PROSPECT +

Capacity building for cities and regions - from learning to action!

Good practice

EPC in MARIBOR, SLOVENIA

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ENERGAP - PROSPECT+ partner and mentoring agency

energap
Energetsko podnebna agencija za Podravje

The PROSPECTplus project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 101023271

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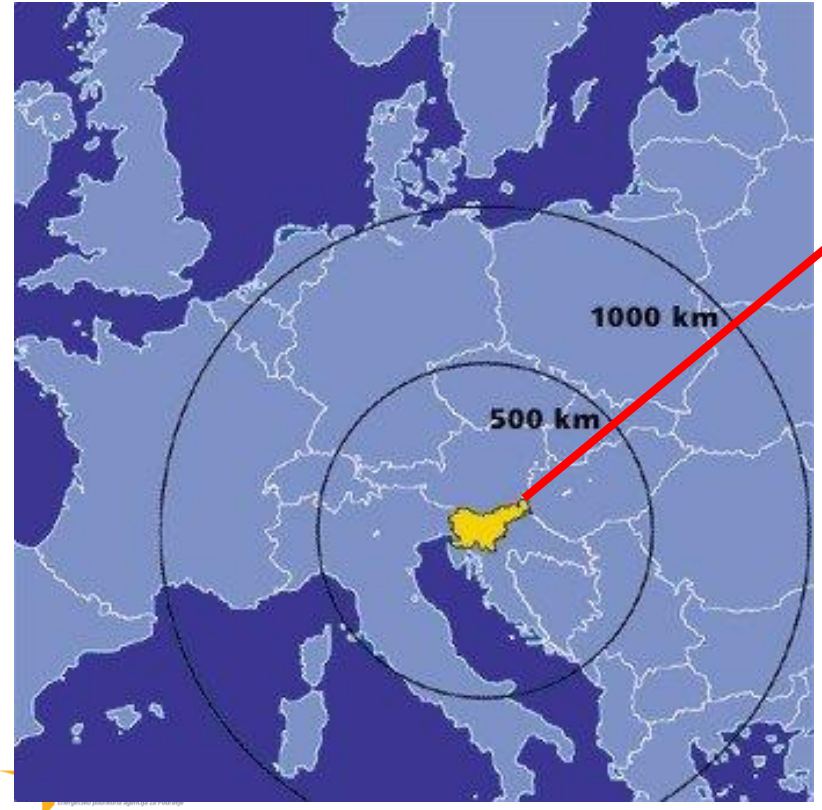

ENERGY AND CLIMATE AGENCY OF PODRAVJE

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CLIMATE AND ENERGY TRANSITION IN PODRAVJE REGION

- Energy management in public sector (planning (strategies, action plans) and implementation
- Preparation of investment documentation for energy projects (Cost benefit Analysis)
- Financial planning of energy projects
- Implementing different financial mechanisms (PPP, EPC, EU funds,..), public procurement procedures, negotiations, ...
- Educational and communicational activities for different target groups
- Citizens advisory services

STAKEHOLDERS

- Municipalities
- Public buildings managers, public communal services (waste management, waste water, public lighting, district heating)
- Users
- University of Maribor, Chamber of Commerce in the region and in Slovenia, Chamber of crafts
- Professionals, experts, University Hospital Centre in Maribor
- Ministries, EU organisations, institutions, partners
- ESCO companies, clusters

