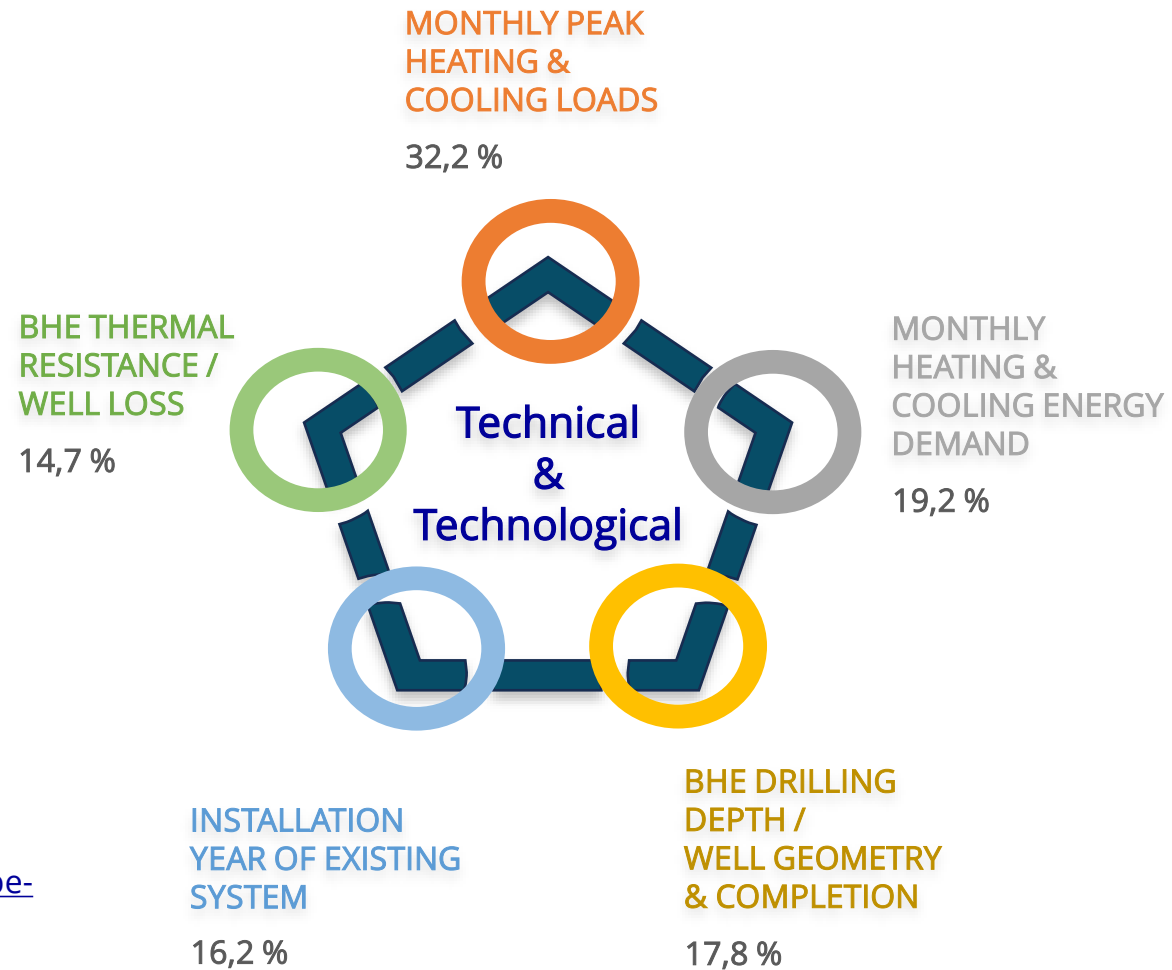


Technical and Technological criteria

● Sub-criteria influencing the **Technical and Technological criteria category** in order of their influence on the shallow geothermal system design determined by experts

● **Monthly peak heating and cooling loads** have the highest significance when designing shallow geothermal system in Technical and Technological criterium

