



JAROV II. dormitory

**Remote measuring of energy consumption,
Update from 01.09. 2020**

CONTENT

- **Remote measuring of energy consumption**
 - System description
 - Maddalena graphic scheme
 - Price of energy
 - ISKAM
 - Sensors measuring light, hot water, cold water, electricity and heat, meters at the footing of the building

System description

- **During the reconstruction performed in 2015, there was a complex system of energy consumption remote reading installed in all 44 reconstructed accommodation units of the Jarov II dormitory.**
 - Electricity – secondary power meters containing a module for remote reading.
 - Cold and hot water – accurate water meters containing radio modules for remote reading.
 - Heat – sensors in each room providing for accurate separate billing of heat costs.
- **Every hour, the system reads each meter and sends measured data to a central software. The data are saved there, and if necessary may be evaluated.**
- **There are error messages to be sent to SUZ energy officer's e-mail automatically set up in the system. Such messages concern namely excessive consumption arising from any failure or malfunction in the building.**
- **In cooperation with MADDALENA company an interactive table connected directly to the system was created. It uses the data for accurate monthly calculation of energy consumption both for students and as an overview of costs for SUZ.**
- **Students may also use a smart device application displaying measured data (physical units) by particular rooms or flats. The mentioned application may be downloaded using QR code obtained from the dormitory reception; the code to access particular charts showing energy consumption of each particular room is on the door of the particular room.**

