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# ENERGY ACTION PLAN AND ENERGY EFFICIENCY FINANCING PLAN OF THE ZLÍN REGION 2020 - 2024

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# Action Plan of the Zlín Region 2020 - 2024

The Energy Action Plan and the Energy Efficiency Financing Plan of the Zlín Region is a programming document based on the approved documents of the Zlín Region for the area of energy and the environment, in particular air protection. It is based on 5 pillars of the Regional Energy Strategy

- I. **A balanced mix of resources** - based on their broad portfolio, efficient use of all available domestic energy resources and maintaining the ES's surplus power balance with ample reserves.
- II. **Increasing energy efficiency** and achieving energy savings in the economy and in households.
- III. **Development of the Czech Republic's network infrastructure** in the context of Central European countries, strengthening international cooperation and integration of electricity and gas markets in the region
- IV. **Support for research, development and innovation** ensuring the competitiveness of Czech energy and support for education
- V. **Increasing of energy safety and resilience of the Czech Republic** and strengthening the ability to secure the necessary energy supplies in the occasion of failures cumulation, multiple attacks against critical infrastructure and in cases of prolonged fuel supply crises.

# Action Plan of the Zlín Region 2020 - 2024

The EE Action Plan of the Zlín Region outlines 5 priorities that are based on the Regional Energy Strategy:

1. Support for efficient use of energy in buildings owned by the Zlín Region
2. Support for efficient use of energy in the region
3. Promoting the use of renewables, secondary and prospective energy sources
4. Increasing security and reliability of energy supply
5. Measures to support the implementation of the Action Plan

# Action Plan of the Zlín Region 2020 - 2024

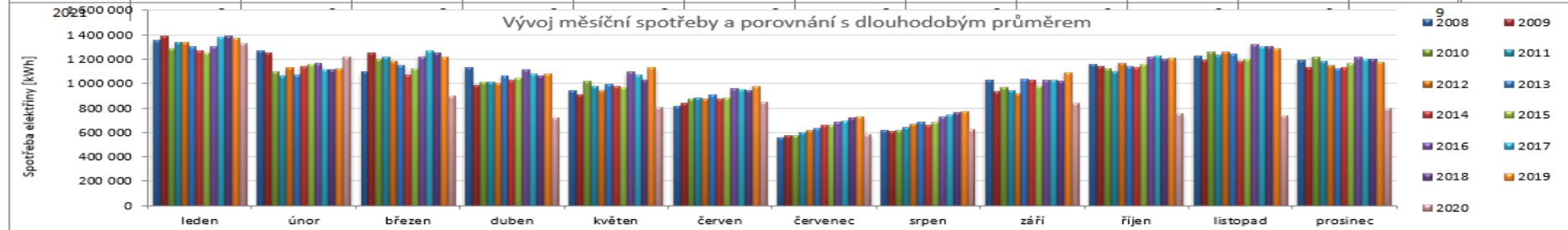
## 1. Support for efficient use of energy in buildings owned by the Zlín Region

### Energy management

- Records of a database of daily energy consumption monitoring (gas, electricity, water, heat), including provision of data and documents for commodity purchases (Zlín Region, municipalities)
- Provision of training and education for all actors involved in decision-making processes

