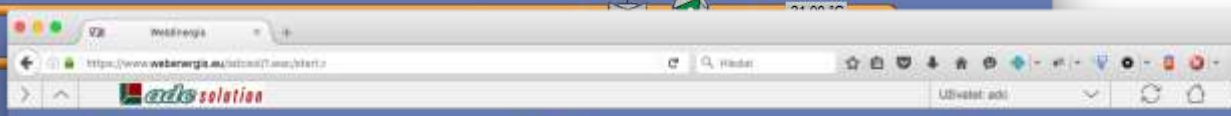
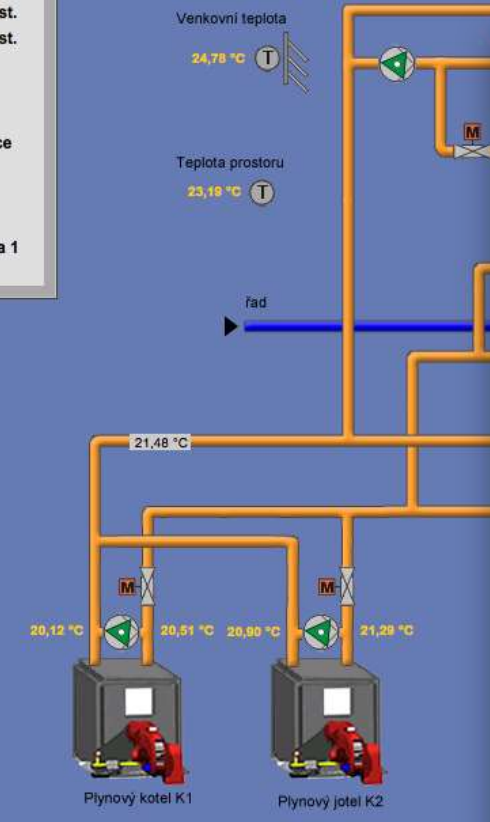
Požadovaná teplota kaskády kotlů	85,0 °C	0,0 °C
Letní mez pro hlavní čerpadlo M8	25,0 °C	0,0 °C
Posun ekvitermy okruh vratnice	0,0 °C	0,0 °C
Letní mez okruh vratnice	20,0 °C	0,0 °C
Požadovaná teplota prostoru kotelny	5,0 °C	0,0 °C

Mez. tep. pros. kotelny pro el. sahary	5,0 °C	0,0 °C
Pevné otáčky M8	80,0 %	0,0
Režim M8	Automat	Automat
Mez venk. tep. pro ranní start kotelny	13,0 °C	0,0 °C

Čas. plán kotelna ENC1 POVOLEN ■ TUV BLOKOVÁNA ■

Reset Poruch

EvoBus - Kotelna Energo centrum 1



Nederman 10	
POVOLENO OD REGULÁTORU MAXIMA	
BEH POVOLEN	
ODSTAVIT	
OVLÁDÁNÍ Z ROZVADĚČE POVOLENO	
BLOKOVAT OVL. Z ROZVADĚČE	
zařízení 1	zařízení 2
rozměrnosti zářiv. rozbíječky	rozměrnosti zářiv. rozbíječky
297E.0 0,8	225E.0 0,8
AUTOMAT-ČASOVÉ PLÁNY	AUTOMAT-ČASOVÉ PLÁNY
BEZ ZÁVAD	BEZ ZÁVAD
POŽADAVEK NA ZAPNUTÍ	POŽADAVEK NA ZAPNUTÍ
VYPNUTO	ZAPNUTO

Nederman 12	
POVOLENO OD REGULÁTORU MAXIMA	
BEH POVOLEN	
ODSTAVIT	
OVLÁDÁNÍ Z ROZVADĚČE POVOLENO	
BLOKOVAT OVL. Z ROZVADĚČE	
zařízení 1	zařízení 2
rozměrnosti zářiv. rozbíječky	rozměrnosti zářiv. rozbíječky
507.0 0,8	730.0 0,8
AUTOMAT-ČASOVÉ PLÁNY	AUTOMAT-ČASOVÉ PLÁNY
BEZ ZÁVAD	BEZ ZÁVAD
POŽADAVEK NA ZAPNUTÍ	POŽADAVEK NA ZAPNUTÍ
ZAPNUTO	ZAPNUTO

