

# FELICITY - Supporting Energy Efficiency and Solar Energy in Public Buildings in Brazil

## Project Profile



### Challenge

Energy costs for public buildings remain among the main operational costs for municipal governments and public bodies. As Porto Alegre sits within a continental climate of warm summers and cool winters, buildings must continually utilize energy for its heating and cooling, resulting in high energy costs.

While aiming to move towards a more sustainable and cost-efficient energy model, FELICITY supported Porto Alegre in the preparation of the “Luz do Saber” project. The project will enhance the use of renewable energy with solar panels across 70 schools and reduce energy consumption through energy efficiency measures, including the installation of better insulation across 99 schools.

The project will contribute to a reduction in emissions from electricity and will indirectly provide increased resources through energy savings. This will enable the schools to further invest in each students’ unique educational needs.



### Support

FELICITY provided capacity development and advisory services to Porto Alegre in order to structure and prepare this energy efficiency and renewable energy project and demonstrate its technical, financial, and economic viability for financing.



### Partners

FELICITY worked in close relationship with Brazil’s Ministry for Mines and Energy, and the Development Bank of Southern Brazil (BRDE). BRDE and EIB have signed a framework loan to provide climate finance for projects supported by FELICITY. For Porto Alegre, FELICITY partnered with the Resilience Office of the Municipal Secretariat of Institutional Relations of Porto Alegre.

Additionally, FELICITY has supported the set-up of a Project Implementation Unit (PIU) in Porto Alegre to ensure coherent preparation, implementation, and operation of the project.

**FELICITY** (Financing Energy for Low carbon Investment – Cities Advisory Facility) is a project preparation facility implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and financed by the German International Climate Initiative (IKI) of the Federal Ministry for Economic Affairs and Climate Action (BMWK), between 2017-2022.

FELICITY works in close cooperation with the European Investment Bank (EIB) to support urban investment projects that significantly contribute to sustainable development and climate change mitigation. FELICITY offers technical assistance to cities in designing and structuring their infrastructure investment projects. FELICITY’s support to cities has the potential to leverage EUR 541 million.

This is achieved through low-carbon project pipelining and preparation; capacity development for cities and national intermediaries such as National Development Banks (NDBs); policy recommendations on specific national framework conditions; and the development of knowledge networks for climate finance projects.



### In Detail

FELICITY’s support to Porto Alegre included two main components. The first aimed at improving energy efficiency in 99 public schools. This was achieved through various energy audits in all schools, and through recommendations such as replacing lamps with more efficient LED lighting systems and replacing equipment such as fridges and freezers with newer, more efficient models. The studies on efficiency also suggested the retrofit of buildings with improved insulation. With the second component, FELICITY support included a viability assessment for renewable energy in 70 schools. Studies were carried out to model the electricity generation of solar power plant installations, and ideal options considering energy consumption of the schools.

Finally, overarching studies included emission reduction analysis, environmental and social risk analysis, financial analysis, and steps to support bidding procedures, procurement and tendering options.

Capacity development activities were conducted for more than 225 participants in the city of Porto Alegre. These included energy management systems for public buildings, PV system installation, and monitoring, and project management. Trainings on energy efficiency were also offered to school directors.

It is expected that the energy efficiency measures will be financed with public funds provided by the Education Secretary of Porto Alegre. The renewable energy measures will be financed through a wider energy public-private- partnership (PPP) programme from Porto Alegre.

“ Now we have the mission to take this initiative off the paper, which is part of the city’s preparation for climate change. We are starting with schools, but the goal is to reach other buildings in the city, seeking more savings and sustainable use of public resources

Cassio Trogildo  
(Porto Alegre Municipal Secretary of Local Governance and Political Coordination)

## Outlook and Scaling

Building on the experience of Luz do Saber, Porto Alegre decided to issue a tender to enable studies for a public-private partnership, with the goal to install solar photovoltaic across all 557 public buildings in the city.

Additionally, using Porto Alegre as a reference, more than 190 Brazilian cities were trained by FELICITY to replicate energy efficiency and renewable energy measures in other cities. Based on Porto Alegre’s case, the State Government of São Paulo requested GIZ’s support to implement an energy efficiency programme that encompasses energy efficiency in public buildings.

FELICITY’s activities also aimed to show how gender considerations can be included in renewable energy projects, with opportunities such as trainings and job creation. This experience will contribute to an “Energy & Gender Booklet”, to be published in early 2023 by the GIZ project Professionals of the Future of Brazil’s Ministry of Education.



## Project in Numbers

- Energy efficiency measures will be implemented in **99 schools**, and renewable energy measures in **70 schools**.
- It has been estimated that the measures in the schools could translate to savings of up to **372 tCO2** per year.
- The project will require an investment of **EUR 5 million**.
- It is expected that these measures will translate to more than **98% annual energy savings**, and more than **60% annual costs savings**.
- Measures can improve learning conditions for **50.000 students**.



## FELICITY has Supported These Achievements:

### Enabling Access to Climate Finance

In 2021, Porto Alegre prepared a financing request to BRDE, which aimed to disburse funds from EIB’s Climate Action framework loan. However, due to 2022 regulation changes in Porto Alegre, the city was enabled to fund the project from its own resources.

### Enhancing Bankability

The project documentation was developed to comply with national and international financing requirements.

### Ensuring Continuity

FELICITY provided support to the project during the period of transition of city administration and maintains close engagement with the city even after the studies were completed, to help carry on measures which support the implementation of the project “Luz do Saber”.

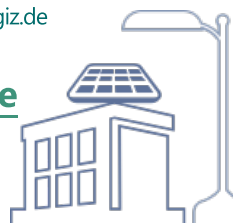
### Contributing to Green Recovery

FELICITY advised the city Porto Alegre and the Ministry of Mines and Energy in Brazil, including project preparation methodologies and manuals in the context of Green Recovery from the COVID-19 pandemic.

## Contact

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