### Consumption of electricity in kWh inorganisations established by the Zlín Region

rok	leden	únor	březen	duben	květen	červen	červenec	srpen	září	říjen	listopad	prosinec	celkem rok
2008	1 353 009	1 264 415	1 098 754	1 134 398	940 647	816 408	556 780	618 944	1 031 653	1 155 770	1 224 792	1 187 374	12 382 944
2009	1 385 030	1 247 346	1 254 230	984 311	910 280	842 481	575 595	608 385	935 995	1 138 295	1 189 949	1 134 148	12 206 045
2010	1 282 383	1 095 422	1 203 803	1 008 459	1 016 103	871 685	576 094	617 092	966 413	1 118 717	1 261 250	1 213 280	12 230 701
2011	1 341 493	1 063 681	1 220 349	1 007 443	978 995	880 843	595 561	643 000	942 887	1 096 860	1 234 408	1 181 357	12 186 877
2012	1 336 105	1 127 154	1 183 199	1 003 296	939 333	871 958	614 707	670 116	918 571	1 163 179	1 258 408	1 144 188	12 230 214
2013	1 300 125	1 069 970	1 148 318	1 063 986	995 657	908 138	630 854	683 066	1 034 207	1 143 662	1 239 749	1 122 148	12 339 880
2014	1 269 737	1 142 052	1 067 755	1 027 444	979 004	873 207	654 646	662 958	1 024 213	1 128 273	1 179 028	1 128 656	12 136 973
2015	1 253 697	1 160 701	1 125 603	1 041 473	971 962	883 625	654 731	685 791	973 601	1 156 561	1 197 016	1 166 066	12 270 827
2016	1 304 808	1 161 477	1 220 675	1 117 938	1 093 920	960 642	683 821	726 554	1 025 738	1 221 105	1 321 116	1 216 041	13 053 835
2017	1 375 993	1 111 981	1 266 915	1 078 013	1 071 716	950 309	689 192	742 445	1 028 663	1 226 798	1 306 723	1 201 152	13 049 900
2018	1 386 512	1 111 402	1 252 180	1 064 343	1 029 974	944 712	720 863	764 882	1 020 324	1 203 277	1 298 925	1 201 611	12 999 006
2019	1 372 058	1 124 952	1 215 889	1 076 191	1 127 107	979 727	727 165	767 422	1 091 228	1 207 687	1 287 563	1 174 171	13 151 159
2020	1 327 804	1 219 245	895 882	717 617	801 684	847 867	577 423	626 379	836 713	752 509	734 346	797 627	10 135 096



# Action Plan of the Zlín Region 2020 - 2024

## 1. Support for efficient use of energy in buildings owned by the Zlín Region

### Initiation of energy efficiency and efficiency projects

- Coverage of the necessary proposed measures outside the regional budget

### OP ENVIRONMENT 2014 - 2020

- 165 projects initiated, developed and administered by EAZK
- Total investment costs 2,17 billion CZK (app 83,5 Mio EUR)
- Supposed OPE support 690 million CZK (app. 26,5 million EUR)