GRAPHICAL RECORD OF CONSUMPTION

Přihlášení do aplikace



10 let na trhu

 **maddeo**[®]

přesné vodoměry a měřiče tepla

www.NeovlivnitelnyVodomer.cz

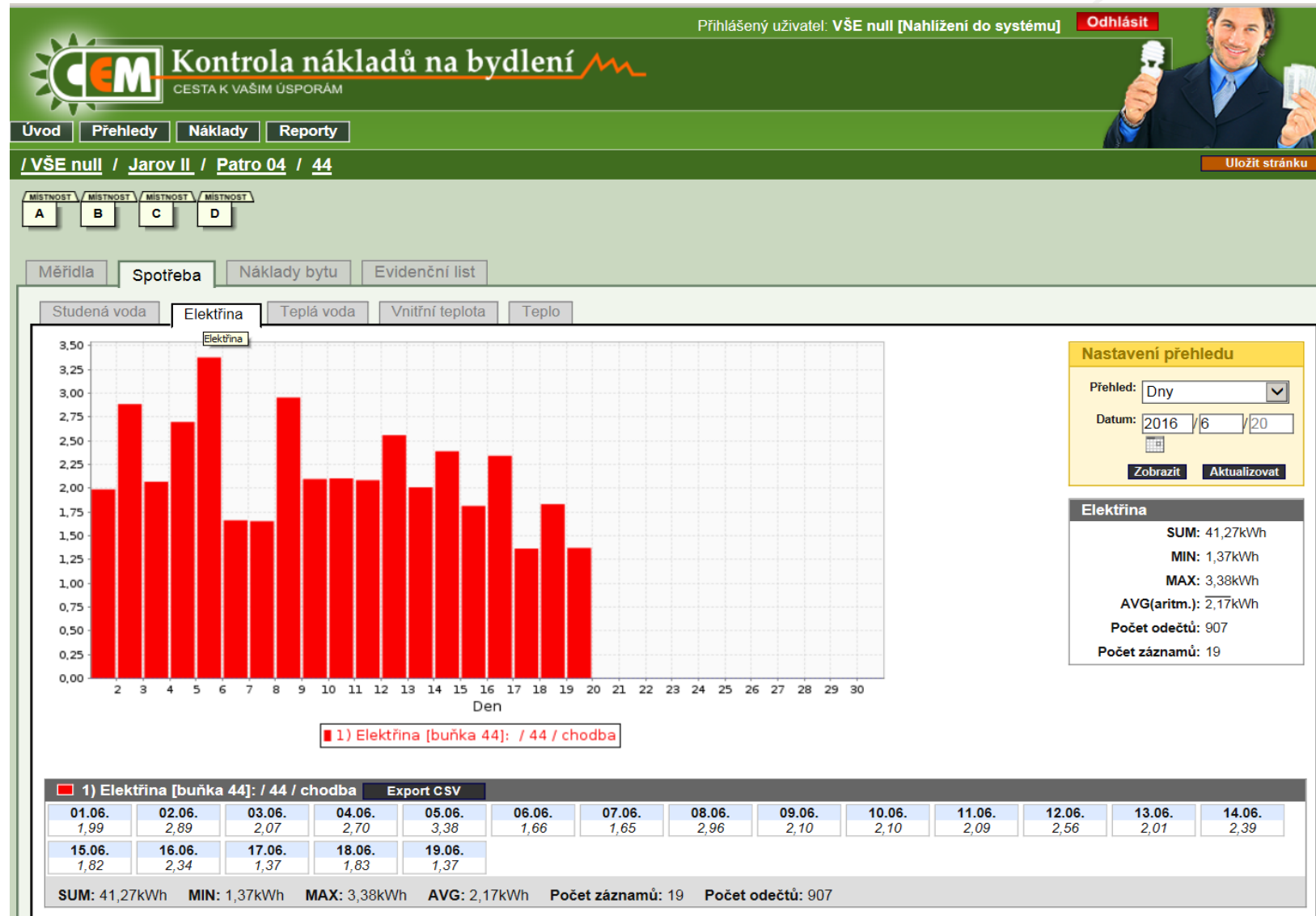
Přístupové jméno

Přístupové heslo

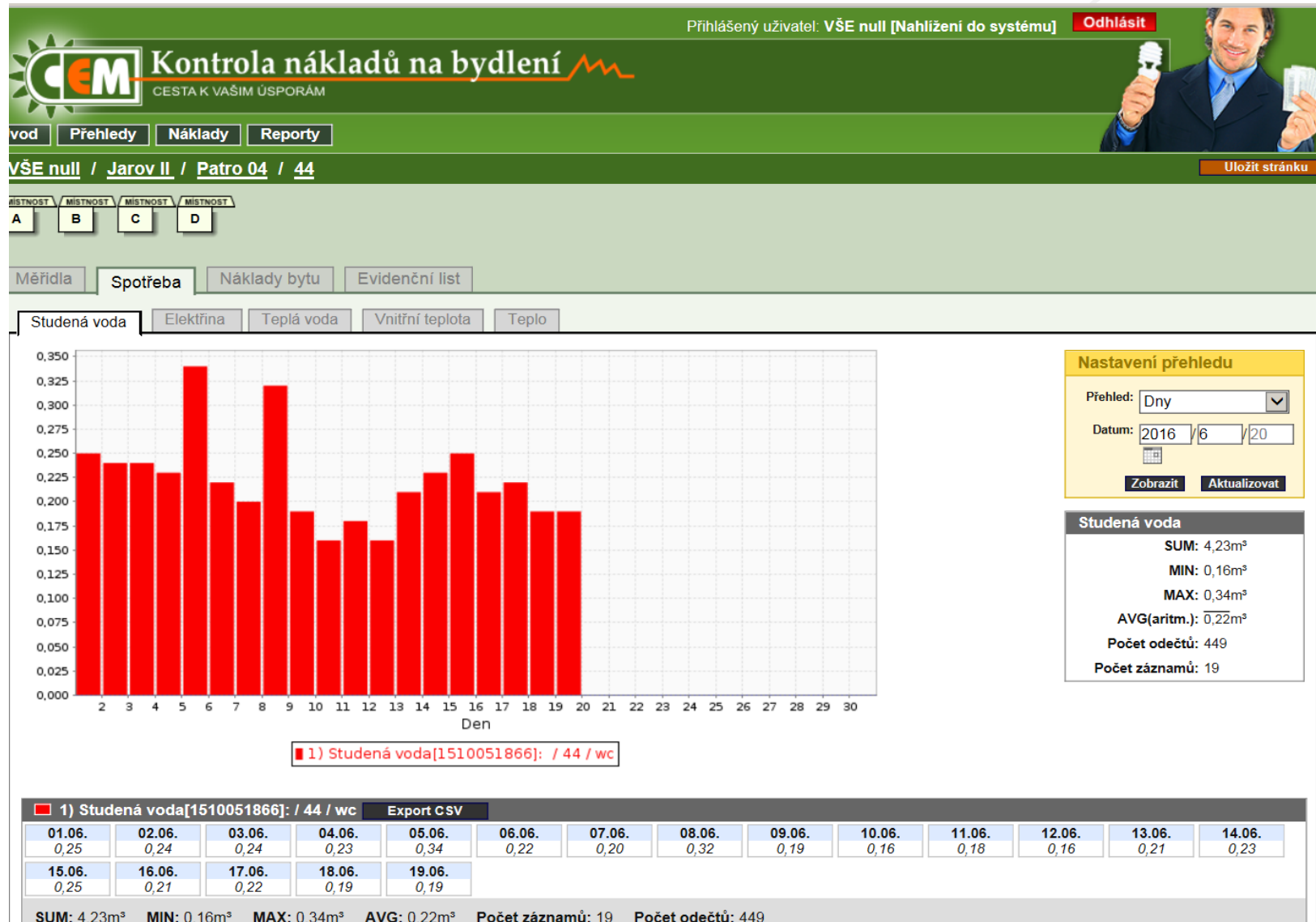
