

2030

CORCA DHUIBHNE DINGLE PENINSULA

Climate Hack Learning Brief

Connor McGookin, MaREI Centre
& Deirdre de Bhalis, Dingle
Creativity and Innovation Hub,
April 2020.



Background

The format of the event is based on the ‘serious game’ approach to scientific communication. A serious game is an interactive approach that is designed with the intention to teach rather than purely entertain. It is a very commonly used method of engagement in climate change research. [1] [2] [3] These games can help raise awareness, build capacity for problem solving and provide a space to explore potential futures. [4] A well-known example of the serious game approach is the World Climate Simulation, which asks participants to take on the role of UN negotiators and agree global climate change policy. [5]

The idea of the ‘climate hack’ template developed for the Dingle Peninsula was inspired by the work of Krzywoszynska et al. [6], Thomas et al. [7] and Volken et al. [8]. These studies all used some form of information sheets/cards to help participants make informed decisions about the future energy system. A similar approach was applied with the ‘climate hack’, an introductory brief on the current energy usage and associated CO₂ emissions, as

well as information sheets on the options available to decarbonise heating, electricity and transport were prepared. The purpose of providing this information was firstly to highlight the challenges facing the Dingle Peninsula and secondly to ensure that the students could make well-informed decisions about the future of their energy system.

This was an interactive outreach event to highlight the ongoing work of the Dingle Peninsula 2030 stakeholder group. [9] Dingle Peninsula 2030 is the umbrella title for the partnership formed between the Dingle Creativity and Innovation Hub, ESB Networks, MaREI and NEWKD. The ambition of the group is to support and enable the Dingle Peninsula transition to a low carbon future and to showcase the benefits achievable for rural Ireland in the process. The ‘climate hack’ was an important opportunity to highlight to young people the ongoing work to develop an energy master plan for the area as well as a number of exciting initiatives around; transport, bioenergy, co-operative ownership structures and sustainable farming.

Aims and Objectives

The overall aim of the event was to capture the key concerns of young people in the area. By giving them usable information and asking them to assume the role of a town planner, an interesting insight was gained into what parts of the energy transition they viewed as most important and their perceptions of the various solutions available.

The key objectives may be summarised as follows:

- Inform students of the current energy usage in their area, highlighting large sources of energy demand such as private car travel or home heating.
- Give students the necessary data on electricity, heating and transport energy options so they can make informed decisions about the future of their energy system.
- Capture the opinions and perspectives of young people.
- Develop local energy projects guided by young people’s vision for a more sustainable future.

It was decided that the event would not be run as a competition but rather that following the event the most enthusiastic group from each school would be asked to develop their idea further and prepare a poster presentation to display at the public launch of the Dingle Peninsula Energy Master Plan. In the end, the best idea from each challenge was chosen, giving a presentation on a community solar farm, public transport and alternative sources of heat (anaerobic digestion and hydrogen from electrolysis).

How It Worked

The event was run as part of Science Week 2019 in collaboration with the Dingle Creativity and Innovation Hub. It involved a two-hour workshop with fourth and fifth year students in the three secondary schools on the Dingle Peninsula; Pobalscoil Chorca Dhuibhne, Coláiste Íde and Meanscoil Nua an Leith-Triúigh. The material used during the event can be found at www.marei.ie/dingle-peninsula-2030/, and below is a summary of the resources needed. In addition, there is a short-film of the event available on the Dingle Creativity and Innovation Hub's YouTube channel. [10]

Inputs

Person-hours	
Preparation*	24
Event	18
Total	42
Cost	
Translation **	€150
Printing & Co-ordination	€250
Video	€1,100
Travel & Accommodation	€160
Total	€1,660

*Preparation of the material and event organisation, excludes preparation time of the teachers / students
**Corca Dhuibhne is a Gaeltacht region, so all material was bilingual

The information on energy usage and alternative options for heating, transport and electricity was primary based on the work of McGookin et al. [11], which also formed the basis of the Dingle Peninsula Energy Master Plan. [12]



Preparation

One week prior to the event, the introductory brief was sent out to schools. This gave an overview of how energy was currently being consumed in the region, how much this was costing the average household and the associated CO₂ emissions. It then prompted the students to investigate three key challenges facing the area; private car travel, home heating and electricity supply. In groups, the students were asked to choose one of these challenges or propose their own. A number of useful links were provided so that students could conduct their own piece of research in preparation for the event.