For more information visit:
<https://interreg-danube.eu/projects/danube-geoheco>

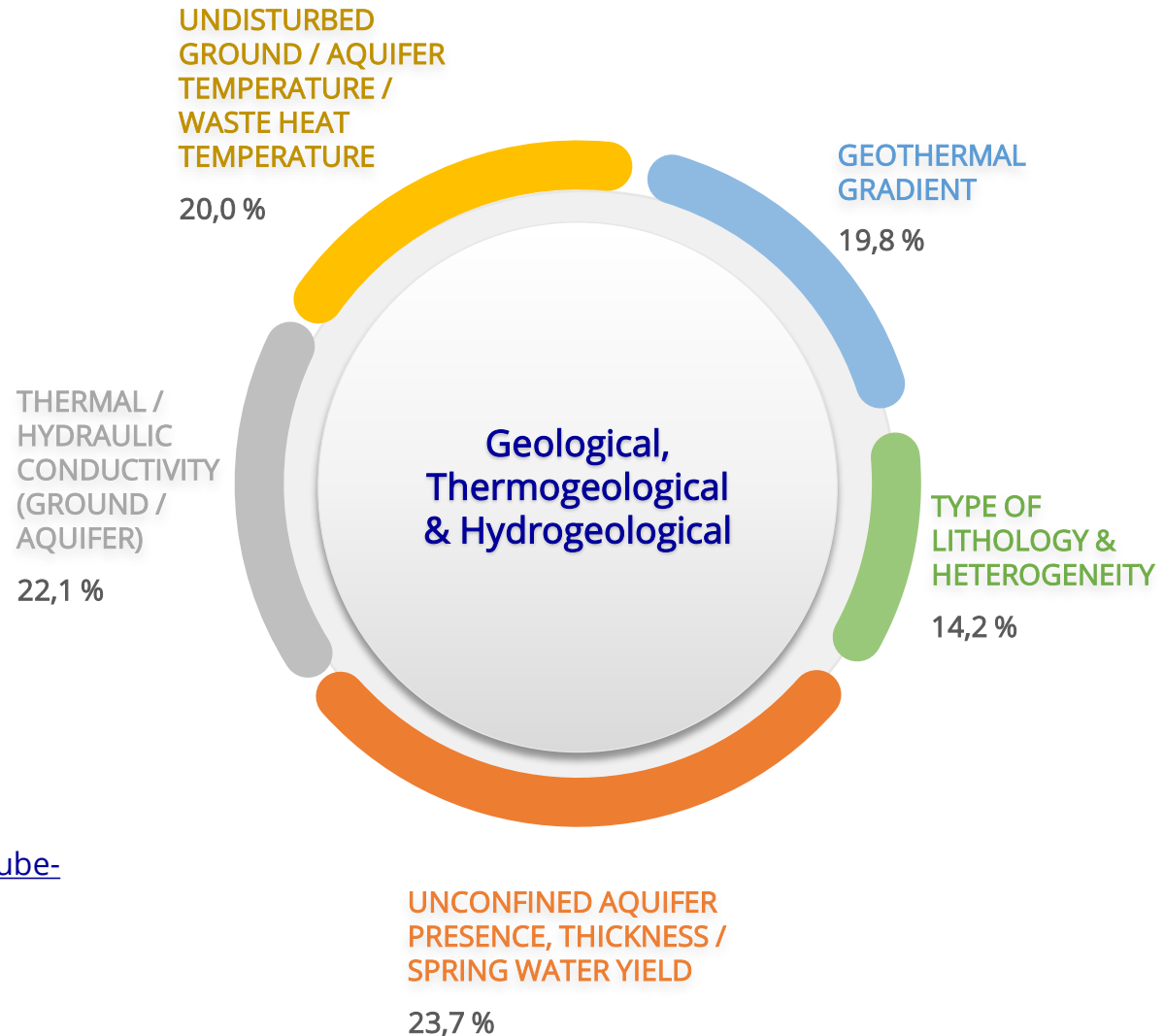


Geological-Thermogeological-Hydrogeological criteria

● Sub-criteria influencing the **Geological, Thermogeological & Hydrogeological category** in order of their influence on the shallow geothermal system design determined by experts

● **Unconfined aquifer presence, thickness or spring water yield** has the highest significance when designing shallow geothermal system in Geological, Thermogeological & Hydrogeological criterium