Okres vývoje	Název žadatele	Podíl projektu	Celková výše investice (M CZK)	Celková předpokládaná výše výdajů (M CZK)	Předpokládaná výše investice (M CZK)	Státní celková výše výdajů (M CZK)	Státní celková výše investice (M CZK)	Státní celková výše výdajů (M CZK)	Státní celková výše investice (M CZK)	Předpokládaná výše výdajů (M CZK)	Předpokládaná výše investice (M CZK)	
01	Střelčice	0	26 781 621,00	86 281 796,00	29 210 212,00	30 210 212,00	78 241 624,00	0 740 474	0 690 820	8 712 209	330 215	
02	Opava	11	120 956 298,00	71 811 443,00	29 526 178,00	121 970 439,22	65 560 402,64	16 372 192,36	0 740 571	9 245,35	1 255 412	222,72
03	Brno-venkov	2	16 767 295,00	6 224 537,00	1 689 214,80	11 768 203,48	8 580 843,00	1 432 256,00	1 309 400	716,20	593 599	33,36
05	Olomouc	46	19 646 713,00	18 203 028,00	7 286 421,00	17 298 389,24	17 298 649,44	7 288 836,28	1 065 101	636,27	1 020 922	79,36
06	Čáslav	2	136 112 094,00	60 589 712,00	28 988 714,24							
08	Olomouc	1	142 277 307,00	124 407 028,00	42 227 864,44							
09	Střelčice	1	17 270 480,00	10 599 450,00	4 109 791,00	168 017 400,23	93 660 178,85	41 002 438,88	8 802 112	0 523,60	2 202,20	147,43
10	Opava	24	121 430 941,00	63 904 821,00	27 561 929,20	128 758 281,45	87 937 309,65	39 438 953,88	8 605,57	5 513,80	1 084,85	247,45
14	Opava	0	41 287 950,00	11 870 111,00	11 273 805,00				1 483 380	2 202,01	779,97	66,02
16	Opava	1	11 648 269,00	11 820 954,00	11 820 951,11							
18	Nový Jičín	1	45 828 554,00	45 558 979,00	18 722 432,15							
24	Nový Jičín	0	420 788,00	720 384,00								
25	Brno-venkov	1	0 113 439,00	460 127,00								
26	Nový Jičín	0	524 462,00	431 013,00	50 000,00							
29	Brno-venkov	1	0 391 480,00	7 761 554,00	5 822 365,00							
30	Střelčice	0	0 546 030,00	0 528 546,00	0 200 307,00	0 628 904,00	1 434 036,12	1 340,20	1 113,00	120,20	135,00	100,00
32	Opava	1	81 565 730,00	38 970 286,00	20 938 113,70	6 438 203,01	5 438 203,01	1 175 289,60	11 468 411	9 286,60	2 721,34	204,29
33	Opava	21	114 027 560,00	205 548 414,00	11 520 183,75	11 582 374,00	23 467 548,25	11 930 238,20	10 005,18	10 401,20	4 614 293	277,93
35	Opava	21	176 468 377,00	200 790 193,00	95 140 764,10	147 490,01	161 871,71	127 420,01	26 977 001	18 953,53	7 213,61	528,45
37	Střelčice	1	174 658 739,00	85 442 548,00	48 934 658,00							
39	Olomouc	1	17 824 268,00	11 262 124,00	4 436 829,80							
40	Opava	11	40 712 289,00	40 712 289,00	18 836 295,51							
44	Opava	11	309 480 228,00	204 570 573,00	81 240 112,61	15 687 921,06	14 693 267,27	6 909 460,27	2 345,00	2 005,60	103,84	22,18
46	Opava	1	2 920 650,00	2 920 650,00	1 757 791,00							
48	Opava	0	89 800 468,00	87 361 183,24	37 930 273,93							
50	Nový Jičín	1	2 184 692 813	1 336 002 064	708 474 064	999 206 698	300 974 818	142 454 044	131 244	60 179	807,51	117,00
Celkem			1 919 402 868,00	1 020 811 540,00	495 300 000,00	1 424 102 868,00	750 000 000,00	300 000 000,00	131 244	60 179	807,51	117,00