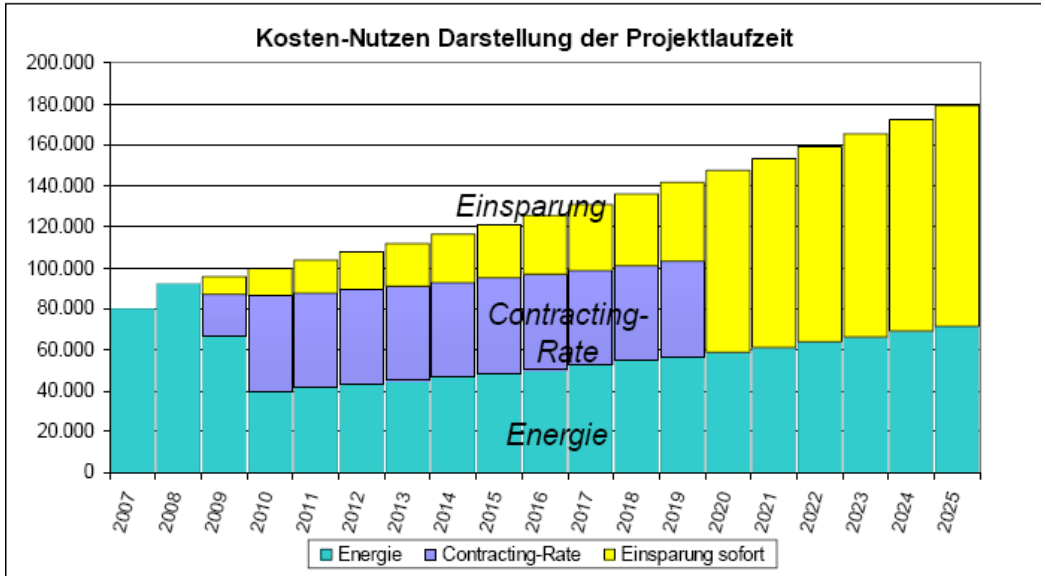
LESSON 1 - Team work

- Working with users, step by step, starting with schools, kindergartens, followed by sports objects, cultural, administrative buildings, …
- Stakeholders – from „first coffee to friends“
- City administration staff
- Directors, mayor
- Politicians „year by year, after 4-years mandate all over again“

VIR:https://www.qs.com/qs-world-university-rankings-by-subject-2015-challenges-and-developments/

ENERGY PERFORMANCE CONTRACTING

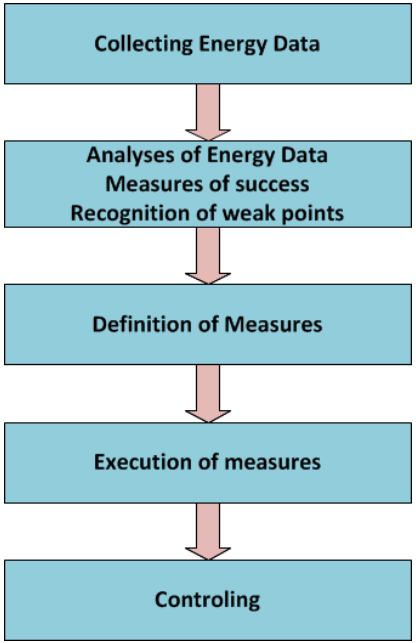
- No experiences in Maribor
- No knowledge
- New way of thinking
- Not a lot of ESCO
- Traditionally against ESCO and private profit system
- Information, education and training activities, repeating

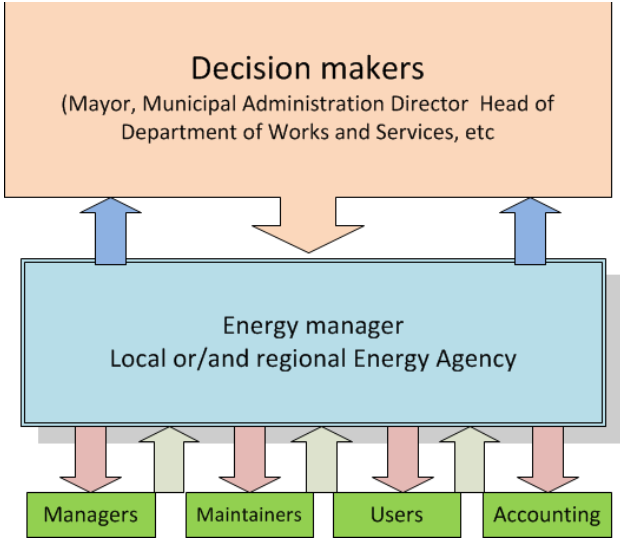


ENERGY MANAGEMENT

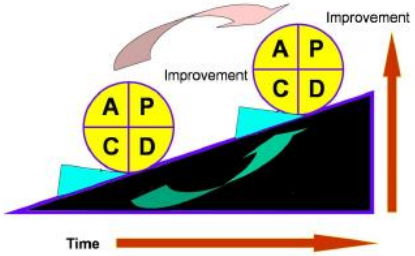
LESSON 2 - Introduce energy and climate management step by step