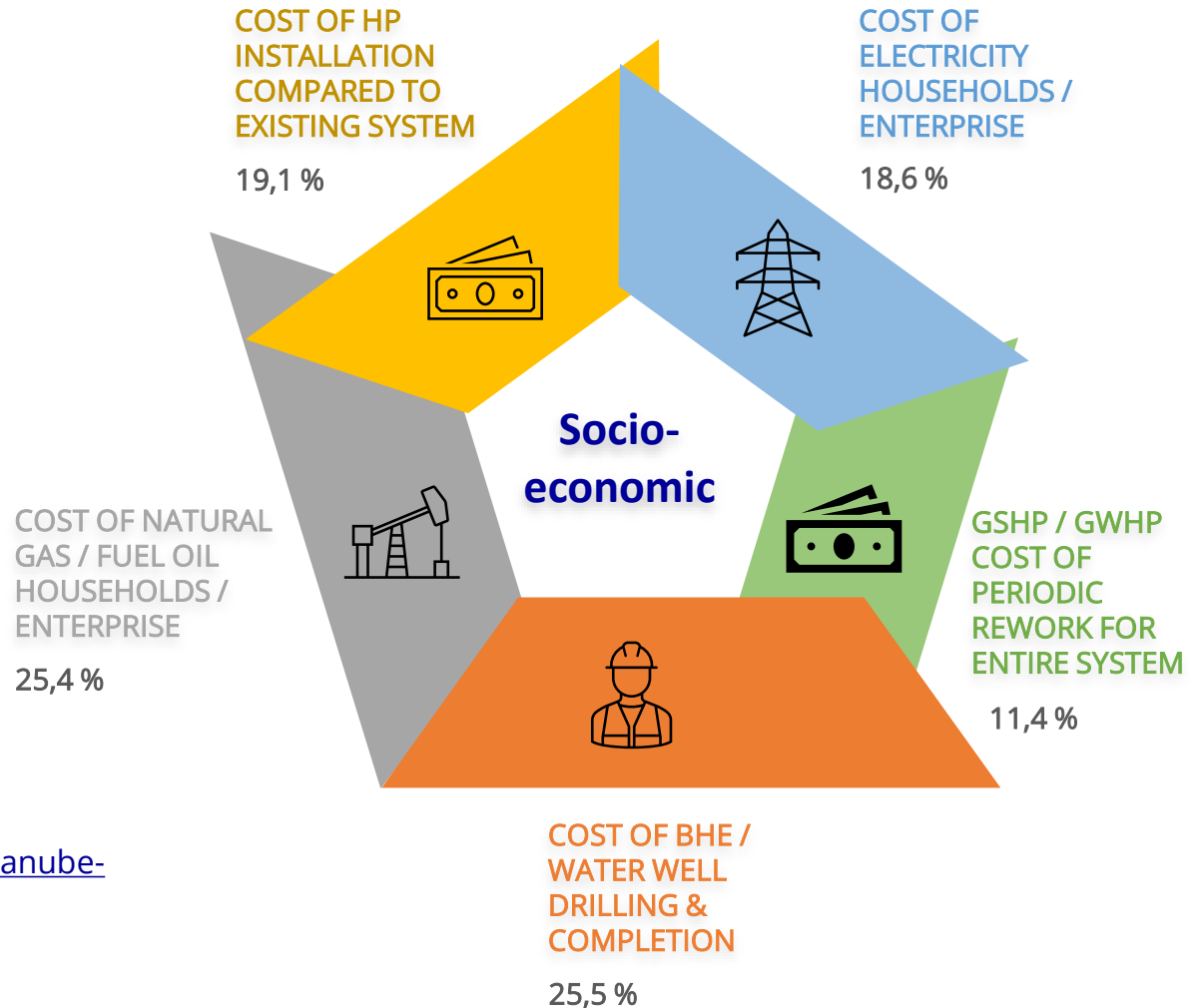
For more information visit:
<https://interreg-danube.eu/projects/danube-geoheco>



Socioeconomic criteria

● Sub-criteria influencing the **Socioeconomic category** in order of their influence on the shallow geothermal system design determined by experts (decision makers – DMs)

● **Cost of BHE or water well drilling and completion** has the highest significance when designing shallow geothermal system in Socioeconomic criterium