Nederman 20	
zařízení 1	zařízení 2
POVOLENO OD REG. MAX.	POVOLENO OD REG. MAX.
ZAPNUTO	ZAPNUTO
rozměrnosti zářiv. rozbíječky	rozměrnosti zářiv. rozbíječky
558.0 0,8	550.0 0,8
AUTOMAT-ČASOVÉ PLÁNY	
VYPNOUT OBĚ ZAŘÍZENÍ	

ENERGIS – Billing



Summary of invoiced values: Group of nodes - Total sales



Setup

Data ^

Group of nodes: 703 Total sales

Date: 03 / 2013

- Data
- Chart
- Export
- Corrections
- Journal
- Autodiagnosics

- Amounts only
- Included node informations
- Included correlate energies

Number of decimal places: 2

Number of lines: All Else 20

- Invoiced only

Display

Data

? Invoice resources listing Setup ^

Total sales - 03/2013

Lines: 1 - 19 Total: 19

Node	Node description	Quantity	Invoice unit	Amount	Average price	Currency	Name of organization unit	Organization unit	Energy
007013	Consumer1_Electric energy	1 087.62	MWh	88 541.50	81.41	€	Consumer1	711	Electricity
007014	Consumer2_Electric energy	311.89	MWh	339 960.10	1 090.00	€	Consumer2	712	Electricity
007015	Consumer3_Electric energy	469.50	MWh	511 755.00	1 090.00	€	Consumer3	713	Electricity
007016	Consumer4_Electric energy	347.77	MWh	381 556.30	1 097.15	€	Consumer4	714	Electricity
007017	Consumer5_Electric energy	362.67	MWh	395 310.30	1 090.00	€	Consumer5	715	Electricity
Sum partial	---- Strom Gesamt	2 579.45	MWh	1 717 123.20		€			Electricity
007019	Consumer1_Heat	3 641.05	GJ	70 269.60	19.30	€	Consumer1	711	Heat
7000700	e0042-Consumer2_Heat	2 244.89	GJ	475 916.70	212.00	CZK	Consumer2	712	Heat
7000800	e0043-Consumer3_Heat	430.92	GJ	89 631.40	208.00	CZK	Consumer3	713	Heat
7000900	e0044-Consumer4_Heat	2 506.00	GJ	536 284.00	214.00	CZK	Consumer4	714	Heat
7001000	e0045-Consumer5_Heat	1 486.68	GJ	313 689.50	211.00	CZK	Consumer5	715	Heat
Sum partial	---- Wärme Gesamt	10 309.54	GJ	!!		!!			Heat
007021	Consumer1_Gas	44 159.22	kWh	204 833.80	4.64	€	Consumer1	711	Gas
007023	Consumer2_Gas	33 293.27	kWh	20 941 466.80	629.00	CZK	Consumer2	712	Gas
007024	Consumer3_Gas	55 253.99	kWh	35 141 537.60	636.00	CZK	Consumer3	713	Gas
007025	Consumer4_Gas	50 029.53	kWh	31 268 456.30	625.00	CZK	Consumer4	714	Gas
007026	Consumer5_Gas	38 163.08	kWh	24 042 740.40	630.00	CZK	Consumer5	715	Gas
Sum partial	---- Erdgas Gesamt	220 899.09	kWh	!!		!!			Gas
Sum total	Verkauf Gesamt	!!		!!		!!			

Display Node Node description Quantity Invoice unit Amount Average price Currency Name of organization unit Organization unit Energy

ENERGIS – Demand Control



09:13

Current [kW]
503,08

Chart 15 Data

09:00 - 09:15

Maximum kW	480,00
Prognosis kW	505,33
Previous minute kW	480,00
Previous minute kWh	8,00
Recommendation kW	-190,00

Poslední aktualizace - 04.05.2011 09:13:43

09:13

Current [kW]
503,08

Chart 60 Data

09:00 - 10:00

Plan kW	480,00
Prognosis kW	516,33
Previous minute kW	480,00
Previous minute kWh	8,00
Recommendation kW	-46,38

Last refresh - 04.05.2011 09:13:44

Chart [Minute values] Values Setup

04.05.2011 09:13:54 CEST

08:30:00 08:45:00 09:00:00 09:13:30

Type [D] Last refresh: 08:13:44

D	Node	Value	Time	Unit	Description
■	7000104	8,00	09:12:00	kWh	Consumer2_Electric_energy2 - e0029-Consumer2_Electric_energy2

