

## Laboratory Fact Sheet

### 1 Institution

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**Name:**



NEW ENERGY SOURCES LABORATORY  
(NESL) - RESEARCH INSTITUTE FOR  
ELECTRICAL ENGINEERING (ICPE),  
313, SPLAIUL UNIRII  
30138 BUCHAREST, ROMANIA

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### 2 Classification

- independent
- accreditation according to IEC 17025
- long-time DG experience (more than 3 years)
- active in standardisation committees

### 3 Brief historical background

The research and development activities in the field of RES in Romania are more than **25 years** old, with the foundation of the **New Energy Sources Laborator** of **ICPE**.

Starting from 1976, the activity in renewables has been initiated by the NESL following the first oil crisis, when our society was forced to accept that other alternatives for energy supplies must be investigated. From this year on, renewable energies became a distinctive activity in our institute, namely in the NESL, focused mainly on solar energy, small wind turbines and R&D of the components for renewables with the aim to offer as soon as possible pilot projects and applications for large-scale implementation. NESL participates also to the approval of different standards, as Romanian representative in IEC-PV TC82 committee (more than 50 standards in the field of photovoltaics have been approved until now).

### 4 Mission statement

**NESL** is active in the fields of Renewable Energy Sources (RES), Rational Use of Energy (RUE) and Energy Saving (ES). It has already a highly visible profile of a strong and reliable national energy centre.

NESL-ICPE has a scientific staff of more than 10 highly qualified engineers (electrical, electronic, and mechanical) and research scientists (physicists,

chemists, mathematicians) and, over the last 15 years, has participated in 15 European Projects and in more than 30 national projects. These include R&D projects, demonstration projects, as well as training and promotional activities on the RES/RUE/related issues. Apart from the office buildings in Bucharest, NESL-ICPE premises include two experimental test sites for outdoor installations, specialized laboratories (biomass, PV-batteries, passive solar systems, wind energy).

## **5 Institution in brief**

- Associations
- ICPE is a big Autonomous R&D company
- Accreditations
- ICPE AND NESL are certified ISO 9001.
- Number of staff
- ICPE about 400 people and NESL is a autonomous center with 25-30 people.
- Main source of funding

In the last period: 60% from national R&D programmes, 30% from industry and 10% from EU projects.

## 6 Brief summary of competences

<b>Institution:</b>	
Description of competence	Yes/no / list
Involvement in standardisation groups/committees	Yes CEI TC 82 and RomaniaN Comitees CT 35 ( PV) and 174 (WIND).
Certification expertise	YES ISO 9001 and ISO 14001
Area of Scientific expertise	Design of PV wind and hybrid systems Monitoring systems for RES applications PV stand alone, grid connected systems
Involvement in consultancy (e.g. for industry and government)	New solutions, technologies, materials and equipment for intelligent buildings Feasability studies for RES applications
DG reference project list	<p>Eu Projects:</p> <p>EUROWIN INVESTIRE FEMOPET- Fellow Member of the OPET Network RO-SWEET- Solar and Wind Technology Excellence, Knowledge Exchange and Twinning Actions Romanian Centre</p> <p>Romanian projects:</p> <ul style="list-style-type: none"> <li>▪ DG on DC RES/hybrid Microgrid(PV, Wind,Fuel Cell, Genset, Microhydro)</li> <li>▪ DG on AC RES/Hybrid isolated Microgrid(PV,Wind, Genset)</li> <li>▪ Integration in buildings of Grid connected PV Systems</li> </ul>
List of recent publications (say last 3 - 5 years)	<p>"A Small Internal Grid PV System for Educational Activity", <i>Electronica, Electrotehnica, Automatica – EEA</i>, Vol.52, No.2 (2004), p. 37.</p> <p>"NESL-ICPE – Center of Excellence for Solar, Wind and Hybrid Systems: Five Years of Development and Monitoring of RES Applications", <i>Proc.20<sup>th</sup> European Photovoltaic Solar Energy Conference</i>, Barcelona, 6-10 June 2005.</p> <p>"PILOTEOL- A research project for promotion of the wind turbine application in Romania", FOREN 2006, Neptun, 11-15 iunie 2006</p> <p>„ Hybrid systems using renewable sources</p>

<b>Institution:</b>	
Description of competence	Yes/no / list
	<p>of energy for the electric supply of isolated users – FOREN 2006 Neptun, 11-15 iunie 2006</p> <p><i>“Promotion of Photovoltaics by NESL in Romania – 25 Years Experience”</i>, The 21st European Photovoltaic Solar Energy Conference &amp; Exhibition 4-8 September 2006 DRESDEN.</p> <p><i>“Renewable Energy Sources in Romania”</i>, Data Gathering on Renewable Energies for New Member States and Candidate Countries"-Dubrovnik, 15-16 November 2006</p> <p>Technology Platform “Photovoltaic”, 5th “Mirror Group” meeting 02 - 03 April 2007, Bucuresti.</p> <p>Solar Photovoltaic Applications, Electra, Bucuresti, 2007, ISBN 973-7728-76-9.</p>

## 7 Laboratory facilities

<b>Facilities</b>	<b>Capabilities</b>
Out door PV/hybrid Systems test bench	CEI 62124
In Door Invertor test bench	
In Door wind generator test bench	Up to 3kW
Out door wind turbine test facility	Up to 20kW
Performance testing of PV Arrays	CEI 62154
Testing of power quality for grid connected PV systems	Siemens and Fluke
Testing of power quality for grid connected Wind turbine	Siemens and Fluke

## 8 Standardisation activities

NESL Is involved in two romanian project in consortium with ASRO, The Romanian Agency for Standards specially to adopt the romanian standardads for wind and solar applications .NESL participate in other project for obtaining the

acreditation for PV performance measurement( modules and systems) in the next year.

## **9 Testing activities**

NESL has three test site facilities:

One is situated in BUCHAREST. In door measurement for PV, wind, microhydro, hybris systems and componenets are conducted.

The second is test site facility, 4 ha, in the marine climate near the Bleack Sea Coast and is used for out door wind and solar /hybrid systems performances.

The third one is situated in a mountain area and is used also for wind, solar and other tests on RES Applications.

All the systems are also monitorised.