

GREEN INNOVATION VOUCHERS

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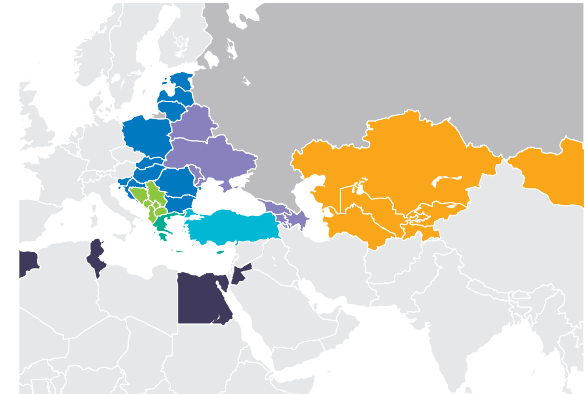


Agenda



- EBRD
- Green Economy Transition
- Green Innovation Vouchers
- Conclusion

- Multilateral financing institution
- Established in 1991 (in Serbia from 2001)
- Support transition to market and green economies
- Owned by 65 countries, the EU and the EIB
- Loans, equity instruments, credit lines via partner banks, grants
- Policy dialogue with the governments and other public sector clients as well as private sector associations
- Shape the legal and regulatory environment to be more conducive to green investments



Green Economy Transition (GET)



- In 2006 the Bank adopted the SEI (complemented later by SRI and GET)
- Increase the share of Bank business represented by measures which enhance the efficient use of energy and other resources such as water and materials, and contribute to the mitigation of, and adaptation to, climate change.

2006	2013	2015
Sustainable Energy Initiative (SEI)	Sustainable Resources Initiative (SRI)	Green Economy Transition (GET)
<ul style="list-style-type: none">• Energy efficiency• Renewable energy	<ul style="list-style-type: none">• Water efficiency• Material efficiency	<ul style="list-style-type: none">• Environmental protection• Technology transfer

GET in Serbia



- 1 BEUR for 10 years in over 50 projects \approx - 2 million tCO₂/year
- Kovačica and Čibuk Wind Farms
- WeBSEFF – up to 2 MEUR for businesses (grant up to 10%) and up to 2.5 MEUR for municipalities (grant up to 15%) wanting to invest in EE & RE)
- WB SME-CSP and GEF – up to 1 MEUR for businesses (grant up to 15-20%)
- Green Innovation Vouchers – grants up to 50 kEUR for businesses to cover up to 90% of R&D service costs











Green Innovation Vouchers



- An innovative and simple instrument to scale up green economy
- Promote and support development and implementation of green innovative technologies across all industries
- Boost university-industry collaboration, innovation capacity and thus competitiveness too, applied-research capacity, formation of longer-term more in-depth relationships

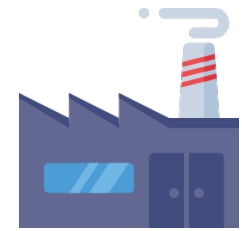


 12th pillar: Innovation	95	3.1	
12.01 Capacity for innovation	117	3.5	
12.02 Quality of scientific research institutions	47	4.2	
12.03 Company spending on R&D	107	2.9	
12.04 University-industry collaboration in R&D	95	3.2	
12.05 Gov't procurement of advanced technology products	105	2.8	
12.06 Availability of scientists and engineers	68	3.9	

The World Economic Forum Global Competitiveness Report 2017-2018

Eligibility

- **Private and domestic SMEs** at least 2-year old
- A green technology supplier or end-user interested in developing a resource-friendly product/service/process
- **R&D service providers** - faculties, institutes and other enterprises
- **R&D services** that result in a measurable environmental benefits
- Proof of concept/development/prototyping/testing/certification of a new product/service/process
- Innovative improvement of an existing one, consulting in innovation management and IP protection