# Action Plan of the Zlín Region 2020 - 2024

## OP ENVIRONMENT 2014 – 2020 / EAZK overview

Call No	Applicant	Number of projects	Total costs	Expected eligible costs	Expected OPE support	Real costs	Real eligible costs	Support provided by OPE	Current energy demand (GJ/year)	Suggested energy demand (GJ/year)	Energy savings (GJ/year)	CO <sub>2</sub> savings [t/year]
19	Zlín Region	7	126 763 347,00	80 385 789,00	32 154 315,60	113 389 061,89	78 933 626,60	31 573 450,64	9 768,44	6 050,87	3 717,598	235,11
19	Municipalities	15	102 566 298,00	73 811 445,00	29 524 578,00	122 370 439,22	65 680 403,64	26 272 161,46	6 740,73	3 445,35	3 293,432	222,71
39	Zlín Region	2	16 767 795,00	9 224 537,00	3 689 814,80	11 768 203,48	8 580 642,00	3 432 256,80	1 309,80	716,20	593,598	33,28
39	Municipalities	4	29 644 713,00	18 201 028,00	7 280 411,20	27 208 369,24	17 759 645,45	7 103 858,20	1 665,19	636,22	1 028,962	72,91
61	HZS	2	119 112 094,00	90 589 732,00	28 988 714,24							
61	Municipalities	4	142 277 307,00	134 607 026,00	42 727 864,44							
70	Zlín Region	5	127 255 040,00	102 599 459,00	41 039 783,60	158 017 400,23	93 660 171,85	41 002 436,88	8 802,10	6 523,60	2 202,50	147,47
70	Municipalities	24	131 430 941,00	93 904 823,00	37 561 929,20	106 860 530,06	69 061 184,82	30 938 757,28	8 600,57	5 513,85	3 084,85	247,45
70	Policie ČR	3	41 287 950,00	31 809 513,00	12 723 805,20				3 481,98	2 702,01	779,97	60,74
80	Municipalities	2	23 648 289,60	13 305 056,90	11 974 551,21							
88	KNTB	1	45 828 554,00	45 556 979,00	38 723 432,15							
NZÚ	Municipalities	1	470 788,00		235 394,00							
EFEKT-VO	Municipalities	1	6 113 439,00		460 127,00							
NPŽP -elektro	Municipalities	1	523 462,00	432 613,00	50 000,00							
89	AH-ENERGY, s.r.o	1	9 391 480,00	7 761 554,00	5 821 165,50							335,00
100	Zlín Region	1	5 546 618,00	5 138 168,00	2 055 267,20	3 638 954,00	3 636 640,48	1 454 656,19	1 240,20	1 113,90	126,30	7,00
100	Others	6	85 565 730,00	38 970 286,00	20 858 333,70	5 438 201,01	5 438 201,01	2 175 280,40	11 468,83	9 196,49	2 272,34	205,29
100	Municipalities	25	154 627 560,00	105 548 414,00	51 526 183,75	103 053 613,80	76 402 942,70	37 783 377,25	15 055,58	10 401,29	4 654,29	277,32
121 - podané 2019	Zámek a Záchranka	2	33 688 166,00	25 437 730,00	10 175 092,00	10 388 172,00	2 708 140,00	1 083 256,00	1 473,40	1 105,00	368,60	26,81
121 - podané 2020	Municipalities	27	253 746 849,00	199 741 250,00	95 149 808,30	14 939 162,42	6 918 550,39	2 825 003,81	26 054,55	18 438,71	7 617,11	514,95
121 - podané 2020	Zlín Region	6	165 424 129,00	77 209 936,00	40 765 084,90				7 410,20	6 756,80	1 907,40	255,40
144 - voda	Municipalities	2	6 372 136,00	6 133 612,00	5 213 570,20						0,00	0,00
146	Municipalities	11	399 486 228,00	294 570 677,00	102 496 776,55	118 009 904,29	108 741 337,10	36 991 238,31	2 345,50	2 005,66	339,84	22,18
146	Zlín Region	1	2 929 652,00	2 929 652,00	1 757 791,20						135,00	37,87
NZÚ, MF, MPO, Horizon, IROP	Municipalities	9	99 800 464,80	92 561 161,24	57 930 757,39						862,53	117,29
135	KHS	2	37 823 764,00	21 262 154,00	9 438 825,80						814,00	11,23
<b>TOTAL</b>		<b>165</b>	<b>2 168 092 794</b>	<b>1 571 692 595</b>	<b>690 323 377</b>	<b>795 082 012</b>	<b>537 521 486</b>	<b>222 635 733</b>	<b>105 417</b>	<b>74 606</b>	<b>33 798</b>	<b>2 930</b>

# Action Plan of the Zlín Region 2020 - 2024

## 1. Support for efficient use of energy in buildings owned by the Zlín Region

### Initiation of energy efficiency and efficiency projects

- Proposing financing of projects within an international cooperation



## 2. Support for efficient use of energy in the Zlín Region

- Support for the construction of nearly zero energy buildings, Identification of development areas for passive and zero construction
- Increasing the efficiency of heat supply from HSS (heat supply systems) in the region and supporting conceptual solutions of low-carbon systems
- Activities to support the modernization of sources burning solid fossil fuels using low carbon technologies, including RES
- Activities to promote energy savings and greening transport
- Education in the field of energy efficiency and adaptation to climate change, promotion of examples of good practice