Přihlásit

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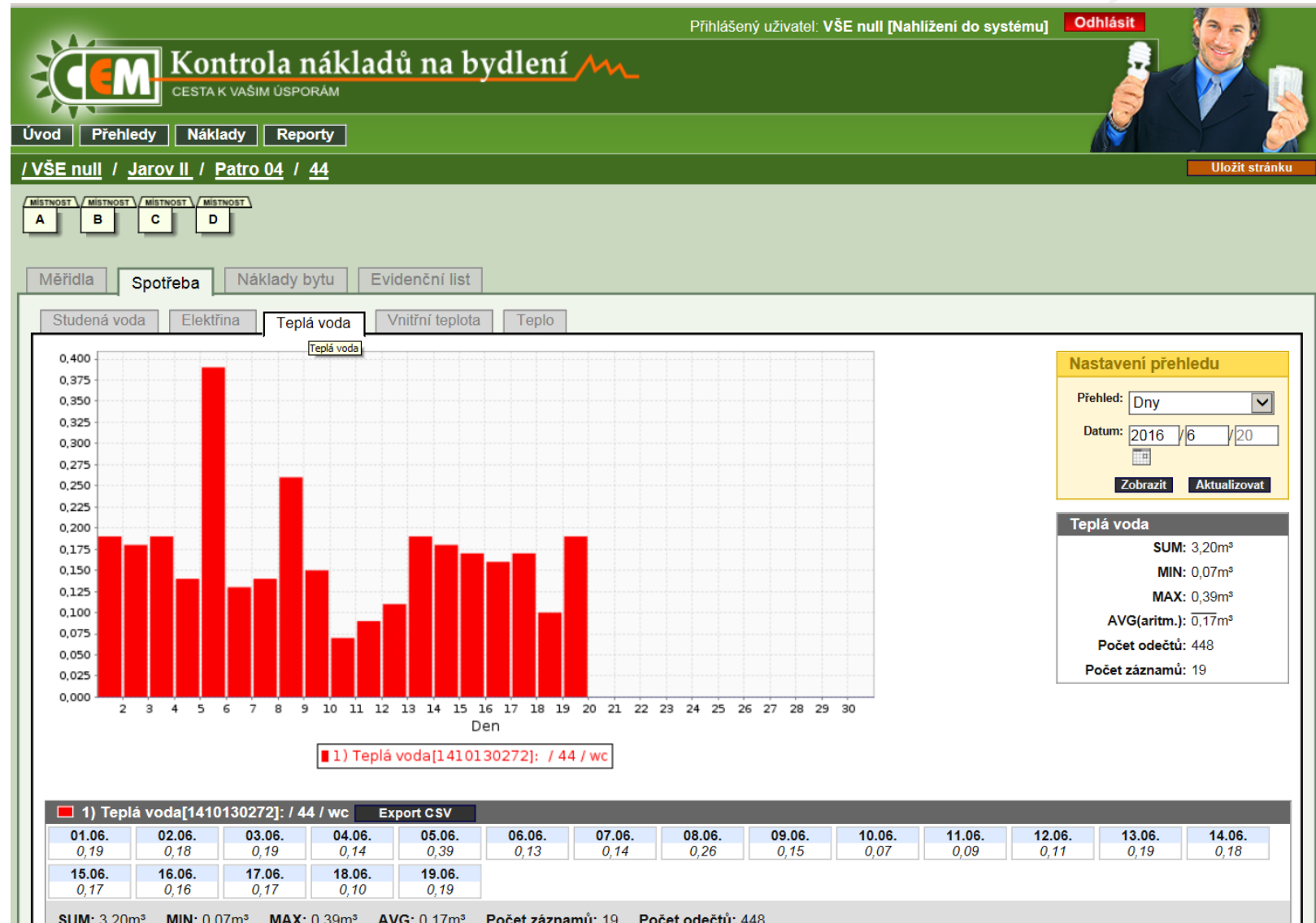
MADDALENA – ELECTRIC POWER



