



Interreg
France (Channel Manche) England



ICE PROJECT OUTPUTS DESCRIPTION

TASK 1.3

JUNE 2020



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ICE report OUTPUT 1.3:

Life cycle sustainability framework



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Background information

This document presents the Life Cycle Sustainability Framework (LCSF) developed for ICE project and demonstrates its application and results for the island of Ushant off North West France.

There is a need for a framework that covers techno-economic, environmental, and social aspects over the entire life cycle of the energy systems under consideration. For this reason, relevant sustainability indicators were identified and a life cycle assessment (LCA) model for the island as a constrained energy system was developed based on the indicators chosen. A preliminary version of the model was presented during the ICE project meeting at Falmouth in October 2018. Feedback was received especially from the partners who have more knowledge on the application of renewable energy plans and sustainability of the local communities. This as well as the feedback from local communities and the International Conference of Sustainable development in Belgrade in April 2019 highlighted the elements required to transform the preliminary model into a multi-criteria decision analysis method that supports the holistic assessment and ranking of different future energy system options. One of the main concerns has been fuelled by the recent uproar concerning plastic waste in the environment and the challenge that local authorities face in dealing successfully with the amount of waste produced. Taking on board these concerns, the model has been further improved, with the latest improvements focused on the materials that need to be disposed at the end of their lifetime. The latest form of the model also constitutes the main instrument for the LCSF, is the Intelligent Community Electricity Lifecycle Technology Impact Calculator (iCELTIC) model.

SYSTEM/TECHNOLOGY SPECIFICATIONS

ANTICIPATED AND/OR RECORDED IMPACTS/ BENEFITS

The assessment of the different scenarios for adding renewable energy to Ushant enables us to ground our recommendations for achieving renewable energy goals and an enhanced smart energy approach not just in a shift to renewable energy but to provide a much more strongly validated case for which approaches will minimise total environmental impact.

The iCELTIC model will be made publicly available so that the same validation process can be applied on other islands wishing to consider decarbonising their own energy systems. This approach should offer the opportunity to maximise learning opportunities from the ICE project.



ANTICIPATED AND/OR RECORDED CHALLENGES

This deliverable has been delivered at a much later stage in the project than was initially timetabled. The reasons for this have been laid out in the regular reports submitted to the JS for INTERREG Channel. Essentially, it was felt that delaying the work allowed for a much better understanding of the situation on Ushant and allowed for a much better informed final document, presented here. This has not entailed any additional cost.

We were unable to include feedback from the island community to the extent that we would have preferred when preparing the initial bid. Access to the community was more limited than initially foreseen. We have worked around this to deliver two pieces of work which are both practical and which can inform further efforts beyond the scope of the project.