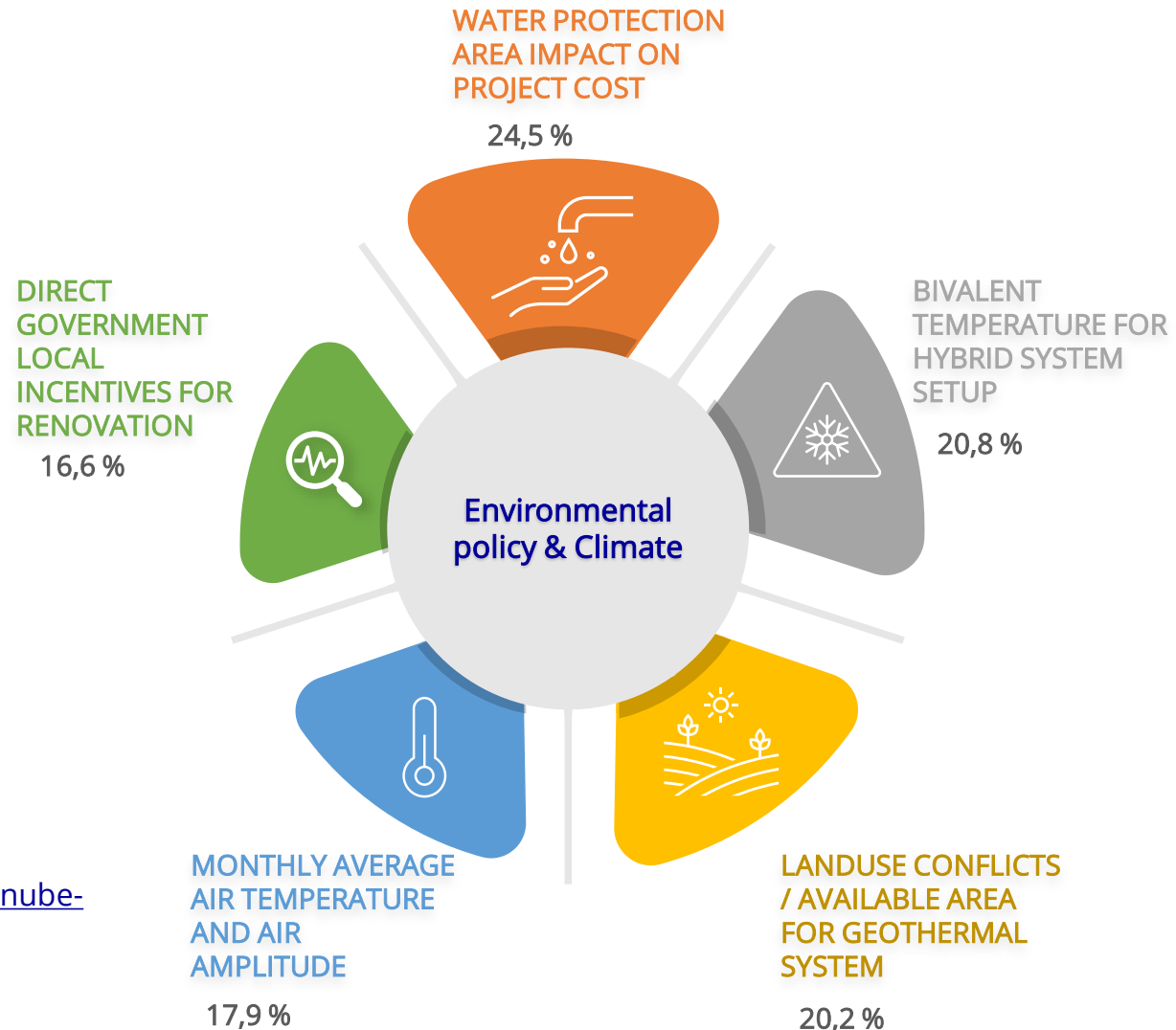
For more information visit:
<https://interreg-danube.eu/projects/danube-geoheco>

Environmental policy and Climate criteria

● Sub-criteria influencing the **Environmental policy and Climate category** in order of their influence on the shallow geothermal system design determined by experts

● **Water protection area impact on project cost** has the highest significance when designing shallow geothermal system in Environmental policy and Climate criterium