# Action Plan of the Zlín Region 2020 - 2024

## 2. Support for efficient use of energy in the region - **example**



POHLED VÝCHODNÍ

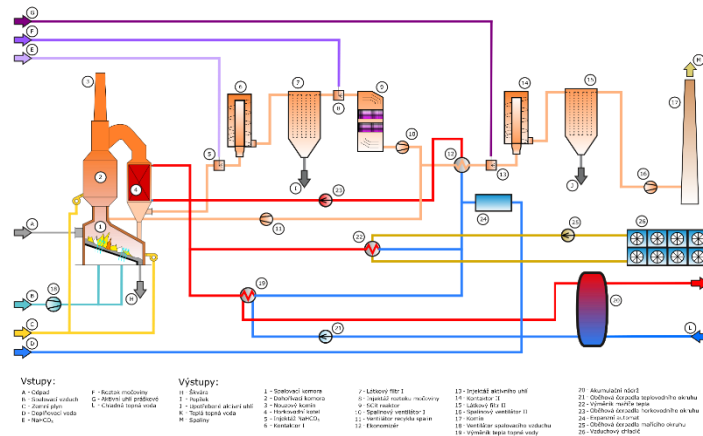


**new design – visualisation by EAZK – realisation**



## 3. Promoting the use of RES, secondary and prospective energy sources

- **Use of RES in households** information, consultation and supporting application submission to various programmes
- **Fuels from secondary energy sources (SES)** and their utilization, including utilization of waste heat.
- **Energy use of hazardous and mixed municipal waste**



# Decreasing the heat demand in Uherské Hradiště hospital

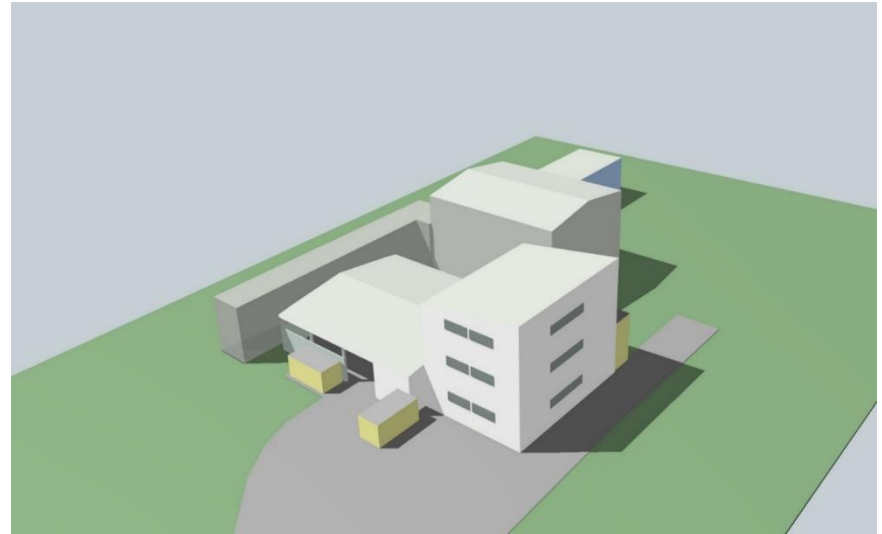
New medical waste incinerator for all hospitals in the Zlín Region

## 3. Promoting the use of RES and secondary energy sources - example

Current waste incinerator 350 t/year

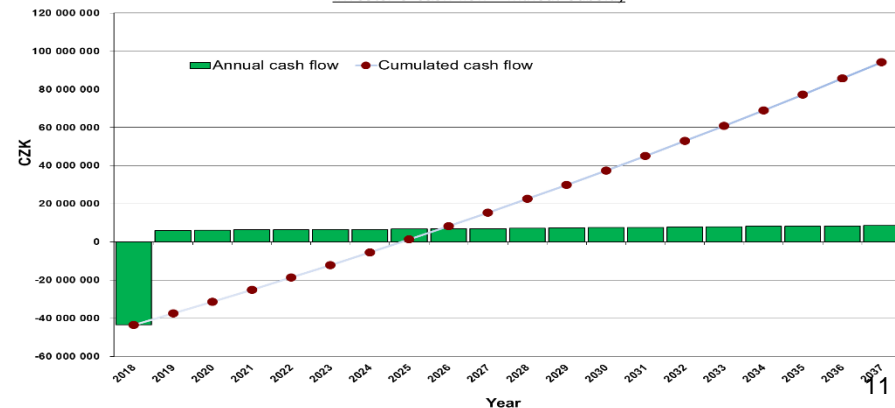


New waste incinerator 1000 t/year planned



Financial indicators	
Net present value - NPV	58 618 603,40 CZK
Internal rate ratio - IRR	14,27%
Payback period - simple	7 years
Payback period - discount	8 years
Evaluation year	2018
Lifetime period	20 years
Discount	3,00 %