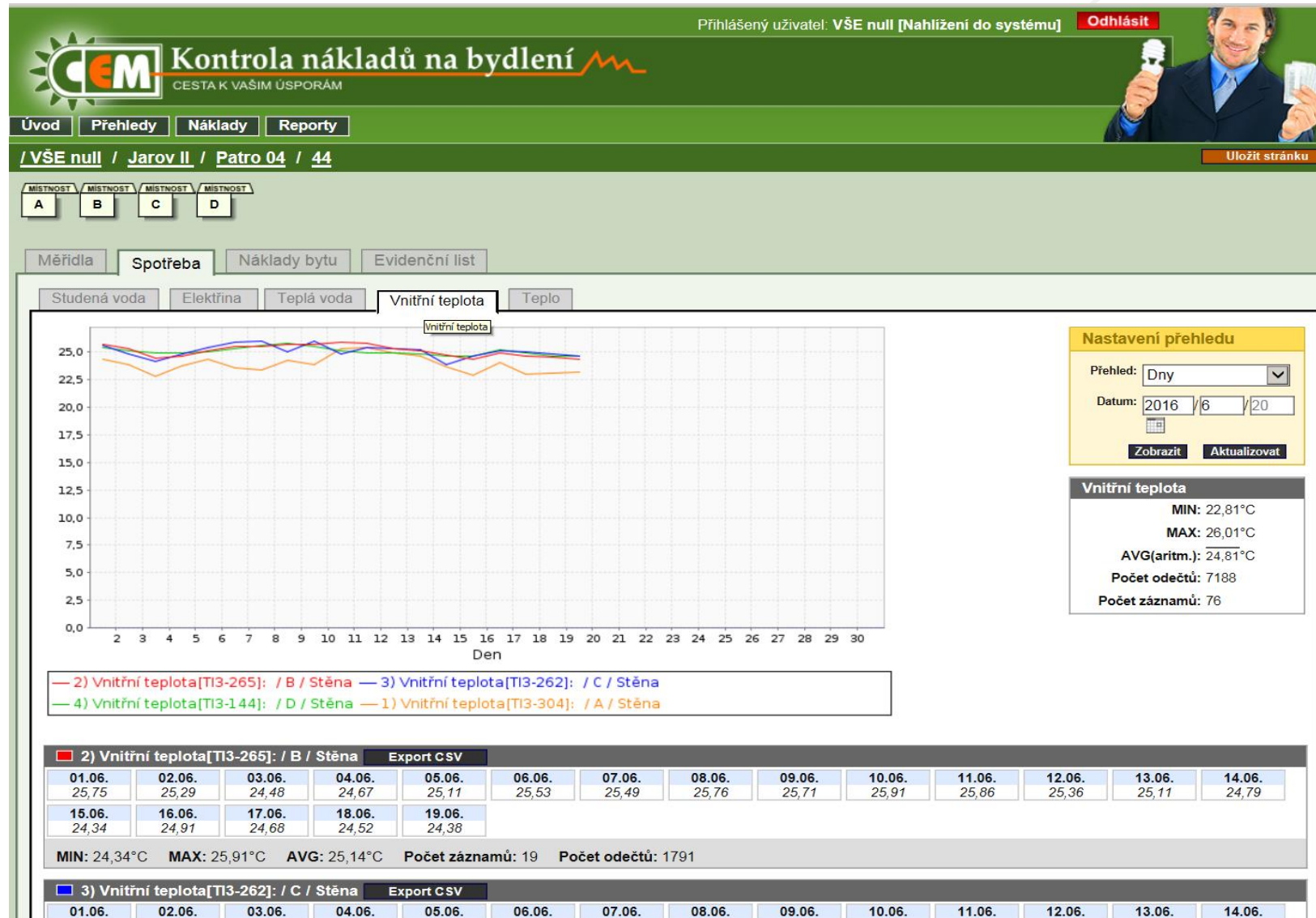
MADDALENA – COLD WATER



MADDALENA – HOT WATER



MADDALENA – HEAT



COST – BILLING

- University of Economics is not a holder of any licence issued by the Energy Regulatory Office to sell electric energy or heat. So it may not determine its own price leading to profit as other suppliers do.
- Students may not be charged more than the total price by the respective supplier

**** Note: all below stated prices charged to accommodated persons are including the respective VAT!***



WHAT ARE THE STUDENTS CHARGED FOR?



- **Only costs reflecting actual consumption of the energy by the particular unit (room), not fixed payments or charges for reserved capacity etc.**



ELECTRIC POWER

- Measured consumption as read from the meter in kWh for the particular period multiplied by a sum of items reflecting consumed number of electricity items, i.e. charge based on the rated current, tax rate applied on electricity, rate for distributed quantity of electricity power, system services and component of the price for the support of electricity from renewable energy sources.





ITEMS OF INVOCES

Items of invoices charged to one accommodation unit:

Item	CZK/accommodation unit in 2020
Price for power based on the rated current	1,0575
Tax on electricity	0,0342
Payment for distributed quantity	1,3732
System services	0,0933
Support of electricity from renewable energy sources	0,0161
Total	2,57



CONSUMPTION IN CZK PER ONE ACCOMMODATED PERSON

- Consumption (CVP) in kWh multiplied by 2,57 (price per 1 kWh) is the consumption of power in CZK per one accommodation unit/ flat. Dividing it by number of persons accommodated in the unit we shall get the consumption in CZK per one accommodated person in the period concerned.
- $S(K)_j = S(i) * (CVP)/j$
- $S(K)_j$ Consumption in CZK per one accommodated person in the respective period
- $S(i)$ Consumption of power per one unit
- CVP Total consumption of electricity in kWh
- j Number of accommodated persons in the respective period



COLD WATER

Measured volume of m³ multiplied by the price of water (94,09 CZK/m³)

- Water is not regulated by the Energy Act. The billing is really absolutely transparent as the price means a simple total of water and sewer rates applied to the quantity measured by respective meters.
- Water supply 50,303 CZK/m³
- Sewer 43,791 CZK/m³
- Water and sewer 94,094 CZK/m³
- Consumption of m³ multiplied by 94,09 (CZK/m³) means cold water consumption per one unit. Divided by the number of the accommodated persons, it gives the consumption in CZK per one accommodated person in the particular period.



HOT WATER

- Measured m^3 of hot water (red meter) x price for 1 m^3 of hot water
- $cTUV = cSV + (0.25 \times cGJ)$
- $cTUV = 85,18 + (0,25 \times 307,05) = 188,94 \text{ CZK/m}^3$
- $cTUV$ – price of hot water per 1 m^3
- cSV – price of cold water per 1 m^3
- 0.25 – physical constant – consumption of heat necessary to heat up 1 m^3 of water from 10°C to 60°C, i.e. 0.25 GJ
- cGJ – price for 1 GJ of heat
- Consumption of m^3 multiplied by 188,94 (CZK/ m^3) means the consumption of hot water per 1 unit; divided by the number of the accommodated persons it gives the consumption in CZK per one accommodated person in the particular period.
- Price for hot water calculated according to the above described method means the maximum level of price; the precise price shall be determined according to actually measured data provided by the meters at the footing of the building, however it may not exceed the maximum price.