ENERGIS – Energy Balance



ELECTRICITY

True value:	Purchase	Production	—	Consumption	Sale	=	Losses
	158.81 MWh	241.87 MWh		79.47 MWh	290.70 MWh		30.50 MWh
	Plan:	1 073.78 MWh		1 806.97 MWh	511.63 MWh		2 369.13 MWh
%:	14.79	13.39		15.53	12.27		

Heat

True value:	Purchase	Production	—	Consumption	Sale	=	Losses
	655.16 GJ	940.24 GJ		320.08 GJ	1 161.97 GJ		113.36 GJ
	Plan:	5 321.92 GJ		4 864.44 GJ	2 359.27 GJ		8 262.52 GJ
%:	12.31	19.33		13.57	14.06		

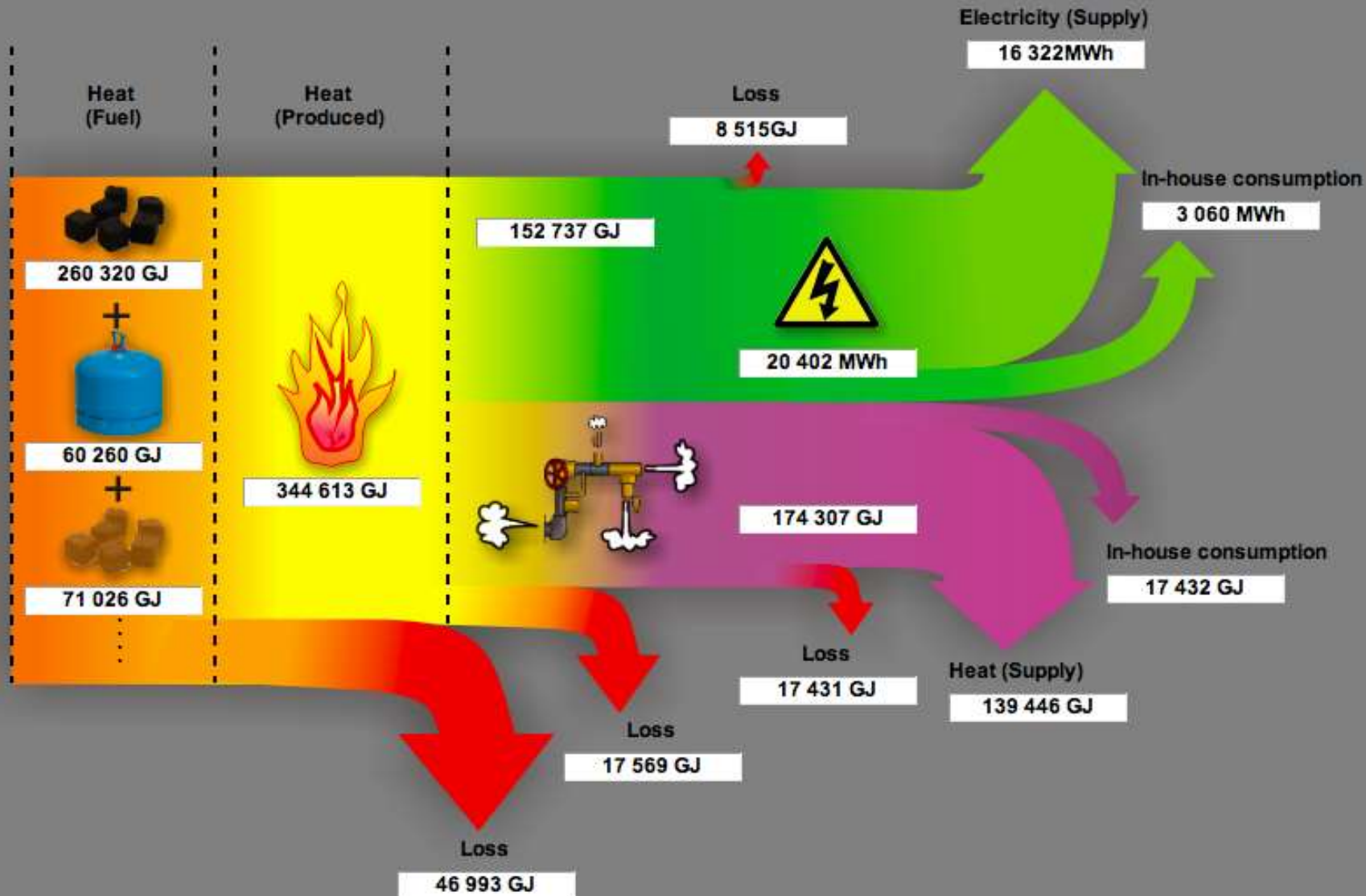
Natural gas

True value:	Purchase	—	Consumption	Sale	=	Losses
	30 030.34 kWh		928.81 kWh	24 784.03 kWh		4 317.49 kWh
	Plan:		225 377.42 kWh	6 306.48 kWh		203 551.23 kWh
%:	13.32		14.73	12.18		