Evaluation criteria

- Resource efficiency and climate change mitigation impact



- Scalability and replicability potential



- Innovation level



Numbers after the first two calls



4

- Calls

145

- Applications

44

- Approved projects

17 kEUR

- Average value of awarded voucher

770 kEUR

- Total value of all awarded vouchers

43

- Average number of FTEs of an awardee

6 MEUR

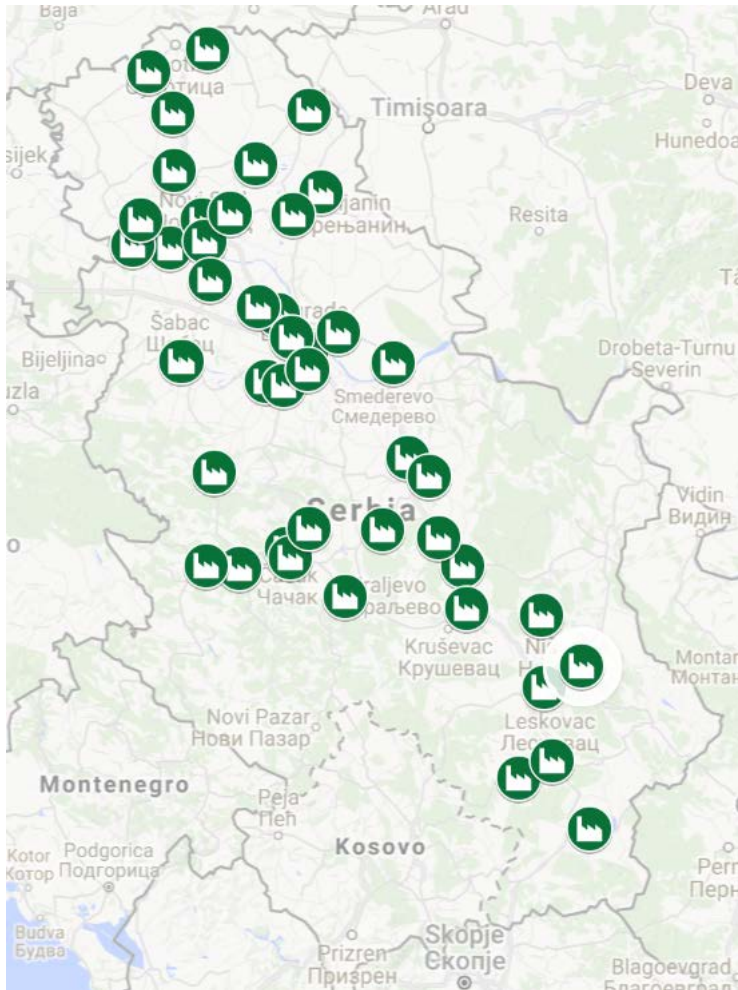
- Average turnover of an awardee

7 - Field test

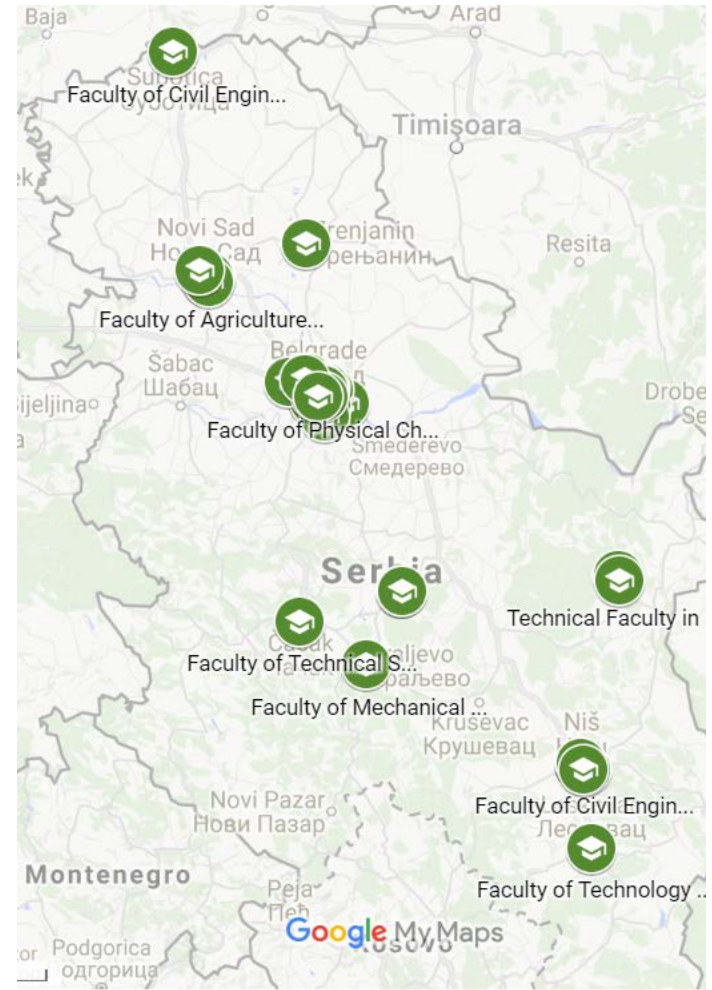
- Average Technology Readiness Level

Geographical distribution

Applicants/Awardees



R&D Service Providers



Modular non-dissipative battery discharger/charger



Summary: Development, prototyping and testing of a modular non-dissipative battery discharger/charger that discharges power to the grid