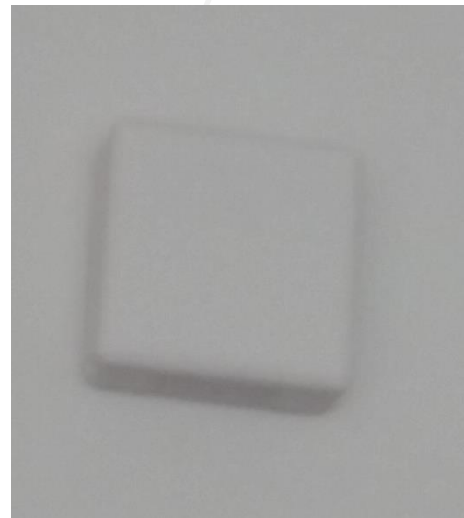




HEAT

Items from invoice:	Unit of measure	Unit price in CZK
Heat energy – combined	GJ	379,37

Heat is measured in the room, the total consumption shall be divided by the number of persons accommodated in the room in the respective period.





Billing for energy consumption

• Item	Unit	Unit price	Point of measuring
• Electricity	kWh	2,57	Unit / flat
• Cold water	m ³	94,09	Unit / flat
• Hot water	m ³	188,94	Unit / flat
• Heat	GJ	379,37	Room

Separate billing per 1 accommodated person shall be made in accordance with the number of accommodated persons in the unit / room in the respective period.

What part of energy consumption shall be paid by SUZ



- **Only fixed payments**
- **Costs related to energy losses in the distribution network**
- **Costs related to common dormitory areas, operation and cleaning of building**

Electricity – ITEMS TO BE PAID BY SUZ

• Item	Unit	Total amount in CZK
Charge for the distribution point	month	0,00
Main circuit breaker/charge for input	month	6 337,98
Market operator's activities	month	6,14

- *Costs to be paid by SÚZ are stated without VAT (SÚZ is the VAT payer).*
- *Values applicable to 2016*

Electricity – AMOUNT TO BE PAID FOR THE COMMON AREAS

There is the consumption as measured in all 44 units having secondary meters deducted from the total sum invoiced by the power supplier in the particular period. Resulting amount is the electricity consumption paid by SUZ (lifts, lighting of common areas, washers, oven etc.)

This amount represents about 56% from the total invoice amount charged to the dormitory.

$$S1(\text{SUZ}) = CF - (S(i) * 44)$$

CF – total invoiced costs per the period

S(i) – consumption of kWh measured in one unit

S1(SUZ) – SUZ costs (lifts, lighting of common areas, washers, oven etc.)

Water and sewer rates, precipitation – payments by SUZ

- Precipitation – rainfall drainage
- Water and sewer rates for the common areas (laundry, kitchen, shared toilets in the ground floor, cleaning etc.)

SUZ covers about 20% of the total invoiced amount.

HOT WATER – PAYMENTS MADE BY SUZ

- All distribution losses
- Losses in exchanger output
- Losses in boilers

SUZ covers about 8% of the total invoiced amount.

HEAT – PAYMENTS BY SUZ

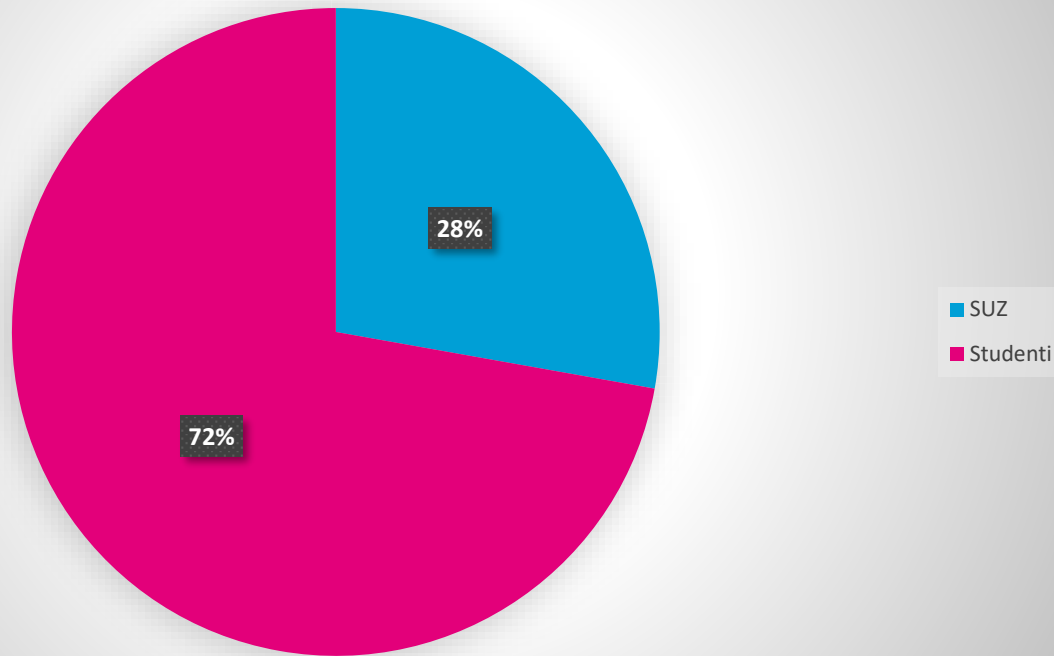
Item from invoice:

- Payment for supplied quantity (combined supply of heat and hot water)

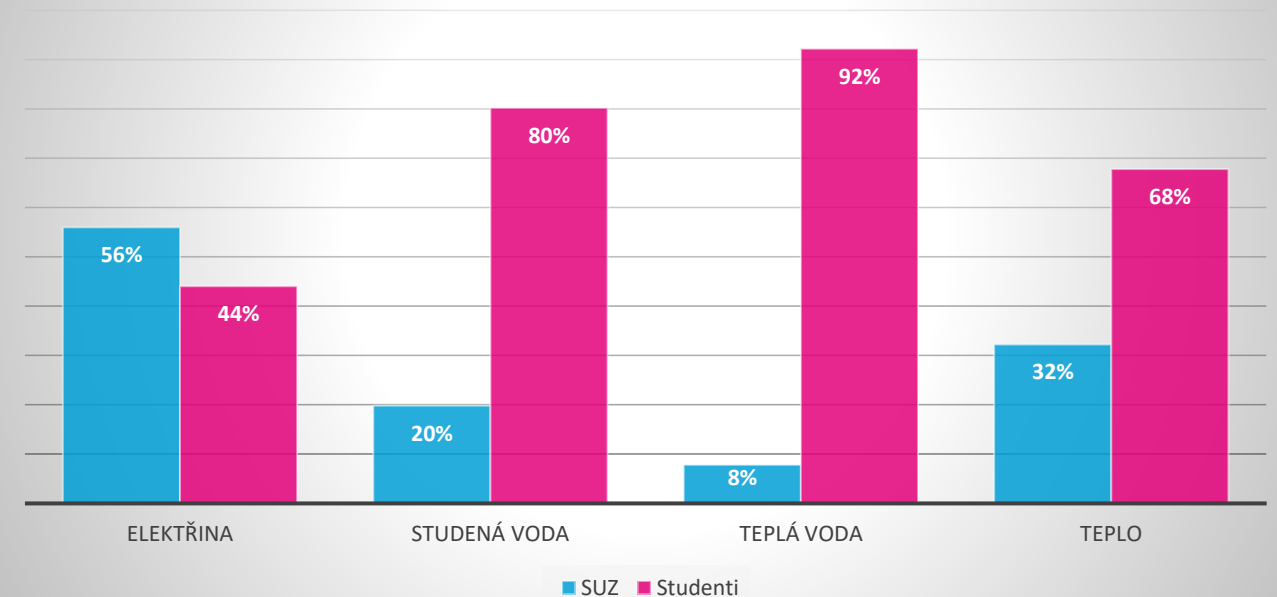
Heating of common areas, corridors etc. (about 32 % of the total invoiced amount).

WHAT % OF ENERGY COSTS CAN BE OFFLOADED ONTO STUDENTS?

Celkem



Jednotlivá média



HOW SHALL IT LOOK IN ISKAM?

POSKYTNUTÉ SLUŽBY

Název služby	Začátek	Konec	Cena
Přeúčtování elektřiny	1. 7. 2020		2 Kč
Přeúčtování teplé vody	1. 7. 2020		11 Kč
Přeúčtování studené vody	1. 7. 2020		5 Kč
Celkem			18 Kč

ELEKTROMĚR - 13A

Datum odečtu	Hodnota [kWh]	Změna [kWh]
1. 7. 2020	5541,3106	3,463
30. 6. 2020	5537,84896	145,926

STUDENÁ VODA - 13A

Datum odečtu	Hodnota [m3]	Změna [m3]
1. 7. 2020	290,3892	0,32
30. 6. 2020	290,0692	9,98

