CA-RES CONCERTED ACTION RENEWABLE ENERGY SOURCES DIRECTIVE

Training of HP installers and „Green for Households“ support scheme for small-scale RES in Slovakia

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SIEA

Zelená domácnostiam

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Content

- Education of installers
- Training of HP installers/craftsmen + content
- Testing
- „Green for Households“ support scheme
- Process workflow + guidelines
- Results
- Lessons learnt

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Education of installers for HP

- **Formal education**

- secondary vocational schools, four-year course – „general“ installer/plumber

- **Education of craftsmen in practice**

- specialized 4 full day professional training course accredited by Ministry of Education – Installer of HP - „technician“, finished by examination according to legal regulations and EHPA

- Scheme operated only by Slovak Association for Cooling, Air Conditioning and Heat Pumps (SZCHKT) (www.szchkt.org)
- Provision of training scripts and e-learning, forum, course presentations at the SZCHKT website

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Training of installers for HP

Legal framework:

Act No. 309/2009 Coll. on promotion of RES and high efficient CHP (§ 13)

Decree of MoE No. 133/2021 Coll.

defines

a) scope of professional training,

b) the scope of the test,

c) details of the establishment and activities of the examination committees,

d) content of the certificate for installers of

biomass boilers/furnaces, PV systems and solar thermal systems, **shallow geothermal systems and heat pumps**

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Training of installers for HP

- **Scope of the professional training**
- **Depending on the education**, the applicant will be provided with the acquisition or confirmation of practical skills

  a) in the field of plumber, building energy equipment technician or in a similar field with a focus on the installation of heating technology, installation of refrigeration or geothermal systems or installation of electrical systems for an applicant with a secondary vocational education,

  b) in the field of building services or a similar focus for a university degree applicant of first or second degree.

Professional training of installers/plumbers consists of a **practical part and a theoretical part**

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Training of installers for HP

- **Practical part (minimum scope) – workshop with modular simulators – 5 people max:**

- **practical education in the field of installation** of heating technology, installation of refrigeration or geothermal systems or installation of electrical equipment **with knowledge of cutting pipes, soldering pipe joints, gluing pipe joints, sealing fittings and leak testing**.

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Training of installers for HP

- **Theoretical part (minimum scope) – lecture hall:**
- a) **geothermal sources** in different regions, temperature of sources, identification of soils and rocks in terms of thermal conductivity,
- b) **types and properties of heat pumps**,
- c) availability and quality of **systems and components** on the market,
- d) the **impact** of the installation on the environment,
- f) **hydraulic connection** of heat pumps,
- g) **measurement and management**,
- h) **fire** protection,
- i) **economy of operation**, investment and operating costs, investment payback period, possibility of **subsidies** and other forms of support,
- j) **technical regulations** in the field of reserved technical equipment,
- k) national and EU **legal regulations** in the field of heat pumps and shallow geothermal wells,

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Training of installers for HP

- **Theoretical part (minimum scope):**

e) **design, installation and maintenance** of heat pumps in buildings, in particular

1. components and their functions within the heating circuit, including the compressor, expansion valve, evaporator, condenser, clamps and mounting material,
2. lubricating oils, cooling media,
3. overheating, subcooling and cooling using a heat pump,
4. selection and calibration of components during normal installation,
5. determination of typical values of the heat load of various buildings,
6. determination of the performance of a heat pump with regard to the heating and cooling needs of the building,
7. assessment of electricity supply for heat pump operation,
8. accumulation of heat and cold in the building, including the design of the necessary components,

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Training of installers for HP

- **Testing**

- during training course – **3 writings/reports + practical demonstration**

- **1a) preliminary test (30 questions – 80 % success rate needed)**
- **1b) secondary test (90 questions – 80 % success rate needed)**

- If succeded **– oral examination – examination committee established at the MoE**

  (at least 5 examination members - experts from MoE, SIEA, representatives of professional associations of green skills) **– result: certificate (approx. 600 installers)**

- **certificate update every 5 years** – presentation with listing of installations + professional discussion with 5 experts and lecturer/moderator

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„Green for Households“ support scheme

- **Duration:** 2015 – 2023
- **Funding:**

  ESIF – ERDF & state budget via OP Quality of Environment 2014-(2023),
  Priority axis 4: Energy efficient low-carbon economy in all sectors,
  Specific Goal 4.1.1 – Increase of RES share on FEC in Slovakia
  administrator SIEA, Bratislava region excluded

