

## EUCF Europhiestment Concept of Újbuda Municipality (Hungary)



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Local Government & Municipality of District 11 of Budapest, Újbuda

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#### INVESTMENT CONCEPT OF ÚJBUDA

- Developed in the 4th call
- At least 50 % from the total impact (expected energy savings + expected renewable energy generation) shall be reached during the IC development
- Újbuda's Climate Strategy: building and traffic sector have the greatest CO2 saving potential
- IC development phase: 2nd of February 2023 2nd of February 2024







### **IC Development**

- Lack of internal energy experts.
- Contracting those energy experts who are in durable contract with the municipal entities for annual energy assessment reports (this is obligatory for public entities in Hungary by law).
- Coordination in the municipal office by internal colleges.





# IC Development – in figures

Energy experts have identified detailed energy efficiency improvement measures (EE) as well as we estimated solar electricity potential by using the Budapest Solar Map <u>Szolár térkép</u>

- 62 institutional public buildings (kindergartens, primary schools, culture, community centres, social, health)
- 5 municipal sports facilities
- 11 municipal residential buildings





# IC Development – in figures

External experts (National Society of Conservationists – Friends of the Earth Hungary) has assessed the possibility for a potential energy community for 2 homeowners' associations each consisting from ten-storey multifamily panel buildings:

- **Kelenföld** Homeowners' Association (10 ten-storey multifamily panel buildings)

- Őrmező Homeowners' Association (12 ten-storey multifamily panel buildings, public buildings, bakeries, pizzerias)

Assessing the Budapest residential 15-minute aggregated electricity consumption data against the Budapest residential 15-minute aggregated electricity generation data, Örmező Homeowners' Association has the potential to become energy community.







# IC Development – in figures

- Energy savings in the IC: 11.870 GWh/y
- Renewable energy production: 7.920 GWh/y
- Total estimated costs: 32 350 382 EUR (at prices in force in 2023)
- Estimated avoided CO2 emission:  $6511 \text{ tCO}_2 \text{eq/y}$

The EE interventions defined by the energy experts are timeless provided there will be any interventions in the near future.

The calculation by the experts are easy to update with variables (consumption data, discount rate, changes in unit prices, energy tariffs, inflation rates, etc.)





## HOW TO GO FURTHER?

- Municipalities tend to focus on RES & EE measures restricted to public buildings (conservative approach)
- Investment projects based on EUCF IC should bundle public buildings and put them into heart of the investment package
- Private, residential, business and industrial buildings should be included into the investment package from reasons of increasing EE and reaching the optimal use of RES potential (innovative approach)





## ÚJBUDA's geothermal initiative

It started during the EUCF IC Development but wasn't the part in the EUCF project.

Exploration of the local geothermal energy for three city locations

- **Nyéki Imre Swimming Hall** (a municipal facility) and the 10 public buildings in its surroundings (all involved into the EUCF IC)
- **Danube Bank** (new brown field investments are in progress for business, office and residential area )
- City part "Tóváros" and Sport 11 Municipal Sports Facility







#### **Danube Bank**



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- Potential brown field investments for business, office and service area
- No public buildings in the area
- Potential role of the municipality: to promote the geothermal energy for potential investors
- Ambitions of potential investors should be mapped



#### Tóváros and Sport 11 Municipal Sports Facility

- Suburban zone
- Investors are planning smaller blocks of flats
- Potential role of the municipality: to promote the geothermal energy for
  - own Sport Facility
  - potential investors
- Ambitions of potential investors should be mapped







### Nyéki Imre Swimming Hall

- The swimming hall is a potential heat recipient
- 10 municipal public buildings in its close neighborhood (school, health, residential, administration, kindergarten, nursery)







#### FOCUS ON NYÉKI IMRE SWIMMING HALL AND PUBLIC BUILDINGS IN THE NEIGHBOURHOOD

Steps done so far:

- Detailed feasibility study
- Exploration Plan
- An official request for the exclusive right to explore the geothermal resources was submitted to the Supervisory Authority for Regulatory Affairs in 2023 (evaluation still in process)







#### FOCUS ON NYÉKI IMRE SWIMMING HALL AND PUBLIC BUILDINGS IN THE NEIGHBOURHOOD

Steps done so far:

- From market research price offers have been requested from design and drilling companies to estimate the cost of drilling planning AND the cost of planning of the heat supply network
- Peak capacities:
  - 2,3 MW incl 1,6 MW geotermal sources
  - Heat generation: 20500 GJ/year
- Approximate investment costs 1400 million HUF/ 3,6 m€







THE RESULT





### **FIRST LESSONS**

- **Exploration and exploitation** of RES potential is strongly linked to EE intervention, especially at level of the heat recipient buildings.
- There are projects and research work delivering proof that improving of EE level of the private heat recipients are **improving the efficiency of the RES** generation operated by public entities





## FIRST LESSONS – city perspective versus state household rules

- The first studies to assess the **potential of the geothermal RES** should focus on neighbourhood level including public, private and residential buildings and must not be restricted to private buildings just because the external projects are financed from public money from the municipal budget.
- However, at phase of detailed engineering designs the municipal public money may only be spent for detailed engineering designs of municipal public building since public money shall serve public assets.
- The strict state household rules shall be applied (,,What exactly is the real public purpose?")





# FIRST LESSONS - financing

- It is a long journey from design to implementation
- At start of the design we could not foresee what financing instruments will be available in the distant future.
- This should be accepted (it would be a mistake if we devoted our energy to ensure the financial resources at first)





## FIRST LESSONS – medium–term tasks

#### **Developing a complex geothermal design which:**

- is viable in engineering, financial and operational terms
- reflects to risks emerging
- contributes to national climate goals set in national strategies and action plans
- fits into the Budapest energy system
- acting as an example to follow for other district municipalities in Budapest
- is worth being considered by national bodies to negotiate





## FIRST LESSONS - coordination

- Interdisciplinary project team required.
- Coordination and appointed responsibles within the municipal office.
- Hiring special experts (energetics, geologists, financing experts).





### SUMMARY

It is a long journey from EUCF IC to implementation:

- Assessing the RES potential
- Engineering design-(concept, drawings, calculations, etc.)
- Assessment of heat market (contacting non-municipal entities!)
- Stakeholder engagement (potential heat recipients)
- Contacting potential financers (Managing Authorities for the EU programming period 2028-2034, Ministries, etc.)
- and the real realisation: the implementation & operation processes themselves...





Thank you for your attention!

Újbuda Municipality

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