ENERGIS – Energy Balance

20
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ENERGIS – Analytics



[? Chart Setup](#) ^

Data

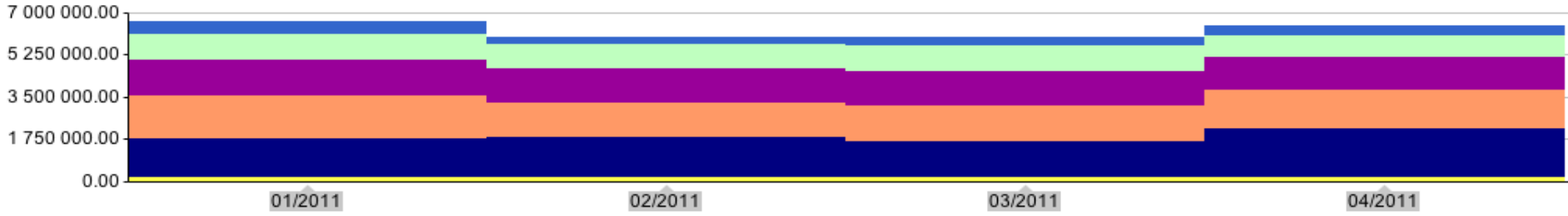
Node	Node description	Value	Unit	Amount	Currency	
051001	Coal consumption	19 852.33	t			
051002	Natural gas consumption for heat	2 971.03	tism3			
051003	Electric energy consumption for heat	475.48	MWh			
051004	Emission	46 974.87	t			
051005	Flat-rates	158 555.93	Kč	158 555.93	CZK	
051006	Depreciations	2 022 974.31	Kč	2 022 974.31	CZK	
051007	Corrections	1 605 239.03	Kč	1 605 239.03	CZK	
051008	Wages	1 355 306.76	Kč	1 355 306.76	CZK	
051009	Overhead costs	934 645.90	Kč	934 645.90	CZK	
051010	Other costs	417 933.61	Kč	417 933.61	CZK	
051100	Costs for Qprod		Kč	6 494 655.54	CZK	
051000	Qprod - heat produced	433 346.37	GJ			
051200	Unit price of produced GJ Qprod	14.99	Kč/j			



Chart

[Setup Data](#) ^

Costs analysis, 51100 - Costs for Qprod: 01/2011 - 04/2011



*	Description	Amount	%
	051010 - Other costs		
	051009 - Overhead costs		

ENERGIS – KPI reporting



Option of period:
 February / 2011 OK

Compliance to plan:

	Quantity	Plan	%	
Volume of production	202 769.30 t	154 933.78 t	130.87	
Electric energy consumption	2 316 738.91 kWh	2 100 000.00 kWh	110.32	
Heat consumption	3 005.99 GJ	1 353.60 GJ	222.07	
Water consumption	64 684.48 m3	33 431.04 m3	193.49	
Compressed air consumption	1 266.08 m3	1 179.24 m3	107.36	

Reached specific consumption:

	Value	Plan	
Electric energy	11.43	10.00	
Heat	0.01	0.01	
Water	0.32	0.30	
Compressed air	0.01	0.01	

Utilization of production facilities:

	Number of hours per month
Plant 1	376.75 hour
Plant 2	436.25 hour
Plant 3	349.50 hour
Plant 4	415.25 hour