SME: G-Net d.o.o. Belgrade

R&DSP: Innovation Center of the School of Electrical Engineering, Belgrade

Impact: during maintenance and discharging power is returned to the grid (e.g. -10 kWh/year per a 48V/200Ah battery in a small telephone exchange, only in Belgrade around 10 000 batteries or -100 MWh/year), less heating and thus air conditioning too (-30 MWh/year, modular, dual function (both recharger and charger), may be applicable to electrical vehicles too



Eco-friendly adhesives based on modified starches

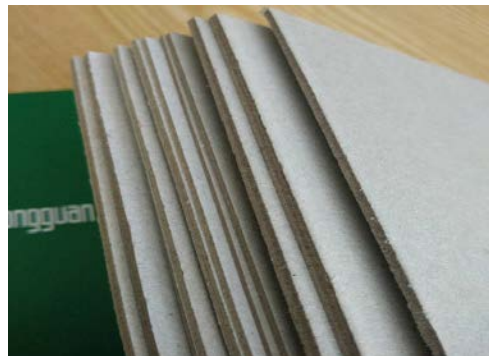


Summary: Development and testing of a eco-friendly technology for the production of adhesives based on wheat/corn starch modified with environmental friendly agents (plant oils and fatty acids isolated from oils in non-harmful solvents)

SME: Eucom d.o.o. Belgrade

R&DSP: Faculty of Technology and Metallurgy, Belgrade

Impact: energy and material efficiency of starch modification increased by 20%, eco-friendly and renewable adhesives for a wide range of applications in paper and construction industry, no aromatic adhesives, planned sales of eco-friendly starches of 1 MEUR in 2020



Smart grain storage management

Summary: Development and testing of an IoT platform for grain storage management (to be a part of AgroNET)

SME: DunavNET d.o.o. Novi Sad

R&DSP: Institute of Food Technology, Novi Sad

Impact: energy for drying reduced by 20-30% (e.g. in Serbia 1 MT of wheat stored x 0.5 t of oil = 0.5 MT of oil for drying per year), use of pesticides reduced by 50%, better grain quality, waste grain reduced by 50%



Removal of iron from irrigation water

Summary: Development, prototyping and testing of a filtration unit for iron in high-flow water systems (above 650 l/min) used for irrigation in order to avoid iron rust stains, discoloration of leaves and clogging of drip irrigation emitters

SME: Agro Produkt SRB d.o.o. Gospođinci – Tihomir Salamun, Director

R&DSPs: Faculty of Agriculture and Institute BioSense, Novi Sad

Impact: improved health of plants, humans and animals, no aeration (slow, pumps and large tanks) or chlorine oxidation (plants sensitive to chlorine), reduced consumption of diesel (-60 litres/season/ha), water (-700 m³/season/year), CO₂ emissions (-240 kg/season/ha), 1000 ha to be covered by the end of 2020



Photovoltaic greenhouses

Summary: Development of a polyethylene greenhouse with integrated flexible semi-transparent photovoltaic panels that enable the shading of the greenhouse and the electricity for the irrigation, ventilation, LED lighting and overall greenhouse monitoring

SME: A.D. Crna Trava Leskovac

R&DSP: Faculty of Civil Engineering and Architecture, Niš

Impact: increases yield of plants by around 20% in the case of tomatoes and cucumbers, increases the use of renewable energy in agriculture, decreases the pressure on the supply of land resources for the PV power station, 105 000 ha of greenhouses in the South East Europe, additional profit for farmers in the case of excess power



From waste Tetra Pak packages to building panels



Summary: Testing and patenting of water- and fire-proof building panels made of waste Tetra Pak packages

SME: Feplo d.o.o. Čačak

R&DSPs: Faculty of Mechanical Engineering, Niš and BETE, Kruševac

Impact: reduced amount of waste Tetra Pak packages sent to landfills, new ECO building material available to the Serbian market, planned sales volume of 1000 pallets a year



Conclusion



- Simplicity and “light-touch” administration
- Catalyst for the formation of longer-term more in-depth relationships
- Effective advertising and promotion
- Effective brokering by an independent body (e.g. a public agency)
- Short-term effect as the most serious concern
- Clear and transparent evaluation, approval and verification

Contact



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THANK YOU

For more details please visit:
inovacionivauceri.ebrd.rs



Technology Readiness Levels



TRL	9	Commercialized
	8	Pre-production
	7	Field Test
	6	Prototype
	5	Bench / Lab Testing
	4	Detailed Design
	3	Preliminary Design
	2	Conceptual Design
	1	Basic Concept