

A modern wooden spiral pendant light fixture with a glowing bulb, set against a blurred background of a modern interior. The fixture is made of dark wood and has a complex, multi-layered spiral design. The bulb is a clear, spherical LED bulb that is illuminated, casting a warm glow. The background shows a blurred interior space with wooden beams and windows, suggesting a contemporary architectural setting.

PROJECT PORTFOLIO

Empowering Energy, Driving Innovation, Creating Impact
www.dpsun.com



Overview

dpSun Ltd is an R&D-focused company established in 2014, based in the UK, specialising in projects, products, and consultancy related to Grid Stabilisation, Energy Storage Systems, and Sustainable Solar Electrification. The company has secured 6 Innovate UK projects with a total project budget of approximately £2.7 million. With a track record of delivering over 10+ innovation-based projects across more than 6+ countries, dpSun has collaborated with 13+ global partners including universities, NGOs, private companies and government bodies. dpSun's approach has been based on a business and community-driven model while incorporating GEDSI and circularity.



Sergio Cardamas

Sergio Cardamas, Managing Director of dpSun Ltd., is a renewable energy professional with over 18 years of expertise in solar PV, battery energy storage systems (BESS), and electrification projects. He has led multiple R&D initiatives funded by Innovate UK and the EU, with a strong emphasis on rural electrification and social impact. With a proven track record in project management, business development, and technical due diligence, Sergio combines entrepreneurial vision with a deep commitment to sustainability. Dedicated to mentoring future energy leaders, he continues to position dpSun at the forefront of advancing inclusive, innovative, and transformative energy solutions worldwide.



Oscar Charro

Oscar Charro, Director of dpSun Ltd., is a multilingual energy professional with over 20 years of experience in renewable project development, manufacturing, and strategic advisory. As co-founder of KRD, dpSun, and Nebo Solar, he specializes in solar PV, BESS, and hybrid micro- and mini-grids. He brings deep technical, commercial, and regulatory expertise across Europe and Sub-Saharan Africa. Skilled in EPC, bankability, and due diligence, Oscar has a proven record of advancing rural electrification and impact-driven projects. Renowned for combining innovation with execution, he fosters partnerships, drives large-scale pipelines, and ensures projects balance investor confidence with long-term sustainability.

dpSun Ltd is a private limited company registered in England and Wales.
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SolaFin2Go

SolaFin2Go's objective is to test the feasibility of 'entry level' technological solutions combining novel PV and solar thermal technologies financed through improved business PAYG models (enabled by the innovative FinTech platform through Mobile, Cloud) that fit with household/community circumstances to provide basic electrification and hot water.

COMPLETED

Country: Botswana (AFRICA)

Sector: Sustainable Electrification

Partners: Ulster University, Solaform, Empowered Fintech, BIUST

Budget: £288,000

Challenge

More than 600 million people in sub-Saharan Africa live without access to electricity and 90% of the population directly burn solid fuel for cooking, boiling water, lighting and heating. The SolaFin2Go project will address the challenge of providing standalone solar systems to make available cost effective and affordable access to electricity and thermal hot water for off-grid households in sub-Saharan Africa.

Innovation

Combining the partner technologies, resources and knowledge in this study has the potential to create a viable, cost effective off grid standalone solar solution to meet many of the challenges identified by the Sustainable Energy for All (SE4All) initiative and directly relates to the Botswana Off Grid Plan and Energy Efficiencies plan.

Impact

1. Provided offgrid solar-energy based electricity and thermal hot water to rural community school in Jamataka in Botswana
2. 150+ students were provided improved access to electricity thus positively impacting education in the community

Funded by



Innovate UK

Innovate UK



COMPLETED

SolaNetwork

SolaNetwork builds on progenitor work of SolaFin2Go to curate an integrated set of affordable solar energy access solutions or socioeconomically diverse sub-Saharan African rural communities in Botswana.

Country: Botswana (AFRICA)

Sector: Sustainable Electrification

Partners: Ulster University, Solaform, Empowered Fintech, DM Innovations, BIUST

Budget: £987,669

Challenge

The challenge is to address the distinct energy requirements of a rural community in Botswana. The project will develop and trial a network of stand-alone devices and unified monitoring and control system to provide real-time business intelligence and customer interfaces for the DESCO.