- Analyses of energy supply, consumption and costs (Secure, stabile and quality of energy supply);
- Preparation of RES and RUE measures (Energy Action plan);
- Communication between decision makers and maintainers, accouters, etc;
- Measurements of the Environmental impacts;
- To create long-term strategy on energy management;
- Education, motivate and raise the awareness of all employees;
- Energy audits
- Monitoring - Energy bookkeeping





PLAN – DO – CHECK – ACT



ENERGY REFURBISHMENT OF 24 PUBLIC BUILDINGS IN PPP - EPC

- Started in 2015
- No political commitments
- Elections
- Many presentations at City Council
- Political approval in 2017
- Public procurement PPP procedure in 2018
- December 2018 start of the work
- December 2019 end of the work
- Investment 12 mio EUR

https://www.dw.com/en/10-traditional-types-of-german-jokes/a-38144935

IN PARALEL MAKE ENERGY AUDITS

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Tabela 1: Seznam objektov SKUPINE A, predvidenih za celovito energetsko obnovo s pregledom ukrepov

Št.	Objekt	Naslov	Predvideni ukrepi						
			Energetsko upravljanje	*Prenova ovoja*	*Prenova stavbnega pohištva*	*Izolacija podstrešja, stropa, strehe*	*Vgradnja termostat. ventilov*	*Prenova ogrevalnega sistema*	*Prenova notranje razsvetljave*
1.	Upravna stavba MOM	Ulica heroja Staneta 1	x				x	x	x
2.	OŠ bratov Polančičev Maribor*	Prešernova ulica 19	x	x	x	x	x	x	x
3.	OŠ Leon Štukelj Maribor*	Klinetova ulica 18	x	x	x	x	x	x	x
4.	OŠ Ludvika Pliberška Maribor	Lackova cesta 4	x				x	x	x
5.	OŠ Martina Konšaka Maribor	Prekmurska ulica 67	x	x	x	x	x	x	x
6.	OŠ Maksa Durjave Maribor	Ruška cesta 13	x				x	x	x
7.	OŠ Slave Klavore Maribor	Štrekljeva ulica 31	x	x	x	x	x	x	x
8.	OŠ Franca Rozmana Staneta Maribor	Kersnikova ulica 10	x	x	x	x		x	x
9.	OŠ Malečnik	Malečnik 61	x				x	x	
10.	OŠ Prežihovega Voranca Maribor	Gosposvetska cesta 10	x	x	x	x	x	x	x
11.	OŠ Draga Kobala Maribor	Tolstojeva ulica 3	x	x	x	x	x	x	x
12.	OŠ Rada Robiča Limbuš	Limbuška cesta 62	x	x	x	x		x	x
13.	Vrtec Tezno Maribor, PE Pedenjped	Ulica heroja Nandeta 3	x	x	x	x	x	x	x
14.	Vrtec Pobrežje, PE Grinič	Cesta XIV. divizije 14a	x	x	x	x	x	x	x

LESSON 3 – Use real data and information

ENERGY, COST AND SAVINGS CALCULATIONS

To have view in savings (kWh, EUR, CO_2) potentials and make priorities (benchmarking)

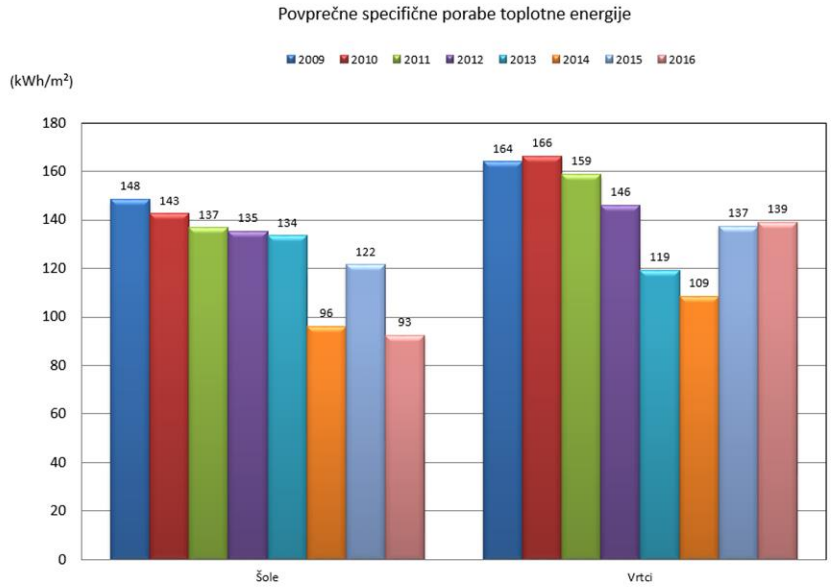

Tabela 7: Raba energije, stroški za rabo energije in emisije CO_2 po posameznih letih, OŠ bratov Polančičev Maribor

