

## CEFRABID

### Clean energy from road acoustic barriers infrastructure development

*Project duration: from 09.2018 to 11.2020*

*Report submitted: 12.2020*

#### **Publishable Summary**

The CEFRABID project concentrated on advanced photovoltaic (PV) product applications in road and rail (r&r) transport infrastructure. It also focused on related grid integration with noise barriers and passenger stop shelters along local r&r infrastructure for needs of powering this infrastructure, e.g. for signaling, lighting of neuralgic sections of roads and rail platforms, including r&r crossings and, last but not least, warming or cooling passenger stop shelters of special innovatory design.

The focus was on innovative manufacturing of end solutions for r&r infrastructure integrated PV systems. The following issues were addressed and goals pursued:

- Dimensional and outlook flexibility with customised sizes, shapes and colours, freeform module technology, and bifacial (especially for N-S oriented r&r) solar cells and modules, electrical design for energy output optimization: shadows, various tilt and orientation angles, safety issues, all of which had been part of extended preliminary tests at specialized Partner's facilities of their different configurations, including both laboratory tests, as well as outdoor tests on partially movable platforms (PMPs).
- Holistic approach for the energy performance, enabling accumulation of energy for night or worsening weather conditions periods, assuming also backup power supplies from conventional electric grid in emergency states.
- Easiness of installation/application based on modular designs of largely independent and self-sufficient Hybrid PV Noise Road (Rail) Barriers' (HPVNRBs) modular sections, which may be easily prolonged and included in the grid (in series when independent, and in parallel layout for mutual replacement needs).

The traditional road transport infrastructure will be supplemented with the help of these new solutions for HPVNRBs and other surfaces of r&r infrastructure, using innovative and reinforced PV products.

## Project consortium

Coordinator and all contact details:

Full name of organisation:	Główny Instytut Górnictwa
First and family name of coordinator:	Zbigniew Motyka
Full address:	40-166 Katowice, Plac Gwarków 1, Poland
E-mail:	z_motyka@wp.pl

Participating countries and financing:

Country	Number of organisations involved	Project costs in EUR	Public funding in EUR
Poland	2	161'741	144'411
Spain	1	70'000	69'750
Austria	1	116'162	69'696
Cyprus	1	104'263	104'263
<i>Total</i>	<i>5</i>	<i>452'166</i>	<i>388'120</i>

## Funding agencies involved and contracts

Funding Agency	Contract N° and Title
Narodowe Centrum Badań i Rozwoju (NCBR)	Contract No SOLAR/01/CEFRABID/2018 Contract Title: Umowa nr SOLAR/01/CEFRABID/2018 o wykonanie i finansowanie projektu o akronimie CEFRABID + Umowa Konsorcjum of 23.08.2018 between GIG and ML System
Ministry of Economy and Competitiveness – Agencia Estatal Investigacion (MINECO-AEI)	Contract N° PCI2018-093082 Contract Title: ENERGIA LIMPIA PROCEDENTE DEL DESARROLLO DE INFRAESTRUCTURAS DE BARRERAS ACÚSTICAS VIARIAS. PROYECTOS I+D+i DE PROGRAMACION CONJUNTA INTERNACIONAL
Austrian Promotion Agency (FFG)	Contract N° 863518 Contract Title: Clean energy from road acoustic barriers infrastructure development (acronym: CEFRABID)
Research Promotion Foundation (RPF)	Contract N° P2P/SOLAR/1216/0004 Contract Title: ΣΥΜΒΟΛΑΙΟ ΕΡΓΟΥ ΕΠΕΥΝΗΤΙΚΟΥ ΕΡΓΟΥ ΜΕ ΑΡΙΘΜΟΠΡΩΤΟΚΟΛΟΥ P2P/SOLAR/1216/0004

*Acknowledgement: The project "CEFRABID" was supported under the umbrella of SOLAR-ERA.NET Cofund by NCBR, AEI, FFG and RPF. SOLAR-ERA.NET Cofund was supported by the European Commission within the EU Framework Programme for Research and Innovation HORIZON 2020 (Cofund ERA-NET Action, N° 691664).*