

## Project partners

 Institut National de la Recherche Agronomique  
<http://www.inra.fr>

 Sveriges Lantbruksuniversitet  
<http://www.upsc.se>

 Albert-Ludwigs-Universität Freiburg  
<http://www.uni-freiburg.de>

 Flanders Institute for Biotechnology  
<http://www.psb.ugent.be>

 University of Southampton  
<http://www.sbs.soton.ac.uk/staff/gt/gt.php>

 Istituto di Genomica Applicata  
<http://www.appliedgenomics.org>

 Georg-August Universität Göttingen  
<http://gwdu05.gwdg.de/~uffb>

 SweTree Technologies AB  
<http://www.swetree.com>

 Imperial College of Science, Technology and Medicine  
<http://www.imperial.ac.uk>

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## EnergyPoplar

European Seventh Framework Project FP7-211917  
Food, Agriculture and Fisheries, Biotechnology



energy poplar

# Enhancing Poplar Traits for Energy Applications

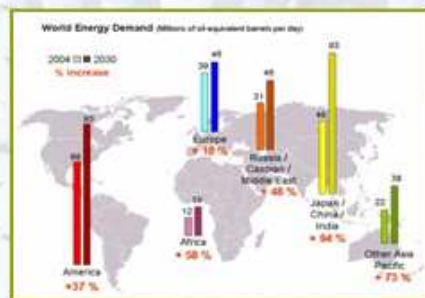


[www.energypoplar.eu](http://www.energypoplar.eu)





World primary energy consumption increased by 2.4% in 2007. With the world growing an **increase in energy demand**, the development and use of **renewable, sustainable liquid biofuels** has become a **strategic priority for the EU**. Biofuels can minimise energy import dependence, reduce greenhouse gas emissions and assist rural and agricultural development.



**Bioethanol** can be produced from energy crops that do not compete with food crops for land use and can be directly used by current transportation vehicles. This alcohol can be produced from biomass feedstock and in particular from cellulose, a sugar present in the cell wall of woody plants. Such crops are known as 'second generation' biofuel crops.

**To develop a new bioethanol industry** competitive with fossil fuels, the quality of the biomass feedstock, the methods to produce ethanol from cellulose and the yield per hectare must be improved. Energy trees must also support an environmentally sustainable agriculture that uses less agrochemicals, develops rural economies and spares natural forests from agricultural expansion.



**Poplar is an economically and ecologically attractive energy crop** since it displays a wide range of growth habits and can grow on marginal lands unsuited to food crops with reduced input costs and optimised land management. Additionally, poplar is a commercial crop and the model organism for hardwood tree genomics and physiology.



ENERGYPOPLAR aims to **DEVELOP ENERGY POPLARS** with both desirable cell-wall traits and high biomass yield under sustainable low-input conditions to be used as a source of cellulosic feedstock **FOR BIOETHANOL PRODUCTION**.

ENERGYPOPLAR, a consortium of 10 public and private European partners, was launched in March 2008 and will receive an EC contribution of 3 million € for 4 years.



## ENERGYPOPLAR ACTIVITIES

The overall objective of **ENERGYPOPLAR** is to unravel the mechanisms controlling cell wall structure and composition **to design new poplar trees with enhanced agronomical traits for industrial production of bioethanol**. In particular, ENERGYPOPLAR will :



- Help to understand the mechanisms determining optimised yield in *Populus*
- Study the mechanisms that regulate the synthesis of cell wall polysaccharides
- Provide a better understanding of lignocellulosic quality and in particular the genetic and genomic basis of 'high cellulose/low lignin' trees
- Develop high throughput assays for lignocellulosic quality and saccharification potential
- Discover new genes for traits of interest
- Develop a delivery pipeline for improved poplar trees
- Establish a tool for environmental sustainability assessments
- Use a scenarios-based approach to consider major changes in future climate and their impact on the quality and quantity of cellulosic feedstock

The final goal of ENERGYPOPLAR is **to develop poplar as a bioenergy short rotation coppice crop**, suitable for large-scale deployment in Europe in areas unlikely to be used for food agricultural production. All will be placed in an environmental framework to ensure environmental sustainability with respect to land use, inputs, soil microbial diversity, and greenhouse gas mitigation potential.



## DISSEMINATION TO STAKE HOLDERS

ENERGYPOPLAR will **increase the awareness of poplar as an energy crop** and the visibility of scientific achievements generated in the project to biofuel and energy companies, plant breeders, European forest-based and land-based sector, scientists, policy makers and consumers. ENERGYPOPLAR will actively **promote transfer of technology and biological materials for commercialisation**.