	2010	2011	2012	2013	2014	2015	2016
Toplotna energija							
Raba energije v kWh	579.044	422.932	622.613	477.397	344.052	454.289	616.115
Stroški energenta v EUR z DDV	40.165	35.912	60.639	47.238	33.761	37.580	45.127
Proizvedene emisije CO_2 v tonah	154	113	166	127	92	120	164
Električna energija							
Raba energije v kWh	128.879	125.726	127.829	127.175	124.175	129.165	134.670
Stroški energije v EUR z DDV	20.005	19.446	21.417	20.284	20.118	21.338	20.993
Proizvedene emisije CO_2 v tonah	68	67	68	67	66	68	71

Stroški vzdrževanja: 1.500 € letno

Tabela 8: Predvideni letni prihranki, ki bi lahko bili doseženi po energetski sanaciji, OŠ bratov Polančičev Maribor

	Toplotna energija	Električna energija
Potencialni prihranki energije v kWh na leto	175.278	87.433
Potencialni prihranki stroškov v EUR na leto z DDV	14.432	14.072
Potencialno znižanje emisij CO_2 v tonah na	46	46,19

INVESTMENT COST

- On the basis of energy audits and proposed measures – investment costs are calculated

Tabela 37: Ocena vrednosti investicije za celotno operacijo

OCENA VREDNOSTI INVESTICIJE PO STALNIH CENAH (STAVBE SKUPINA A IN B)				
št.	skupina stavb/ukrep	leto 2018	leto 2019	SKUPAJ
I.	**STAVBE SKUPINE A**	**56.000,00**	**9.453.291,31**	**9.509.291,31**
1.	Pripravljalne in spremljevalne storitve	56.000,00	186.786,70	242.786,70
2.	GOI dela	0,00	9.266.504,61	9.266.504,61
I.	**STAVBE SKUPINE B**	**10.000,00**	**1.444.842,38**	**1.454.842,38**
1.	Pripravljalne in spremljevalne storitve	10.000,00	23.213,28	33.213,28
2.	GOI dela	0,00	1.421.629,10	1.421.629,10
	Skupaj brez DDV	**66.000,00**	**10.898.133,69**	**10.964.133,69**
	DDV 22 %	**0,00**	**2.390.109,42**	**2.390.109,42**
	Skupaj z DDV	**66.000,00**	**13.288.243,11**	**13.354.243,11**
	Skupaj z DDV (brez upoštevanja povračljivega DDV)	**66.000,00**	**10.969.598,49**	**11.035.598,49**

INVESTMENT CONCEPT - 1

- Historical data on energy, costs, Co2
- Potential savings in energy, costs and CO2
- Potential sources: municipal budget, loans, public funds, EU, private funds
- Make long and short term scenarios for energy use and costs (including running and maintaining costs)
- Financial flows, cost benefit analysis, including all benefits (staff, development, environment, …)

Tabela 45: Finančna konstrukcija variante po principu JZP, skupaj stavbe Skupine A in B

