

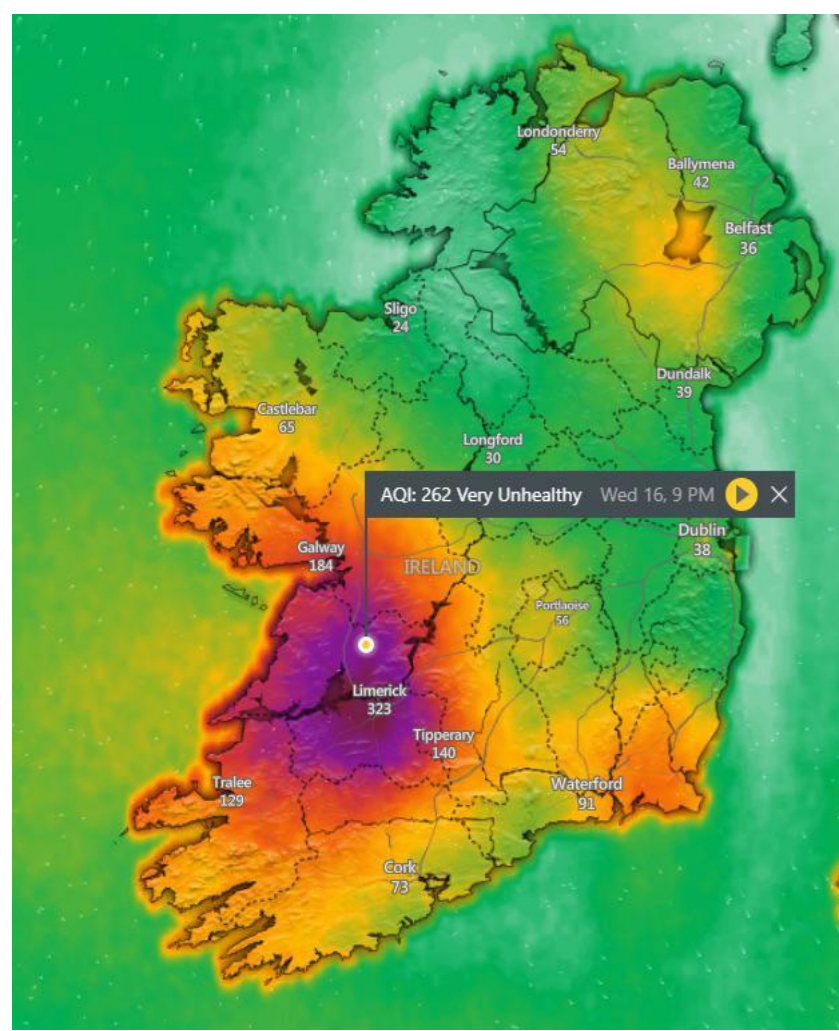
Advanced Predictive Models for GREEN ELECTRICITY Generation from Solar

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The big picture

- This project will provide accurate estimates of the solar power generation potential of every rooftop in Limerick.
- Smart sensors in households with solar panels will provide data to estimate the generation potential of rooftops without panels.
- Homeowners will be empowered to take charge of their energy usage. A free online app will provide homeowners with the information to help maximise utilisation of generated power to both save and earn money.
- Limerick region will be the national exemplar of utilising smart-tech to accelerate the transition to green electricity.

Importance to local environment



- Fossil fuel power generation contributes to poor air quality in the Limerick region (Fig 1).
- Solar microgeneration eliminates pollution by reducing grid demand locally and nationally.
- Government mandate to install 5 million solar panels by 2030 under 2022 Climate Action Plan.

