

RESEARCH LINE 6A	
COMPANY	Iberdrola
PhD THESIS SUPERVISOR (UPM)	Prof Dr.Luis Alberto Sánchez Diez. <i>ETSI Caminos Canales y Puertos, Civil Engineering School</i>
PhD THESIS CO-SUPERVISOR (COMPANY)	Mr. Samuel Pérez de Ramírez <i>Iberdrola</i>
DESCRIPTION OF THE PhD THESIS PROJECT	<p>Heat electrification. Electrification potential of domestic thermal installations on a national level.</p> <p>The different types of housing uses, their spatial location, as well as their construction, lead to different typologies of energy consumption.</p> <p>There are very few residential buildings that enable collective forms of final energy and much less in trigeneration, basically applied in office buildings and hotels</p> <p>It would be logical for this adaptation to be originally integrated into the building and urban planning, but given the history and evolution as well as the discordance between the concepts of residential energy use and residential housing in terms of the valuation of a dwelling (which is usually valued by the surface area and much less by energy consumption) there is a disparity of configurations within the territory that make the majority of them economically and environmentally inefficient.</p> <p>The production of individual final energy for comfort has advantages, but at high costs and is environmentally inefficient. The idea of collective production, which in its beginnings was associated with equal cost for the end user is one of the causes of its rejection, and it has been overcome in the last decade by individual meters that particularise the consumption of collective production.</p> <p>This thesis will analyse the growth of the main cities in Spain and will formulate the integration of the thermal energy supply in the urban residential area, with the aim of using the calorific power in the most efficient way, at the place of consumption and proposing solutions with the integration of new technologies in both new and existing construction.</p>
Tentative SECONDMENT(S)	<p>Spain, Basque Country: village that won the EU environmental award for its thermal distribution.</p> <p>Spain, Barcelona: municipal power plant of trigeneracion made for the expo.</p> <p>Spain, Madrid. District heating at residential level in colonies: Altamira, orcasitas, ciudad universitaria and new constructions in vallecas with fuel cells.</p> <p>Suecia, Copenhagen; management of district heating.</p> <p>USA, New York City: cold bulb isimplementation in the sewage system.</p> <p>Modelling with Homer and other programmes for the joint management of electricity and thermal energy.</p> <p>Congresses and lectures associated with the topic.</p>
REQUIREMENTS FOR CANDIDATES	Master en Ingeniería, Química ,Física o Medioambiente, Especialidad de Ingeniería mecánica o Procesos de conversión térmica.