Innovation

Introduced diverse energy enterprise models. These included a mini grid to power essential facilities like the Kgotla, school, water point, and nearby businesses; a Battery Charging Hub to provide household energy via battery charging; and Solar Home Systems (SHSs) capable of both producing and consuming energy. All these energy initiatives are to be managed by a Distributed Energy Service Company (DESCO)

Impact

1. Successfully installed an 8KW (56KWh daily generation) Solar PV system with battery charging hub and inverter system in the village which is open to access for personal and business purposes

2. With the installed system, achieved a daily reduction in CO2 emissions of 44.8 kg. successfully electrified six (6) households using the Lite2Day battery system package.

3. Successfully trained 200 members of the community on optimal handling, operation and utilisation of the project facilities established.

Funded by



Innovate UK



SAMGRIST Samoa Grid Stabilisation

Samoa Grid Stabilisation project was identified as the third highest priority project in Samoa's NDC Implementation Roadmap and Investment Plan (2022). SAMGRIST aims for Samoa's national grid stabilisation through a business model where the utility engages a private entity to install and operate the batteries.

COMPLETED

Country: Samoa (APAC)
Sector: Grid Stabilisation, Energy Storage
Partners: GGGI
Budget: £209,867

Challenge

GHG emissions in Samoa are very small on a global scale. Despite this, as an island nation at particular risk of the adverse impacts of climate change, Samoa has achieved 50 percent renewable electricity generation target as of March 2021. For Samoa to achieve its emission reduction targets and maintain grid reliability, investing in renewable energy alone is not enough, batteries and other grid stabilisation measures are essential.

Innovation

The innovation lies in the feasibility study for the application of a business model where the utility engages a private entity to install and operate the batteries. This model would be the first of a kind in the Pacific and would harness private sector expertise, decrease investment for the Government owned utility, promote competition in the market for DER, and be the first step in moving towards a dynamic electricity system that is capable of supporting two-way power flow.

Impact

After the feasibility analysis, it was found that the SAMGRIST project is not financially viable but economically viable. The costs of the project are primarily driven by the capital cost of the battery energy storage systems (BESS). The benefits of the project for EPC are dominated by avoided fuel costs, which increase over time to 2031 at which point the BESS is expected to reach full utilisation.

Funded by



**Innovate
UK**

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IC2EV MH2G Reborn MotorHomes as power generators

COMPLETED

IC2EV idea was born in 2019 with a dream to be able to convert combustion vehicles into electric ones. Then, we converted our first vehicle, a Mini R50 from 2002. Project awarded the national mobility prize in Spain.

Country: Scotland
Sector: eMobility
Partners: N/A
Budget: £57,526

Challenge

High fleet renovation cost, New Low Emission zones leading to introduction of costs to enter certain parts in urban areas. Polluting long-life vehicles with high maintenance costs (avg >20 years). No electric motorhomes on the market yet

Innovation

Software development V2G/MH2G Technology evBrain controller for converting internal combustion to electric vehicle. MH2G will use the battery system of the electric car for this purpose, and thereby provide 50kwh in its very first model.

Impact

Phase 1 (Current) - Test bench, Software development of V2G technology and evBrain controller

Phase 2 (Future) - Real motor-home integration and Transforming combustion engine to electric providing extended lifespan

Phase 3 (Future) - Campsite areas & rental motorhome parking environment with EV charging network

Funded by



AIRFUSE All-Iron Redox Flow Utility for Sustainable Energy

Aims to implement a 12.5kW 75kWh long-duration energy storage (LDES) system at Kness Power Plant backed by All Iron Redox Flow Battery patented technology which is innovative, low-carbon, secure and patented.

Country: Ukraine (EUROPE)
Sector: Grid Stabilisation, Energy Storage
Partners: KNESS, R.Flo
Budget: £523,212

IN PROGRESS

Challenge

Addresses the challenge of energy recovery, security, and renewable energy transition in Ukraine and contributes to Ukraine's Energy Strategy for 2050. Our patented prototype overcomes problems related to conventional small storage capacity, environmental toxicity, high cost and explosion risk.

Innovation

The prototype backed by All Iron Redox Flow Battery patented technology which is innovative, low-carbon, secure will overcome problems related to conventional energy storage solutions such as small storage capacity, environmental toxicity, high cost and explosion risk.

Impact

1. Carbon Emissions Reduction By 27 tonnes in the first year of the project

2. Energy security, resilience and Independence: stabilise energy disruptions, reduce reliance on imported fossil fuels, and lower CAPEX

3. GESI impact - Upskill 100+ women, military veterans, youth for job opportunities. Educate 50 children on climate change and renewable energy. Introduce 5 STEM internships

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Community Energy from Solar Envelope Architecture (CE-SEA)

COMPLETED

CE-SEA is a R&D project for the development of an energy efficient modular façade system incorporating two innovative elements (CoPEG & HyPVT) which enable cost-effective building integrated heat and power generation to decarbonise community energy consumption.

