



PhD in SCIENZE E TECNOLOGIE ENERGETICHE E NUCLEARI / ENERGY AND NUCLEAR SCIENCE AND TECHNOLOGY - 37th cycle

THEMATIC Research Field: PROGETTO INNOVAZIONE POLIMI - REGIONE LOMBARDIA: RENEWABLE ENERGY COMMUNITIES, ENERGY RENOVATION OF BUILDINGS AND PUBLIC LIGHTING SYSTEM

Monthly net income of PhDscholarship (max 36 months)

€ 1400.0

In case of a change of the welfare rates during the three-year period, the amount could be modified.

Context of the research activity

Motivation and objectives of the research in this field

This research addresses the challenges that public administrations are facing in the digital era that was accelerated by the COVID-19 events. The PhD will contribute to renew competences and instruments with the final goal to improve public administration governance and management. The building sector accounts directly and indirectly for around 40% of global energy-related CO₂ emissions (UNEP 2020). Energy use and global emissions associated with buildings had been increasing steadily until 2019, and estimates suggest that the global pandemic will have only modest effects on this trend. Energy renovation of buildings and public lighting system exploiting new tools like Renewable Energy Communities concept and smart grids are key factors for the decarbonization of the cities.

Methods and techniques that will be developed and used to carry out the research

The research will be conducted in collaboration with the Regione Lombardia Directorate on Local Authorities, Mountain and Small Municipalities. The candidate will do: investigation on the building fabric and energy system technologies and configurations, considering both thermal and electric energy vectors; development of dynamic mathematical models of the components, simulation of the whole system's performance; model validation through



	experiments and/or experimental data. The model developed will also take into account regulatory and policy frameworks (e.g. renewable energy communities).
Educational objectives	The project will provide candidate with: knowledge of the sector in which they develop the research project; methodological competences at both the theoretical and applied level; capabilities to interact with people of diverse background; problem setting and solving capabilities. Specifically, the candidate at the end of the PhD should be able to: carry out analyses on the economic sustainability of energy communities and support the process of establishing and building them, also from a technical point of view, taking into account the national and regional legislation in force; carry out assessments on the evolution of energy networks to support the development of energy communities (smart grids); carry out activities for the dissemination of the best technologies available for the energy renovation of public buildings and the reduction of light pollution; to set up and manage specific incentive measures in the sector, considering also EU and PNRR funds.
Job opportunities	Public institutions, policy authorities, private entities and research bodies.
Composition of the research group	1 Full Professors 2 Associated Professors 1 Assistant Professors 3 PhD Students
Name of the research directors	Prof. Mario Motta and a Regione Lombardia tutor

Contacts
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Additional support - Financial aid per PhD student per year (gross amount)	
Housing - Foreign Students	--
Housing - Out-of-town residents (more than 80Km out of Milano)	--



Scholarship Increase for a period abroad	
Amount monthly	566.36 €
By number of months	0

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information

Educational activities (purchase of study books and material, funding for participation in courses, summer schools, workshops and conferences): financial aid per PhD student per year
 2nd year: max 1534,33 euro per student
 3rd year: max 1534,33 euro per student

Teaching assistantship:

availability of funding in recognition of supporting teaching activities by the PhD student There are various forms of financial aid for activities of support to the teaching practice. The PhD student is encouraged to take part in these activities, within the limits allowed by the regulations.

Computer availability: individual use

Desk availability: individual use