



# ELREN

European Leader+ Renewable Energy Network



Carlow LEADER  
Rural Development Co. Ltd.



## Introduction & Table of Contents



**TIPPERARY  
INSTITUTE**



NATIONAL DEVELOPMENT PLAN



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**This renewable energy training manual is an outcome of the European LEADER + Renewable Energy Network (ELREN) project. The key aims of the project are:**

- Facilitating knowledge exchange among LEADER+ Local Action Groups throughout the EU with technical know-how, application experiences, basic commercial information and co-operation opportunities in the fields of Production of Energy from Renewable Sources (REprod) and of Energy Performance of Buildings (EnSav)
- Encouraging the application of micro-technologies in rural areas by local public institutions and agencies, SMEs and private households
- Disseminating basic information on Renewable Energy country policies, applicable legislation and available funding / incentives.

The key activities in this project are:

- Establishment of the ELREN Website and RE Projects Database
- Publishing of a RE Training Manual
- Organisation of field trips highlighting models of best practice
- Hosting project conferences to facilitate knowledge exchange among LEADER+ Local Action Groups throughout the EU

For further information visit the project website at [www.elren.net](http://www.elren.net)

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The ELREN Renewable Energy Training Manual is substantially based on the material and headings delivered by Tipperary Institute during a 30 hour "Introduction to Renewable Energy Training Course" completed in December 2005 for Carlow LEADER Rural Development Company Ltd. The content and scope of this manual has been informed by the nature and extent of that training course.

The country reports for Italy, the Netherlands and Spain (chapters 15-17) were written by Ecofys Netherlands BV. This work was co-ordinated Mr Max Rathmann. Individual authors are listed at the start of each chapter.

Material in chapter 11 (Liquid Biofuels) is edited from the SEI Briefing Note on Liquid Biofuels (2003) with the kind permission of Sustainable Energy Ireland. Additions and editing to the original text by Tipperary Institute.

## List of Acronyms & Abbreviations

AD	Anaerobic Digestion
AER	Alternative Energy Requirement
BER	Building Energy Rating
BTU	British Thermal Unit
CER	Commission for Energy Regulation
CHP	Combined Heat and Power
COP	Coefficient of Performance
DoEHLG	Dept of Environment, Heritage and Local Government
EIS	Environmental Impact Statement
EPA	Environment Protection Agency
EPU	Energy Policy for Europe
ERDF	European Regional Development Fund
ESB	Electricity Supply Board
ETBE	Ethyl Tertiary Butyl Ether
EU ETS	European Union Greenhouse Gas Emission Trading Scheme
FDC	Flow Duration Curve
GMO	Genetically Modified Organism
HAWT	Horizontal Axis Wind Turbines
HHV	Higher Heating Value
IEA	International Energy Agency
IRR	Internal Rate of Return
kW	kiloWatt
kWh	kiloWatt hour
LAG	Local Action Group
LEADER	Liason Entre Actions pour le Developement d'IEconomie Rural
LHV	Lower Heating Value
MTBE	Methyl Tertiary Butyl Ether
MTOE	Million Tonnes of oil Equivalent
NCV	Net Calorific Value
NNU	National Network Units
NPV	Net Present Value
NRA	National Roads Authority

NRDP	National Rural Development Programme
O&M	Operation & Maintenance
OSI	Ordinance Survey Ireland
PPA	Power Purchase Agreement
PSO	Public Service Obligation (levy)
PV	Photovoltaic
RD&D	Research Development & Demonstration
RE	Renewable Energy
RES	Renewable Electricity Supply
RES-E	Renewable Electricity Supply - Electricity
REFIT	Renewable Energy Feed in Tariff
RME	Rape Methyl Ester
RUE	Rationale Use of Energy
RVO	Recovered Vegetable Oil
SEI	Sustainable Energy Ireland
SHWC	Solar Hot Water Collectors
SMS	Short Message Service
SRC	Short Rotation Coppice
SRF	Short Rotation Forestry
TOE	Tonne of Oil Equivalent
TPER	Total Primary Energy Requirement
TPES	Total Primary Energy Supply
VAWT	Vertical Axis Wind Turbine
VRT	Vehicle Registration Tax
WASP	Wind Analysis and Applications Programme
ZVI	Zone of Visual Impact

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