Country: Northern Ireland (UK)

Sector: BIPV Sustainable Buildings,

Partners: Ulster University, HTT Renewables

Budget: £202,438



Challenge

CE-SEA addresses architectural and engineering challenges of utilising façade envelopes as cost-effective community heat and power resources to decarbonise energy consumption. The project will exploit a unique combination of Northern Irish renewables innovations to support green building architecture whilst strengthening existing industrial-academic partnerships.



Innovation

Introduces Two New Technologies - HyPVT (Hybrid PhotoVoltaic Thermal diode panel) and CoPEG (Concentrating PhotoVoltaic Evacuated Glazing). Multifunctional façade glazing element for Solar electricity Solar heat Daylight control Insulation.

Funded by



Impact

1. Decarbonise energy use by enabling >75% renewable energy share in the annual consumption of heat and electricity for buildings which feature energy envelopes.

2. Achieve 80% typical reduction in fossil fuel reliance within the Total Primary Energy Supply (TPES) to the buildings.

3. Reduce heat demand by 30% and grid electricity demand for lighting, appliances and cooling by 66% in multifamily residential buildings.



CASE Green Innovation Challenge Fund



PHIZECCS Passive House Integrated Zero Emission Climate Control Systems

IN PROGRESS

The project will demonstrate and test outdoor operational performance of novel solar façade elements which provide daylighting and solar shading; photovoltaic electricity with battery storage; and heat generation with thermal storage.

Country: Northern Ireland (UK)
Sector: BIPV Sustainable Buildings
Partners: Ulster University, HTT Renewables, Kore System
Budget: £249,855

Challenge

Driven by the growing commercial demand for NZEB solutions, the proposed PHIZECCS project builds upon the successful CE-SEA project outcomes to progress CoPVG and HyPVT innovations from TRL6 to TRL7 prototype demonstration in an operational environment.

Innovation

The solar façade elements will be coupled to heat pumps, heat-recovery ventilation, and energy storage systems to demonstrate how they can be used together to realise thermally comfortable NZEB concepts, tailored for the Northern Irish context, future-proofed against changing climate extremes, and proven to secure near-zero energy bills.

Impact

1. Better energy performance of Northern Ireland's building stock
2. Provide measured thermal comfort & energy cost data as techno-economic evidence
3. Progress Ulster University's patented CoPVG & HyPVT generating new plug-and-play battery integration and vehicle-to-home solutions.

Funded by



CASE Green Innovation Challenge Fund



SPARC- A Solar- Powered Mini-Grid Approach to Boost Agricultural Productivity and Rural Community livelihoods

COMPLETED

Project SPARC (Phase1) aims to perform a feasibility study to replace all fossil-fueled diesel generators for the installation of a solar-based hybrid Mini-Grid for the 1,500-resident Edondon community located in the Biase Local Government Area of Cross River State, Nigeria.

Country: Nigeria (AFRICA)
Sector: Sustainable Electrification
Partners: Ceesolar
Budget: £136,530

Challenge

Edondon with its 1500 residents, primarily composed of youths and children, has no access to electricity. Consequently, this has affected the community's agricultural sector which is the main livelihood for the majority of the population. The community is relying on fossil fuel-powered generators for daily needs and especially to operate their cassava milling machines which has led to low productivity, high costs of production, and pollution. Additionally, schools, hospitals, and local businesses in the community also depend on these generators restricting access to education, healthcare, economic advancement, and sustainable development.

Innovation

Project SPARC includes a feasibility study to replace all fossil fuel-powered generators used especially for cassava milling machines in addition in homes, businesses, schools, and hospitals in the Edondon community by a solar-based Hybrid Mini-Grid. This will boost the community productivity levels, power cassava milling machines to increase farm produce processing, increase access to education and health-care services, power local businesses, and reduce CO2 emissions.

Impact

1, Installation of minigrid over all phases of present and future project activities will lead to an estimated reduction of 47 tons of CO2 for 6 communities and replace 4000+ diesel generators. We expect to positively impact 24,500+ people across all 6 neighboring rural communities.

Funded by

Innovate UK

2. Organizing 3 workshops for 75+ women, youth, especially girls, and marginalised communities to help them upskill for job opportunities through skill development and create awareness regarding climate change/renewable energy.



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