	Viri financiranja	2018 (€)	2019 (€)	Skupaj	Upravičeni stroški (€)	Neupravičeni stroški brez DDV (€)	Delež vira v % na celoten projekt
A	**Pripravljalne in spremljevalne storitve**						
1.	Nepovratna sredstva	22.400,00	74.714,68	97.114,68	97.114,68	/	**0,89**
1.1.	*namenska sredstva EU*	19.040,00	63.507,48	82.547,48	82.547,48	/	34,00
1.2.	*slovenska udeležba kohezijske politike*	3.360,00	11.207,20	14.567,20	14.567,20	/	6,00
2.	Lastna sredstva javnega subjekta	43.600,00	135.285,30	178.885,30	145.672,02	33.213,28	**1,63**
	SKUPAJ BREZ DDV	**66.000,00**	**209.999,98**	**275.999,98**	**242.786,70**	**33.213,28**	**2,52**
	22% DDV - nepovračljiv (javni partner)	*0,00*	*38.720,00*	*38.720,00*			
	SKUPAJ Z DDV	*66.000,00*	*248.719,98*	*314.719,98*			
B	**Gradbena, obrtniška in inštalacijska dela (GOI) - ukrep prezračevanje**						
1.	Lastna sredstva javnega subjekta	0,00	148.840,00	148.840,00	/	148.840,00	1,36
	SKUPAJ BREZ DDV	**0,00**	**148.840,00**	**148.840,00**	/	**148.840,00**	**1,36**
	22% DDV - nepovračljiv (javni partner)	*0,00*	*32.744,80*	32.744,80			
	SKUPAJ Z DDV	*0,00*	*181.584,80*	181.584,80			
C	**Gradbena, obrtniška in inštalacijska dela (GOI) - ostali ukrepi**						
1.	Nepovratna sredstva	0,00	3.703.362,66	3.703.362,66	3.703.362,66	/	33,78
1.1.	*namenska sredstva EU*	0,00	3.147.858,26	3.147.858,26	3.147.858,26	/	34,00
1.2.	*slovenska udeležba kohezijske politike*	0,00	555.504,40	555.504,40	555.504,40	/	6,00
2.	Lastna sredstva javnega subjekta	0,00	1.555.744,90	1.555.744,90	916.582,26	639.162,64	14,19
3.	Zasebni partner - JZP	0,00	5.280.186,15	5.280.186,15	4.638.461,73	641.724,42	48,16
	SKUPAJ BREZ DDV	**0,00**	**10.539.293,71**	**10.539.293,71**	**9.258.406,65**	**1.280.887,06**	**96,13**
	22% DDV- povračljiv (zasebni partner)	*0,00*	*2.318.644,62*	*2.318.644,62*			
	SKUPAJ Z DDV	*0,00*	*12.857.938,33*	*12.857.938,33*			

SKUPAJ BREZ DDV (A+B+C)	**66.000,00**	**10.898.133,69**	**10.964.133,69**	**9.501.193,35**	**1.462.940,34**	**100,00**
22% DDV	*0,00*	*2.390.109,42*	*2.390.109,42*			
SKUPAJ Z DDV	*66.000,00*	*13.288.243,11*	*13.354.243,11*			
SKUPAJ Z DDV (brez upoštevanja povračljivega DDV)	66.000,00	10.969.598,49	11.035.598,49			

Povzetek virov za stavbe Skupine A in B:

Nepovratna sredstva	22.400,00	3.778.077,34	3.800.477,34
Lastna sredstva javnega subjekta	43.600,00	1.911.335,00	1.954.935,00
Zasebni partner - JZP	0,00	5.280.186,15	5.280.186,15
Skupaj	66.000,00	10.969.598,49	11.035.598,49

INVESTMENT CONCEPT - 2

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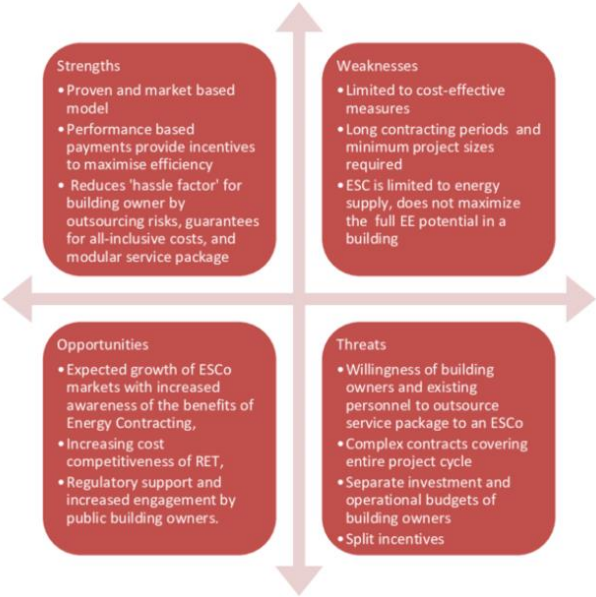
LESSON 4 – Take time to list all benefits

- One of the scenarios also PPP – EPC
- SWOT analysis prepared for specific project, circumstances, region, … do not just take some examples from the web
- Many benefits but also some negative aspects
- Discuss with stakeholders



https://www.researchgate.net/figure/Energy-Contracting-models-summary-of-SWOT-analysis_fig5_267203248