ENERGIS – Optimization



Summary

		TG1	TG2	TG3	TG4	TG5	TG6	TG7	TG9	TG10	Sum 3,4,7,10	Sum 1,2,5,6	Sum (Total)
Current state	MW	17	0	24	18,1	18,1	21	24	23,8	24,9	91	56,1	147,1
Output	MW	17,1	0	24,3	18,1	18,6	21,2	23,6	23,9	24,9	90,7	56,9	147,4
Specific consumption	GJ/MWh	3,6929	0	3,6459	3,6591	3,6321	3,6427	3,6948	3,6218	3,6741	14,6739	14,7011	31,2345
Specific consumption	t/MWh	11,4	0	11,3	11,1	10,7	11,0	11,2	11,2	11,1	44,6	45,0	101,5
Steam consumption	t.h ⁻¹	282,0	0	275,0	279,0	248,0	274,0	269,0	275,0	280,0	1103,0	1084,0	1386,2
Steam consumption	GJ	20,7	0	16,9	17,8	18,2	16,9	20,2	18,5	17,9	70,1	76,6	164,9
Limits													

Setup

	Operation	Fixed
TG1		
TG2		-
TG5		15
TG6		-

	Output
Total	147,1
Output TG9	15,2
Output 3,4,7,10	91
Output 1,2,5,6	56,1

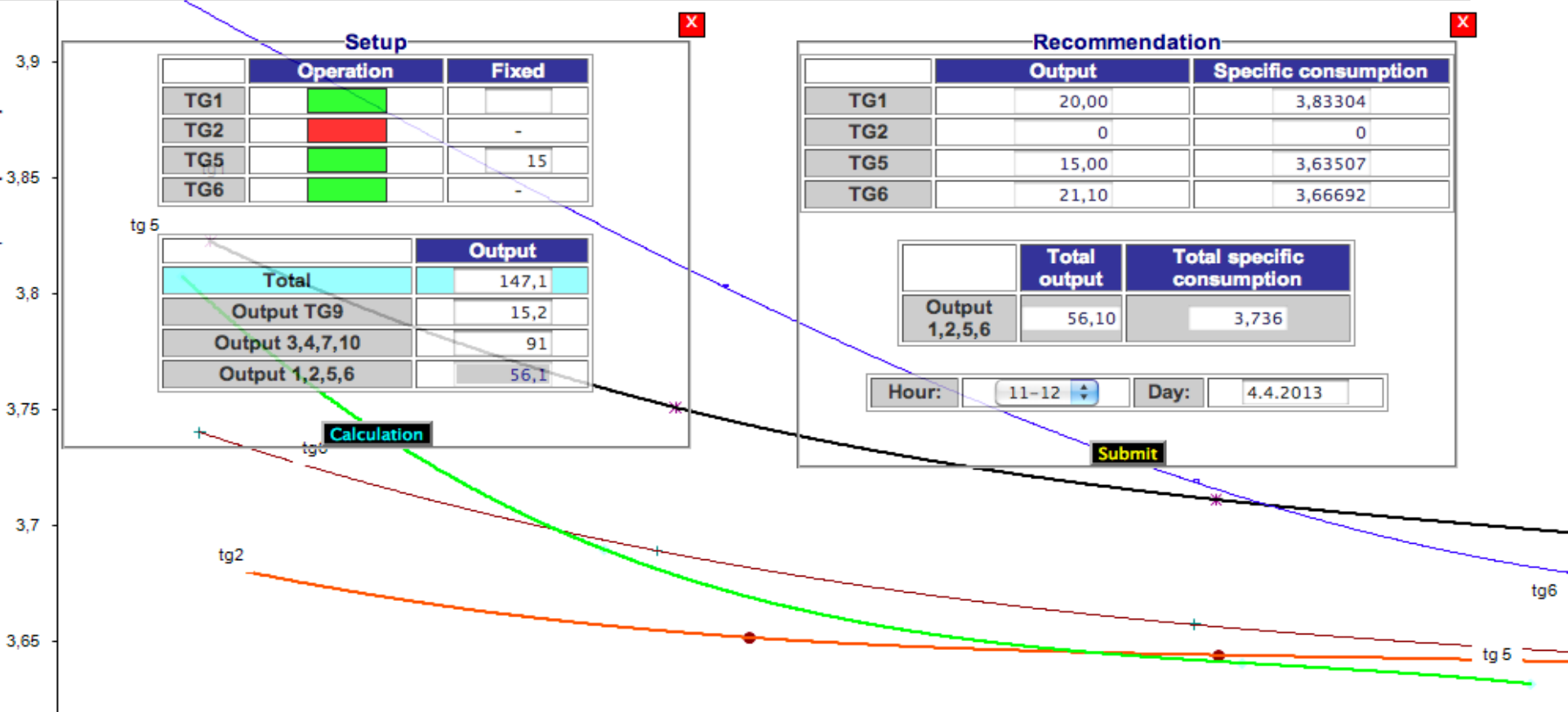
Recommendation

	Output	Specific consumption
TG1	20,00	3,83304
TG2	0	0
TG5	15,00	3,63507
TG6	21,10	3,66692

