Prosumer: generation expansion planning tool with decarbonization targets

Sustainability Solutions: EMEAI

ENGIE Impact delivers sustainability solutions and services to corporations, cities and governments across the globe. Comprised of existing and proven ENGIE Group businesses, ENGIE Impact brings together a wide range of strategic and technical capabilities, to provide a comprehensive offer to support clients in tackling their complex sustainability challenges from strategy to execution. Why join us?

As a division of Engie Impact, the Advanced Analytics team focuses on the development of tools that are rooted in operational research (linear and nonlinear optimization) and machine learning. These tools support internal and external consultants and their applications cover for example: the operations of a district heating & cooling network, finding optimal investment pathways, designing net-zero factory roadmaps, and controlling hydro production.

Prosumer is one of these tools. The objective of Prosumer is to support decision-making regarding investments while decarbonizing the industry by sizing assets (solar panels, electric boiler, heat pumps, etc.) and finding the optimal dispatch of a site under certain constraints (CO2 target reduction, balance supply/demand, the footprint of assets in a limited space, etc.). For that, a mathematical model is solved to determine the optimal solution of a Generation Expansion Planning problem.

Ready to act Right Now, for Tomorrow?

Job Description

As part of the Prosumer team, the Operational Research Analyst (Internship) will have to work on the different steps of Operational Research projects : understand existing models in literature, implement the solution in the core, in Python and GAMS using Engie Impact's libraries, test and analyze the outputs on business cases, construct test data, iterate with users to fine-tune the model, support and maintenance of the tool, present the results to the whole team and write technical documentation to illustrate the main takeaway of the internship.

The suggested topics for the intern would be the following ones:

- Maintenance periods
- GamsTransfer for transformers
- Scenario based optimization

Function

As **Operational Research Analyst (Internship)**, you will contribute to develop our activities on Prosumer by:

- Defining, developing and validating optimization models in operational research where the goal is to improve assets management
- Ensuring a good integration of the mathematical model into the client environment (run as a service) or in a complete tool
- Producing dynamic visualizations of the results of our models

Do you tick all the boxes?

We are looking for **talented and motivated people** to create the future of **sustainability transition**. Join a rewarding and flexible work environment that encourages innovation and creativity and help us meet the energy challenges of today and tomorrow.

- You are a master student in engineering with a solid applied mathematics background, a good basis and interest for IT (ideally Python for computer science)
- Having a good knowledge of mathematical modelling language is a plus (GAMS, …)
- You have good analysis capabilities, easy to manipulate complex concepts
- Having knowledge of energy markets or operations is an asset
- You are fluent in English
- You are rigorous, autonomous and can take initiatives
- You have strong communication skills and are able to convince
- You enjoy teamwork in an agile environment

Our offer

- An innovative working environment (NWOW) with a real flexibility
- The opportunity to discover a large group while remaining in a startup atmosphere
- Supported and coached by an international Agile team to improve your competences in Operational Research and IT
- This mission may lead to a stable, full-time position in an internationally reputed company
- Mission location: Louvain-La-Neuve, Brussels (Belgium) or Paris (France)
- Duration: 4 to 6 months depending on the topic
- Start date: beginning of 2024

How to apply?

Send your CV and cover letter to internships-AA@engie.com

Equal Employment Opportunity

All employment decisions shall be made without regard to age, race, creed, color, religion, sex, national origin, ancestry, disability status, veteran status, sexual orientation, gender identity or expression, genetic information, marital status, citizenship status or any other basis as protected by federal, state, or local law.