Uherské Hradiště hospital waste incinerator with a capacity of 1000 t / year  
Investor's cash flow - without subsidy



## 4. Increasing security and reliability of energy supply

- Development of infrastructure registration system, including strengthening cooperation with media suppliers
- Develop conceptual materials for reliable and low-carbon supply to the region
- To support the energy self-sufficiency of important buildings requiring operation in crisis situations
- Participation of EAZK representative in regional crisis management

## 4. Increasing security and reliability of energy supply - **example**

- To support energy self-sufficiency, resources were modernized in the cities of Slavičín, Brumov-Bylnice - heat production from biomass (wood chips + co-generation unit on natural gas)

Zlínský kraj



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## 4. Increasing security and reliability of energy supply - **example**

- Uherské Hradiště hospital - cancellation of outdoor steam distribution as a part of greater modernization of regional heat sources



## 5. Measures to support the implementation of the Action Plan

### ➤ Zlín Region as an example

- Wherever appropriate, projects will be identified in buildings owned by the Zlín Region, where it would be possible to demonstrate the effectiveness, economy and other benefits of the implemented measures (and projects). These projects will then be published and serve to motivate other entities in the territory of the Zlín Region.

### ➤ Education to save energy and use renewable and secondary sources

- Workshops for employees of building authorities in energy management
- Information meetings / seminars for representatives of the region and other authorities and organizations financed from the region's budget for energy-conscious renewal of facilities and buildings;
- Organization of regular “round tables” for design and development organizations operating in the region with the aim of exchanging views and opinions on barriers and conditions

## 5. Measures to support the implementation of the Action Plan - **example**

### Regional competition on the best reconstructed objects in 3 categories

- Heat insulation only
- Heat insulation and source of heat supply
- Renewables

**NEMOCNICE SLAVIČÍN**  
Soutěž obecních projektů - VĚDOMÁ MODERNIZACE BUDOV  
Komplexní zateplení a instalace obnovitelného zdroje tepla  
minimální energetická úspora 50%

**DŮM SLUŽEB ZUBŘÍ**  
Soutěž obecních projektů - VĚDOMÁ MODERNIZACE BUDOV  
Komplexní zateplení - minimální energetická úspora 50%

**MATEŘSKÁ ŠKOLA PITÍN**  
Soutěž obecních projektů - VĚDOMÁ MODERNIZACE BUDOV  
Komplexní zateplení a instalace obnovitelného zdroje tepla  
minimální energetická úspora 67%

**MATEŘSKÁ ŠKOLA ROŽNOV P**  
Soutěž obecních projektů - VĚDOMÁ MODERNIZACE BUDOV  
Komplexní zateplení a instalace obnovitelného zdroje tepla  
minimální energetická úspora 60%

**MATEŘSKÁ ŠKOLA DOLNÍ**  
Soutěž obecních projektů - VĚDOMÁ MODERNIZACE BUDOV  
Komplexní zateplení - minimální energetická úspora 50%

**HASIČSKÁ ZBROJNICE PROSTŘEDNÍ BEČVA**  
Soutěž obecních projektů - VĚDOMÁ MODERNIZACE BUDOV  
Komplexní zateplení a instalace obnovitelného zdroje tepla a teplé vody  
minimální energetická úspora 66%