The Event

The event was run for 2 hours:

- 5 mins - Initial welcome address from Dingle Creativity and Innovation Hub.
- 10 mins – Introductory presentation from MaREI on the Dingle Peninsula energy balance and low carbon solutions in heating, transport and electricity.
- 1 hr 15 mins – Students were given the information sheet for their chosen challenge as well as an answer template with four sections to fill-in; CO₂ savings, cost estimate, potential barriers and benefits of their proposal. The data needed and example calculations were provided on the information sheet. In addition, tablet computers were available for further research.
- 30 mins – Each group was asked to present their idea(s).

Lessons Learnt

- Preparation is important – if students are given time to form groups and decide what they want to work on before the event then they get a lot more out of it.
- Demonstrator ratio - In order to ensure the students are given adequate attention and maintain focus throughout the exercise, it is best to have at least one demonstrator for every three groups of students.
- Not everyone is an engineer - The calculations should be simple, with easy to follow instructions. It is only necessary to give an overview of the relative cost of solutions in order to prompt a discussion about trade-offs like the fact that micro (domestic-scale) wind energy might be more popular but is not as cost effective as large (commercial-scale) projects.
- Focus on creativity - The solutions sheets should focus on developing an idea rather than calculating CO₂ savings or a cost estimate. The most important element of the event is to give young people an opportunity to make suggestions.

Outcomes



- The students presented their proposals as part of the Dingle Peninsula 2030 event on Feb 13th 2020, with an attendance of roughly 300 people.
- A group of students from Meanscoil Nua an Leith-Triúigh, Castlegregory applied to the Friends of the Earth Solar PV competition.
- A Junior Cert Maths student used the template to develop an energy overview for their county as part of their CBA. Integrating the exercise into existing coursework presents an excellent opportunity to engage young people in climate change discussions.
- MaREI is working on refining the event material with a view to creating a national template.

References

1. Flood, S., et al., *Adaptive and interactive climate futures: Systematic review of 'serious games' for engagement and decision-making*. *Environmental Research Letters*, 2018. **13**(6):p.063005.
2. Crookall, D., *Climate change and simulation/gaming: Learning for survival*. 2013, SAGE Publications Sage CA: Los Angeles, CA.
3. Reckien, D. and K. Eisenack, *Climate change gaming on board and screen: A review*. *Simulation & Gaming*, 2013. **44**(2-3): p. 253-271.
4. Eisenack, K. and D. Reckien, *Climate change and simulation/gaming*. 2013, SAGE Publications Sage CA: Los Angeles, CA.
5. Climate Interactive. *World Climate Simulation*. Available from: <https://www.climateinteractive.org/tools/world-climate-simulation/>.
6. Krzywoszynska, A., et al., *Co-producing energy futures: impacts of participatory modelling*. *Building Research and Information*, 2016. **44**(7): p. 804-815.
7. Thomas, M., et al., *Using role play to explore energy perceptions in the United States and United Kingdom*. *Energy Research & Social Science*, 2018. **45**: p. 363-373.
8. Volken, S.P., G. Xexakis, and E. Trutnevyte, *Perspectives of informed citizen panel on low-carbon electricity portfolios in Switzerland and longer-term evaluation of informational materials*. *Environmental science & technology*, 2018. **52**(20): p. 11478-11489.
9. Dingle Creativity and Innovation Hub (Molteic). *Dingle Peninsula 2030*. 2020; Available from: <https://dinglepeninsula2030.com/>.
10. Dingle Creativity and Innovation Hub (Molteic). *Climate Hack - Dingle Peninsula 2019/ Seift Aeráide - Corca Dhuibhne 2019*. Available from: <https://www.youtube.com/watch?v=8SM80eQAL3o>.
11. McGookin, C., B.Ó. Gallachóir, and E. Byrne. *A multi-dimensional approach for the development of a regional energy balance*. 2020; Available from: <https://cora.ucc.ie/>.
12. McGookin, C. *Dingle Peninsula Energy Master Plan*. 2020; Available from: <https://dinglepeninsula2030.com/projects/energy/energy-master-plan/>.

This series of learning briefs is co-founded by MaREI, the SFI Centre for Energy, Climate and Marine, the Dingle Creativity and Innovation Hub (Mol Teic), ESB Networks and North East West Kerry Development (NEWKD).