RESULT in MARIBOR – EPC IS THE BEST OPTION FOR PROPOSED PROJECT

PROCEDURE – legally binding in many countries

STEP 1

- Ask the market
- Get the ESCO proposals including proposed measures and cost benefit analysis
- Check and analyse the proposals and compare with investment concepts
- Identify ESCO and municipal conditions as a base for potential negotiations

STEP 2

- Public call – ussualy in 2 phases
- 1st phase – identification of basic conditions that ESCO is legally, administrative and operationally able to perform EPC
- Make a short list of ESCO

STEP 3

- Shortlisted ESCO invited to give the offer
- Negotiation phase – negotiate measures and financially and legal conditions
- Could take more months
- Set final conditions for ESCO and ask all of them for final offer
- Take the best one according to your criteria
- Make agreement

PPP-EPC AND COHESION FUND
CITY OF MARIBOR

1 BIG MUNICIPALITY -
MANY OLD AND UNEFFICIENT BUILDINGS
24 SELECTED FOR EPC
SCHOOLS, KINDERGARTENS, SPORT HALLS

ENERGY AUDITS – POTENTIAL SAVINGS:

- 4 GWh/a of energy
- 1.200 t CO_2/a
- 450.000 EUR/a

11-12 mio EUR
INVESTMENTS

energap
Energetsko podnebna agencija za Podravje

PPP-EPC AND COHESION FUND

11-12 mio EUR INVESTMENTS 15 years agreement work done in 2019

5 mio EUR ESCO

3,6 mio EUR COHESION FUND

2 – 3 mio EUR OWN


Povečaj
1:1
Naloži


OŠ Janko Padežnik obnovljena.png (813 x 522)


OŠ Kamnica.png - Pregledovalnik fotografij za Picaso


OŠ kamnica obnovljena.png - Pregledovalnik fotografij za Picaso
OŠ kamnica obnovljena.png (992 x 243)
1:1
Naloži

MONITORING OF THE RESULTS

- Follow and monitor the implementation – it takes time but is far paid off (legally binding and more)
- Talk to users during the implementation
- Monitor the energy use, cost and emissions all the time
- At least on yearly basis talk to users, municipal staff, others – ask for fillings, opinions for improvement

LESSON 4 - Building a knowledge and trust for new projects

SUCCESSFUL PROJECT IS A MOTIVATION TO GO FURTHER – FOR ALL STAKEHOLDERS

Renovation of 24 public buildings:

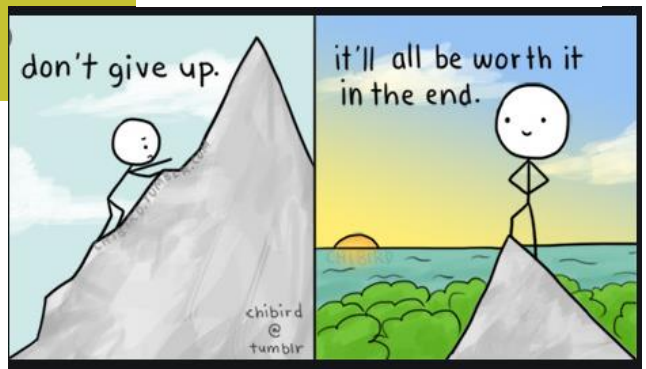
- 12 mio EUR investment – PPP
- Reductions per year:
  - energy consumption by 5.952 MWh
  - energy costs by 446.000 EUR
  - maintenance costs by 28.500 EUR
  - CO_2 emissions by 1.305 tonnes
- More budget for other projects
- More knowledge and own experiences

https://www.cleanpng.com/png-clip-art-image-cartoon-vector-graphics-illustratio-7055717/

FOR THE END …

- Do not be afraid!
- Money is not the problem!
- Start with smaller projects as the pilots
- A lot of municipalities have difficulties and have no experiences!
- Energy transition is the opportunity!

LESSON 5 –
DO NOT GIVE UP!



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- Waves: Energy and climate friendly and unfriendly Mayors, Councillors
- New directors, headmasters, staff
- Financially good or worse year
- Talk to people, make education activities
- It takes time to spread the information about benefits, usually it goes „from mouth to mouth“
- Take it as life-long activity

PROSPECT +

Capacity building for cities and regions - from learning to action!

Thank you!

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