- **Budget: 2015-2018** – 45 mil. EUR, **2019-2023** – 48 + 25 + 5 mil. EUR,
  total **approx. 125 mil. EUR**
- **Goal:** To increase installed capacity of RES by 300 MW (at least)
- **Grants/vouchers** are provided **to physical person**, **houses for non-business purpose**, without impact on business environment, therefore state aid rules are not applied

(www.zelenadomacnostiam.sk)

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„Green for Households“ support scheme

- **Target group:**
- voucher scheme focused on promotion of small-scale RES installations for single family and residential houses,
- system is also indirectly supporting qualified RES installers
- **Supported technologies:**
- Single family houses:

Photovoltaic panels | Solar thermal panels | Heat pumps | Biomass boilers

Multifamily houses:

Solar thermal panels | Biomass boilers

- Wind turbines allowed but not certified
- **Heat pumps supported: all types, excluded air-air HP**

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„Green for Households“ support scheme

- **Grants – value (excerpt GfH III):**
- **Limit: If the amount on the voucher is higher than 50 % of the total eligible expenses, SIEA will reimburse 50 % of the total eligible expenses**

Type of building / Equipment		Rates and maximum contribution values when applying preference in accordance with article E., paragraph 5., of the general terms and conditions					
		without preference		a) implemented measures or b) there is no DH in the area +10 %		a) implemented measures at the same time b) there is no DH in the area +25 %	
		Rate €/kW	max. contribution	Rate €/kW	max. contribution	Rate €/kW	max. contribution
Single family house	PV panel	500 €/kW	1 500 €				
	Solar thermal collector	400 €/kW	1 400 €	440 €/kW	1 540 €	500 €/kW	1 750 €
	Biomas boiler	80 €/kW	1 200 €	88 €/kW	1 320 €	100 €/kW	1 500 €
	Heat pump	272 €/kW	2 720 €	299 €/kW	2 992 €	340 €/kW	3 400 €
		without preference		b) there is no DH in the area +10 %			
Multifamily house	Solar thermal collector	400 €/kW	max. 1 kW per flat	440 €/kW	max. 1 kW per flat		
	Biomass boiler	80 €/kW	max. 7 kW per flat	88 €/kW	max. 7 kW per flat		

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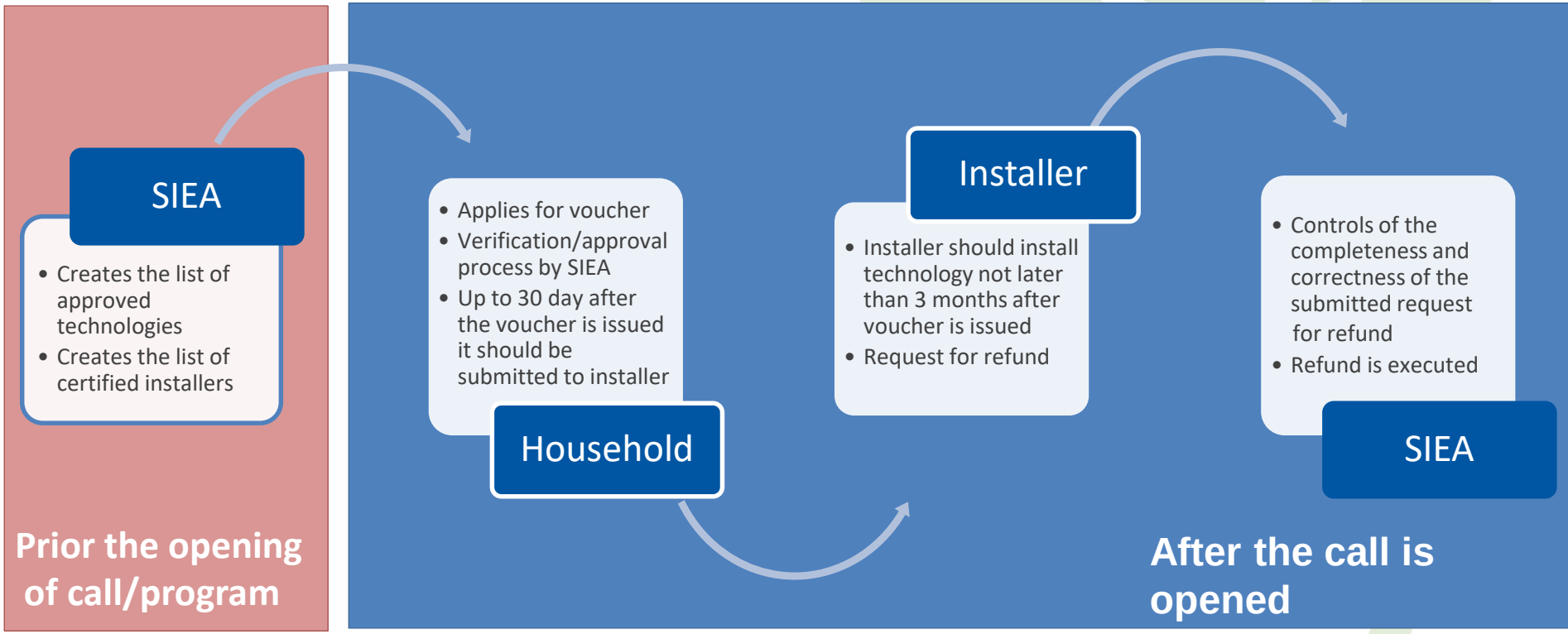

