Engineering and Physical Sciences Research Council Doctoral Landscape Award

PROJECT TITLE: Maximising Regional Benefit in Eco-Industrialisation: Pathways for Sustainable and Inclusive Growth

Lead Supervisor: Dr Eunice Oppon

Co-Supervisors: Professor Peter Connor, P.M.Connor@exeter.ac.uk Engineering

Webpage: https://experts.exeter.ac.uk/36258-eunice-oppon

Project details:

Background & Rationale Eco-industrialisation refers to the transformation of natural resources into industrial-scale, sustainable industries such as renewable energy generation, energy efficiency and other technologies which substantively reduce carbon emissions or other environmental impacts. The Greater Southwest (GSW) region (Southwest England, South Wales, and the Celtic Sea) is expected to see eco-industrialisation accelerate dramatically. Current renewable electricity capacity stands at 3.23 GW, but by 2040 this is projected to reach 41.37 GW, representing 16% of the UK's expected renewable electrical generation. This implies a roughly £40bn level of investment nationally, with further billions required for infrastructure such as additional transmission and distribution networks, more advanced network management, and the use of smart meter technology for demand side energy management. While these developments present opportunities for regional growth, questions remain over how benefits such as jobs, skills, inward investment, and infrastructure will be distributed and how applied policy can maximise value capture within the region in a post-Brexit landscape. Public acceptability of much more widespread new infrastructure is hugely important to enabling uptake, to creating opportunities and to the region contributing to achieving climate change goals. Capture of local benefit is emphasised throughout the literature as essential to acceptability – letting people see benefits accrue locally and regionally. The research will combine input–output analysis, supply chain mapping, and stakeholder engagement to examine how eco-industrialisation projects can maximise value capture regionally.

Outcomes will include recommendations for policymakers and industry to avoid extractive models and ensure that eco-industrialisation supports inclusive, sustainable regional development, while aligning with EPSRC priorities on energy systems, sustainable manufacturing, and resilient supply chains.

Research Questions

1. How do different eco-industrialisation strategies (e.g., offshore wind, solar, hydrogen, storage) affect regional economic, social, and environmental outcomes?
2. What supply chain and governance structures maximise regional value capture in the GSW and similar regions?
3. How can investment and policy frameworks avoid extractive models and foster inclusive, sustainable industrial development?

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Methodology

- Scenario Analysis: Develop scenarios for eco-industrialisation in the GSW, incorporating technologies identified in policy and industry roadmaps (offshore wind, solar, hydrogen, storage).
- Input–Output & Supply Chain Analysis: Map regional linkages, multipliers, and potential bottlenecks across industries such as ports, logistics, steel, and manufacturing.
- Stakeholder Engagement: Conduct interviews/workshops with local councils, industry partners, ports, communities, and regulators to validate assumptions.
- Comparative Case Studies: Benchmark GSW against other eco-industrial regions in Europe and globally to identify best practices.
- Policy & Investment Assessment: Analyse the role of government frameworks, Crown Estate leasing, and private capital in shaping regional benefit distribution.

Expected Outcomes

- Evidence-based insights into how eco-industrialisation can deliver long-term, inclusive growth in the GSW.
- Policy recommendations for maximising regional benefit from UK levelling-up and Net Zero goals.
- Contributions to academic debates on sustainable industrialisation, regional development, and supply chain resilience.

Aligns with EPSRC themes on energy systems, sustainable manufacturing, and infrastructure systems. Supports UK strategic priorities on industrial decarbonisation, regional economic resilience, and supply chain innovation.

Project specific entry requirements: N/A

Potential PhD programme of study: PhD Management (TBC)

Department: Management

Location: SERSF/Stella Turk, Penryn

Please direct project specific enquiries to: Eunice Oppon: e.p.oppon@exeter.ac.uk or Peter Connor: P.M.Connor@exeter.ac.uk

Please ensure you read the entry requirements for the potential programme you are applying for.

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