	Total output	Total specific consumption
Output 1,2,5,6	56,10	3,736

Hour: Day:

Submit



ENERGIS – HVAC integration

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ENERGIS – Lighting Control

DEPENDING ON FACTOR

Day light

Persons movement in a building

Planned operation time



myENERGIS for SMB, buildings and households

20 YEARS OF EXPERIENCE

\$1 BILLION OF ENERGY SAVINGS

If you can't measure it, you can't manage it

SaaS Cloud based



Total Demand - Building

Demand	0.33 kW
Monthly project	416.87 kWh
Bill forecast	\$ 2167.74

Intensiveness
0.89 W / ft2

Today
Clear
Humidity: 77%
Wind: N at 6 mph

Hourly values
[W/ft2]
08.10.2012 01:00

Quarter-hourly values: 08.09.2012 07:45 - 08.10.2012 07:45
[kWh]

Date	[kWh]
07.30.2012	
07.31.2012	6.93
08.01.2012	10.76
08.02.2012	15.50
08.03.2012	14.82
08.04.2012	12.66
08.05.2012	18.24
08.06.2012	13.60
08.07.2012	10.51
08.08.2012	14.45
08.09.2012	12.09
08.10.2012	2.89

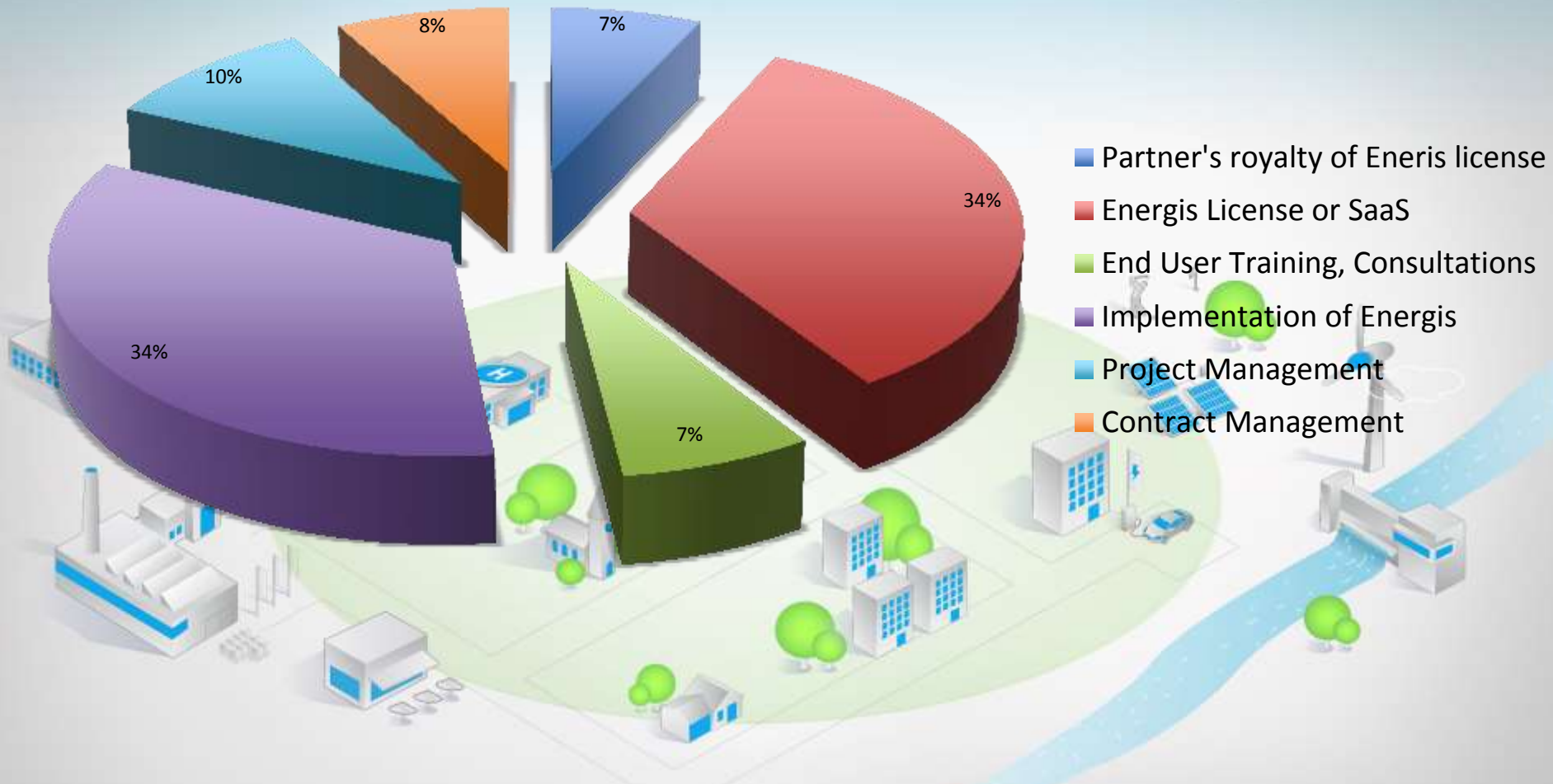
1 2
0.14 kW 0.06 kW
48 / 88 50 / 53

Partnership Options

20
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VAR – System Integrator – Main Contractor



- Partner's royalty of Enerjis license
- Enerjis License or SaaS
- End User Training, Consultations
- Implementation of Enerjis
