Supplementary Material: Interface Details and Interview Materials

A Interface Details

Further details regarding the user interface of our tool are provided below.

"Search Plants" Tab. A screenshot of this tab is shown in Figure A.1. This tab allows users to search for power plants by name, with results sorted alphabetically. The search only considers power plants that remain after applying filters, ensuring relevance. If the users are interested in one or more power plants in the search results list, they can click the "See it!" button followed by the power plant name. Then the map view will be centered on the respective plant, and its detailed information will be presented in the "Plant Information" tab automatically.

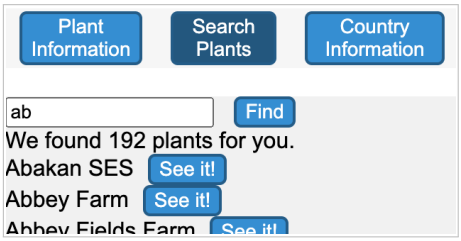
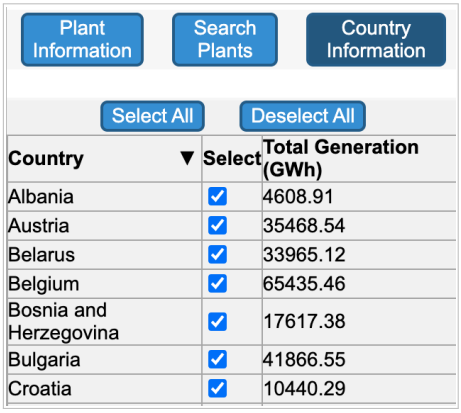


Figure A.1: The search interface in the "Search Plants" tab. This screenshot shows the search results for the string "ab".

"Country Information" Tab. This tab displays a table of total generations for each country, as presented in Figure A.2. Users can sort the countries either alphabetically or by their total generation. The user can also select specific countries to view the associated power plants.



Country ▼	Select	Total Generation (GWh)
Albania	☑	4608.91
Austria	☑	35468.54
Belarus	☑	33965.12
Belgium	☑	65435.46
Bosnia and Herzegovina	☑	17617.38
Bulgaria	☑	41866.55
Croatia	☑	10440.29

Figure A.2: The interactive table displaying each country's total generation in the "Country Information" tab. It shows the country list sorted by their names while all the countries are selected.

B Interview Participant Background

The details about the domain expert review participants are provided in Table B.1.

C Interview Tasks

During the interviews, the participants were asked to complete the following five tasks while thinking aloud and providing their comments to evaluate the functionality of EuroEnergyVis. These five tasks are designed according to the user tasks in Section 3.

- **T1.** If a power plant has very high generation, what fuel type could it use?
- **T2.** Consider the location of all the power plants fueled by wind or solar. What can you infer?
- **T3.** How many power plants have the string "ab" in their names? What about "cd"?
- **T4.** Comparing all the power plants in Sweden and Norway, do they have any difference in fuel type?
- **T5.** Find a power plant with the name "Forsmark" on the map, and answer: What is the name of its nearest neighbor? And what is the generation of it? What is the distance between Forsmark and its neighbor to the southeast?

T1, T2, and T4 are designed to test different filtering and controlling functions (User Task 3, filtering power plants, and User Task 1, overview these power plants). Participants can use the range slider to filter power plants by generation, use the legend to filter fuel types, and filter by country in "Country Information" tab. T3 evaluates the search function, corresponding to User Task 4, more interactions. T5 is a comprehensive task where participants first locate a power plant, examine its details, and explore its neighboring plants. This task aligns with User Task 2, which involves various power plant characteristics such as location, neighbors, detailed attributes, and generation. These tasks are subjective, and our goal is to assess whether EuroEnergyVis's functionality aligns with the design requirements and user tasks. Thus, we do not measure task accuracy or completion time.

Table B.1: Self-reported background information of our domain expert review participants.

	Main research/application field	**Relation to energy system, power plants, or electrical systems**	**Experience or skills in information visualization**
P0	Control systems applications in large-scale network settings.	Worked a lot with electrical power systems.	Very little.
P1	Automotive, electrification in modeling, and optimization of electric grid.	Close to electrical systems, electric cars, and renewable energy.	Very limited.
P2	Energy systems analysis, multi or interdisciplinary background.	Energy system is the core issue.	Experience in using R, Matlab, or PowerPoint for visualization.
P3	Work on the governance of socio-technical transformation processes and the focus on energy.	Energy transition or transformation. E-liberalization or power system and power market.	Not much.
P4	Power systems, power system protection, load modeling, renewable energy, and energy transition.	More than 20 years supporting power plants and grid planning and operation.	Not so much.
P5	More than 6 years on power system analysis. Focus on integration of renewables and battery storage systems.	In the power grid, connection of renewables, power plants from the inverter towards the grid.	A user of such tools.