- **Process workflow (simplified)**

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„Green for Households“ support scheme

- **Guide for applicants**

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„Green for Households“ support scheme

- **Guide for applicants (10 steps to get support)**

- 1. Familiarize yourself with the terms of support
- 2. Check which renewable energy source is suitable for your household
- 3. Choose the equipment and conclude the Contract with the contractor
- 4. Fill in the voucher request, we will advise you how to do it
- 5. Agree with the contractor when he will install the device and provide him with the activation code for issuing the voucher
- Is the device available for installation?

  if not - the application waits in the request buffer until the device is available. Applications are limited to 18 months.

  if yes, then
- 6. The contractor will check the application and only if he is able to install the device within 90 days, the voucher will be issued.
- 7. SIEA will send the voucher to the household
- 8. If you receive a voucher, it must be applied to the contractor within 90 days
- 9. The contractor reserves the voucher, installs the device and requests reimbursement of the voucher
- 10. SIEA will assess the application, if it meets all the requirements, it will reimburse the voucher to the contractor

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„Green for Households“ support scheme

- **Results**

Number of registered HP installers: 823

Number of registered/proven HP equipment: 2163

Preferred HP type: air-water (approx. 95 % of installed HP)

	GfH I 2015-2018	GfH II 2019 - 2023	GfH III 2023	Total (till 08/2023)
Budget	45 mil. EUR	48 mil. EUR	25+5 mil. EUR	
Number of supported households total (pp)	18 507	21 185	17 570	57 262
Estimated yearly CO2 emission reduction (tCO2/year)	45 000	64 280	33 000	142 280
Heat pumps				
Number of HP installed total (pp)	5 240	7 794	7 009	20 043 (35 % from total)
Installed heat output of HP devices (cumulative) (kW)	44 284	73 314	64 785	182 383
Estimated yearly CO2 emission reduction by HP (tCO2/year)	14 534	13 709	12 131	40 374 (28,4 % from total)
Total financial support for installation of HP by vouchers (EUR)				58 800 000

Number of installed HP (in 2022 – by EHPA): 13 467 pp (i.e. +120 % yoy)
Average support: 2000 – 3000 EUR/HP, approx. 36 % of total installation

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Conclusions - Lessons learnt / Pros & Cons

- **Pros:**
- Guidelines for applicants/households and installers are necessary
- Support of professional associations important
- Information campaign and consultation support are suitable
- Listings of equipment and installers ease and speed up the processes
- Reservoir/Buffer for applications is suitable
- Financial framework and continual spending should be available and published (avoid stop&go market)
- Use open call or clear schedule of calls and their focus

- Majority of applications were correctly submitted and installed
- Goals were achieved and overpassed

- **Cons (mostly at the beginning):**
- Selection of technology by applicants without prior consultancy and availability check
- Applications submitted without clear understanding of conditions of the program
- Application without clear benefit analysis (increase of energy efficiency, operational costs, savings etc.)
- Information about the building were not current or with mistakes
- Typing errors

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THANK YOU FOR YOUR ATTENTION
Q & A?

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