- Project Management
- Contract Management

Partnership Sale

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Sector –
Supermarket Chains

Client 1

Client 2

Client 12

ENERGIS Smart Shop

Partner 1

Partner 2

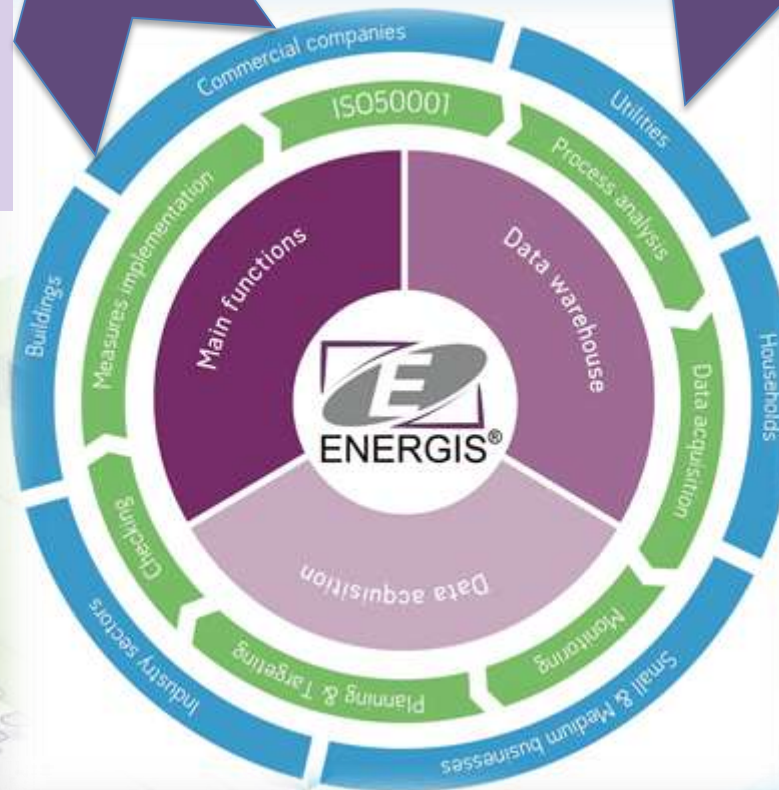
ENERGIS MU

Sector –
Municipal Utilities

Client 1

Client 2

Client 25



Typical RFP



General requests: compatible with existing infrastructure, multi user access, configurable by the user, administration of access rights from user interface, ...

Customer and Location Management: support an unlimited number of accounts, support multiple locations/meters associated with single customer account, define/add/change/delete an unlimited number of account types, summary and detail level inquiry of customer records, audit trail for changes, access via WebApplication, ...

Rates and Fees Management: ...

Meter reading and inventory: unlimited number of meter types, unlimited number of meters, automated meter reading, manual reading input, graphically display consumption history, ...

Billing Management: ...

Reporting: ...

WEB based customer information and payment portal: ...



INSTAR
North America

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*Energy management
without compromise*