# Action Plan of the Zlín Region 2020 - 2024

**Monitoring and evaluation** is carried out continuously and summarised yearly against the sets of indicators I/II:

Measure	Monitoring indicators
Modernization and construction of new buildings	<ul style="list-style-type: none"> <li>• Number of implemented measures to reduce energy consumption and their evaluation (aspects – energy, environment, economy and sociology);</li> <li>• Number of new buildings with almost zero consumption</li> <li>• Number of supported projects aimed at sustainable renovation of buildings and use (support, state subsidies, possibility of drawing from the sources of the Czech Republic and the EU);</li> </ul>
Implementation of realization of heat sources	<ul style="list-style-type: none"> <li>• Number of subjects with a modernized energy system – source, system, regulation;</li> <li>• Project benefits related to investment incurred;</li> <li>• Use of appropriate subsidies or financing instruments</li> </ul>
Introduction of energy management system in buildings owned by the region	<ul style="list-style-type: none"> <li>• Number of buildings involved in the system</li> <li>• Evaluation of benefits</li> </ul>
Introduction of EM in buildings owned by towns and municipalities	<ul style="list-style-type: none"> <li>• Number of municipalities involved in the system</li> <li>• Evaluation of benefits</li> </ul>

# Action Plan of the Zlín Region 2020 - 2024

**Monitoring and evaluation** is carried out continuously and summarised yearly against the sets of indicators II/II:

Measure	Monitoring indicators
Support to energy planning	<ul style="list-style-type: none"> <li>• Number of energy strategies</li> <li>• Number of energy studies</li> <li>• Number of energy audits</li> <li>• Number of energy APs</li> </ul>
Educational activities in all areas of AP for the general public	<ul style="list-style-type: none"> <li>• Number of seminars, conferences and promotional events, projects implementation, consultations</li> </ul>
Support to the use of renewable energy sources, secondary energy sources in the public sector	<ul style="list-style-type: none"> <li>• Overall performance of installations sorted by the source</li> </ul>
Zlín Region leading by example	<ul style="list-style-type: none"> <li>• Number of projects</li> <li>• Number of promotion events</li> <li>• Number of information leaflets and presentations</li> </ul>
Sources of funding	<ul style="list-style-type: none"> <li>• Number of applications/projects prepared</li> </ul>

## Funding sources for Energy Efficiency identified in the Action Plan

### 1 European level

- 1.1 ESIF – European Structural and Investment Funds
- 1.2 European Funding Programmes
- 1.3 Project development assistance
- 1.4 Special Support Instruments
- 1.5 Energy Efficiency Financing Support on EU level – brief summary

### 2 National level

- 2.1 Financing energy efficiency through EU funds in the Czech Republic
- 2.2 National sources of financing energy efficiency in the Czech Republic
- 2.3 Overview of energy efficiency programs in the Czech Republic

### 3 Self-financing and alternative schemes

### 4 Intermediaries

- 4.1 European Investment Bank – EIB
- 4.2 Commercial banks

## Financing models for EE

### 1 Conventional models of EE projects financing

- 1.1 Self-financing through energy savings
- 1.2 Debt financing
- 1.3 European funds and operational programmes
- 1.4 Effects of subsidies and loans – the case study

### 2 Energy Performance Contracting (EPC)

### 3 Citizen cooperatives

### 4 Crowdfunding

### 5 Green municipal bonds

### 6 On-bill financing

### 7 Revolving loan funds

# Action Plan of the Zlín Region 2020 - 2024

## Financing models for EE – examples from other countries and regions

### PV installations as a sale & lease back model in Judenburg, Austria



Investment costs	700.000 EUR
Lifetime (service life)	30 years
Annual operational costs (incl. repairs, maintenance and other specific costs)	1% of the investment costs
Annual revenues from feed-in-tariffs	App. 92.000 EUR

