

**Call for application for research scholarships  
for post-graduate international candidates**

**RESEARCH PROJECT N. 30**

<b>Title</b>
Thermal and Biological Valorization of Energy Crops
<b>Scientific responsible (name, surname, role)</b>
Deborah Panepinto, Assistant Professor ( <a href="mailto:deborah.panepinto@polito.it">deborah.panepinto@polito.it</a> )
<b>Short description of the research activity (max 250 words)</b>
<p>In the perspective of the energy production the possibility of using biomass in different forms is yet to be largely applied and there are very significant possibilities that this solution can be utilized a lot more in the future. It is important to consider these new possibilities in relation to the conversion of marginal agricultural areas to the production of energy crops, the destination of residues for treatment by conversion in energy factors (biogas, syngas) or in energy (electric and thermal energy), new solutions for biofuels and least but not less important investigation of new farm model based on the bio-farm concept.</p> <p>Further development of the energy production from local energy sources, like biogas and biofuels will enable to many countries – importers of energy to become its exporters, or at least get off at a steady self-sufficiency with a small share of imported energy. Besides the energy aspect, it is also necessary to evaluate the meaning, the positive aspects and the potential criticisms of these forms of energy production: these evaluations concern the different methods of cultivation, an assessment of the requirement for feedstock production, transport and transformation, the positive aspects of the right destination for residues, the effect on greenhouse production and climate change, the potential definition of environmental impacts originating from atmospheric emissions and residuals destination. It is also important to consider the consequences in terms of social and employment aspects; and obviously also aspects concerning the industrial costs, political prices for feedstock, fuels and carbon taxes.</p>
<b>Specific requirements (experiences, skills)</b>
Knowledge in the following fields:
<ul style="list-style-type: none"><li>• Thermal and biological processes</li><li>• Pollutant dispersion model</li><li>• Economic analysis</li></ul>
<b>Website of the research group (if any)</b>
<a href="http://www.diati.polito.it/ricerca/aree/ingegneria_sanitaria_ambientale">http://www.diati.polito.it/ricerca/aree/ingegneria_sanitaria_ambientale</a>
<b>Keywords (min 3, max 6)</b>
Energy crops, thermal valorization, biological valorization, environmental impact, GHG (Greenhouse Gas) emission, economic aspects
<b>Research Area (max 1)</b>

Environment, Land, Infrastructure