TEPLÁ VODA - 13A

Datum odečtu	Hodnota [m3]	Změna [m3]
1. 7. 2020	301,52663	0,35
30. 6. 2020	301,17663	11,52

Daňový doklad číslo/Invoice number: DD16016747

Dodavatel:

Správa účelových zařízení VŠE Praha
Jeseniova 2769/208 , 130 00 Praha 3
IČ: 613 84 399 DIČ: CZ613 84 399
Banka: Česká spořitelna
Účet: 1793102

Odběratel:

Maroš Marejka, Bc.
Komenského 135/18
022 04 Čadca
Slovak Republic

Datum vystavení dokladu: 13.06.2016 14:07:35 DUZP: 13.06.2016

Č. Popis	Poč.	Jedn. cena bez DPH	Sazba DPH	Jedn. cena s DPH	Celkem s DPH
1 Přeúčtování elektřiny 13.06.2016	1	45,45 Kč	21%	55 Kč	55 Kč

Celkem: 55,00

Sazba DPH	Základ DPH	DPH	Celkem
21%	45,45 Kč	9,55 Kč	55 Kč

Vystavil(a): Jaroslav Klečka, ,

Kontakt: tel.: , e-mail: xklej18@vse.cz

Doklad pečlivě uschovejte (i pro případnou reklamaci)!/document in a safe place (for possible claims)!

Vysoká škola ekonomická v Praze, nám. W. Churchilla 4, 130 67, Praha 3, IČ: 61384399, DIČ: CZ61384399
Vysoká škola ekonomická v Praze je veřejná vysoká škola zřízená zákonem č. 111/98 Sb. o vysokých školách

ApS Brno

Charging for energy consumption and payment terms

- **ISKAM makes monthly billing, or at the moment of your moving out from the room**
- **The bill is issued always one day after the month passed**
- **i.e. October is billed on November 1st, November on December 1st etc.**
- **Due day is the same as for the accommodation fee, i.e. by 20th day of the month when the bill is issued**
- **So, if the bill for October is issued on November 1st, the due date for the payment is November 20th.**

DISPLAY OF VALUES MEASURED

- In ISKAM, in the accommodation overview („přehled ubytování“), click on details of present accommodation („detail aktuálního ubytování“)
- Clicking on „Odečty Maddalena“ you will enter the application where you can follow daily levels of the measured quantities



PŘEHLED UBYTOVÁNÍ

Kolej	Blok	Pokoj	Začátek	Konec	Stav	Cena za noc	Detail	Smlouva
Kolej Jarov II.	Jarov II.	13D	30. 6. 2020	1. 9. 2020	Ubytování	121 Kč		
Kolej Jarov II.	Jarov II.	13D	9. 9. 2019	30. 6. 2020	Odhlášen	121 Kč		
Kolej Blanice	Blanice	1018B	28. 6. 2019	2. 9. 2019	Odhlášen	99 Kč		
Kolej Blanice	Blanice	308A	10. 9. 2018	28. 6. 2019	Odhlášen	99 Kč		
Švecova kolej	Švecova kolej	3022	13. 9. 2017	15. 9. 2017	Odhlášen	170 Kč		
Kolej Blanice	Blanice	405B	7. 9. 2017	13. 6. 2018	Odhlášen	99 Kč		



JAROV II.:13D 30. 6. 2020-1. 9. 2020

Stav ubytování:	Ubytování
Smlouva:	Podepsáno 30. 6. 2020
Cena za noc:	121 Kč
Cena celkem:	7 641 Kč
Spolubydlící:	Kristína Turzová (30. 6. 2020 – 1. 9. 2020)
Nejbližší nevyúčtované období:	30. 6. 2020 – 31. 7. 2020, předpokládaná cena: 3 751 Kč
Stav měřičů:	Odečty Maddalena
Vyúčtování měřičů:	ZOBRAZIT

Meters at the footing of the building



**IMPLEMENTING THE SYSTEM OF ENERGY METERS REMOTE
READING WE SHALL SAVE BOTH COSTS OF STUDENTS AND
SÚZ, AS WELL AS OUR NATURE!**



ALL SÚZ STAFF WISH YOU PLEASANT AND CHEAPER ACCOMMODATION!