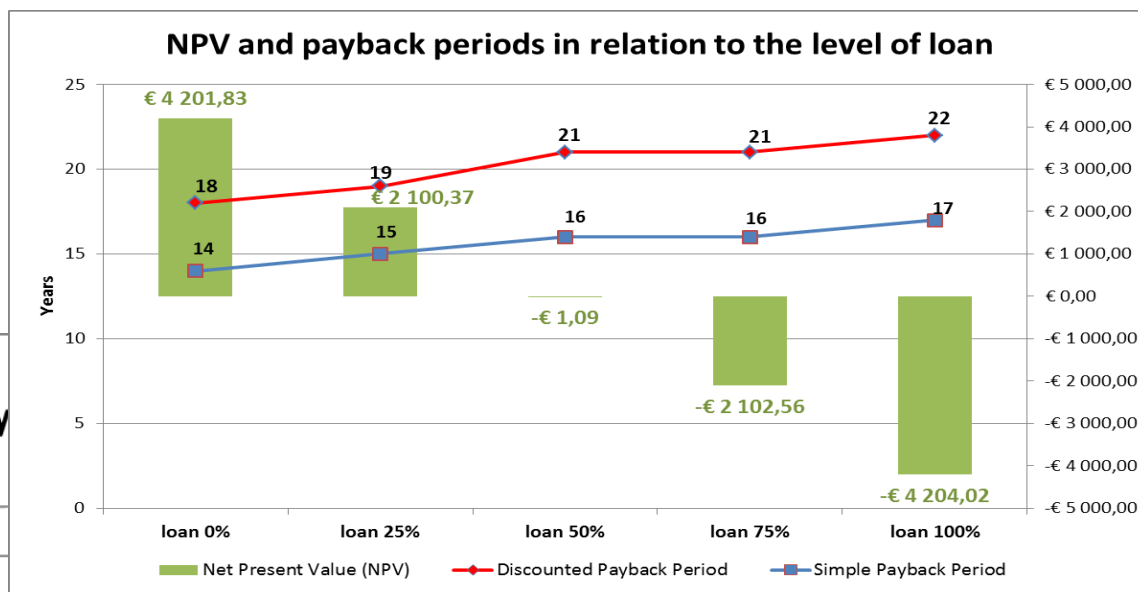
#### Success factors

- Available feed-in tariffs by the green electricity law
- Innovative PPP model based on SALE and LEASE BACK
- Trust into a strong public owned ESCO Stadtwerke for a long term partnership

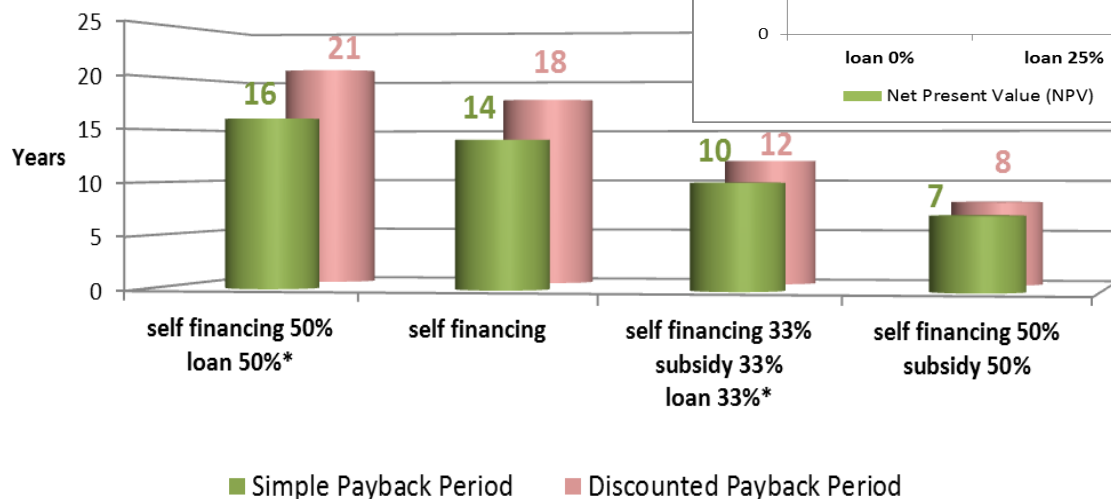
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## Financing models for EE – case studies

Effects of subsidies and loans



Models of financing compared by





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## Thank you for Your Attention!



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*Project smedia*