For more information visit:
<https://interreg-danube.eu/projects/danube-geoheco>

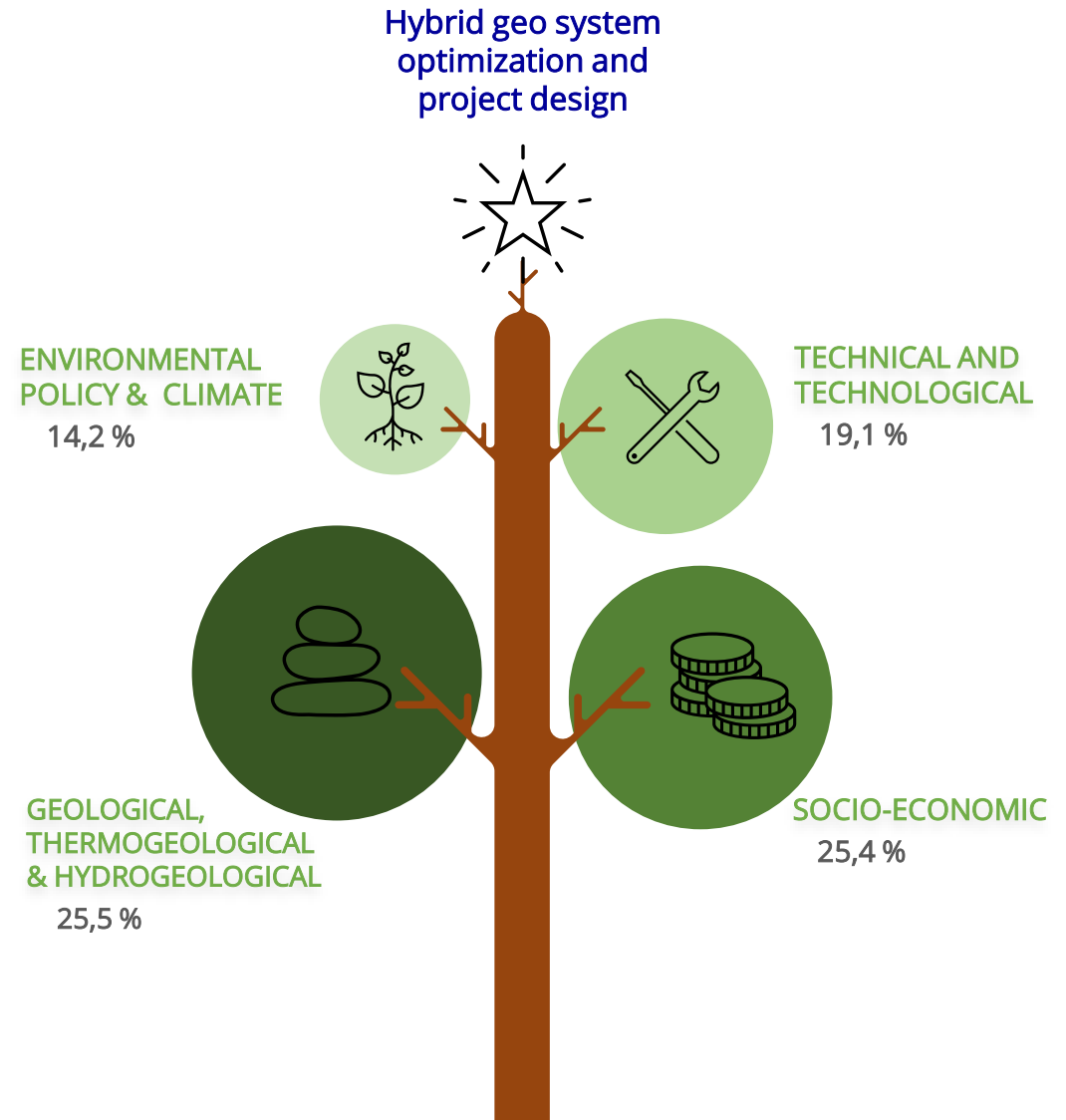


Hybrid geo system optimization and project design goal

- The Criteria Catalogue helps the project designers to focus on the relevant parameters
- Criteria influencing the **Hybrid geo system optimization and project design goal** in order of the influence on the shallow geothermal system design determined by experts
- **Geological, Thermogeological and Hydrogeological criteria** have the highest significance when designing hybrid shallow geothermal system

For more information visit:

<https://interreg-danube.eu/projects/danube-geoheco>



Hybrid geo system optimization and project design goal

- The Criteria Catalogue was designed to determine the most influencing factors in the design of the shallow geothermal hybrid systems
- **20 criteria** were evaluated by using the AHP method on results of the questionnaire filled by experts in the shallow geothermal system design
- The **most influencing criteria** are Monthly peak heating & cooling loads, Cost of BHE/Water well drilling and completion, as well as Cost of natural gas/fuel oil for households/enterprise

Monthly peak heating and cooling loads	Unconfined aquifer presence, thickness or spring water yield	Geothermal gradient	Cost of electricity households / enterprise	Monthly heating and cooling energy demand	Bivalent temperature for hybrid system setup
Cost of BHE / water well drilling and completion	Thermal / hydraulic conductivity for ground / aquifer	Cost of HP installation compared to existing system	Drilling depth of BHE and well geometry and completion	Type of lithology and heterogeneity	Installation year of existing system
Cost of natural gas / fuel oil households / enterprise	Undisturbed ground / aquifer temperature / waste heat temperature	Water protection area impact on project cost	Landuse conflicts / available area for geothermal system	Monthly average air temperature and air amplitude	Direct government local incentives for renovation
				BHE thermal resistance / well loss	GSHP / GWHP cost of periodic rework for entire system

For more information visit: <https://interreg-danube.eu/projects/danube-geoheco>