Figure 1: EPA air quality nationally 16/11/22

Roadblocks to repowering green

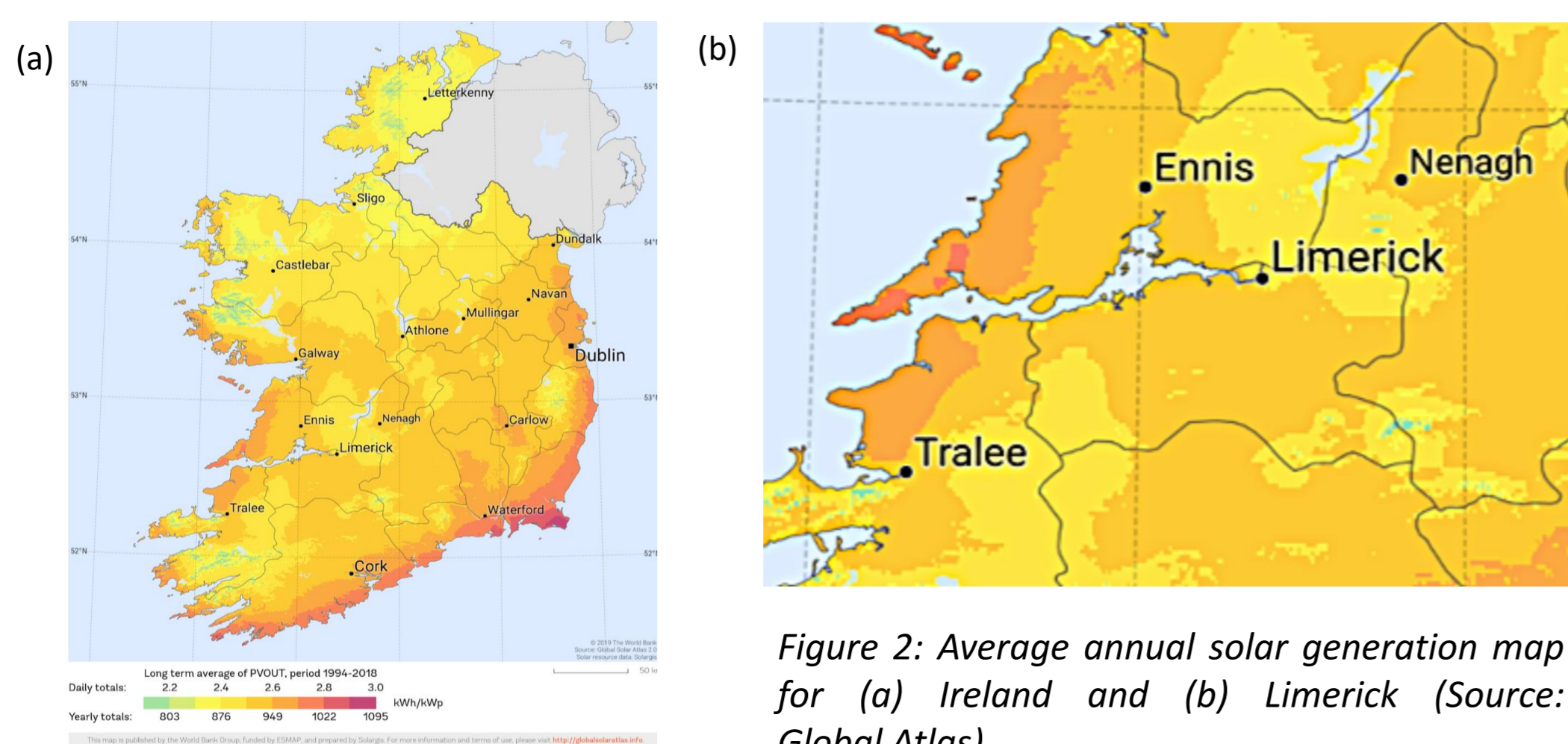


Figure 2: Average annual solar generation map for (a) Ireland and (b) Limerick (Source: Global Atlas).

- Solar power generation estimates for rooftops are presented at the annual level (Fig 2) - homeowners cannot accurately evaluate payback of investment or potential earnings from solar panel installation.
- Lack of real-time information results in less self-generated electricity being used, increasing payback time. Homeowners are unable to schedule their energy consumption to match their free green energy.

The plan

Allterco Shelly Energy Monitors

- Ability to record energy demand.
- Record 30 second solar output.



Figure 4: Shelly energy sensor

Installation

- Eco Green Resources Ltd will install Shelly devices during panel installation when possible.
- Installation of sensors in select number of properties with existing panels to enrich available datasets.
- Liaise with SEAI, IFA, sustainable energy groups such as Ballyhoura Development CLG to enrich data sources.

Impact and engagement

We will increase public awareness of our app by engaging with solar installers and hosting public engagement forums.

- App will provide detailed insights to households considering installation of panels (Fig 5).
- Homeowners with solar panels can investigate how to schedule electricity usage to maximise savings/earnings.

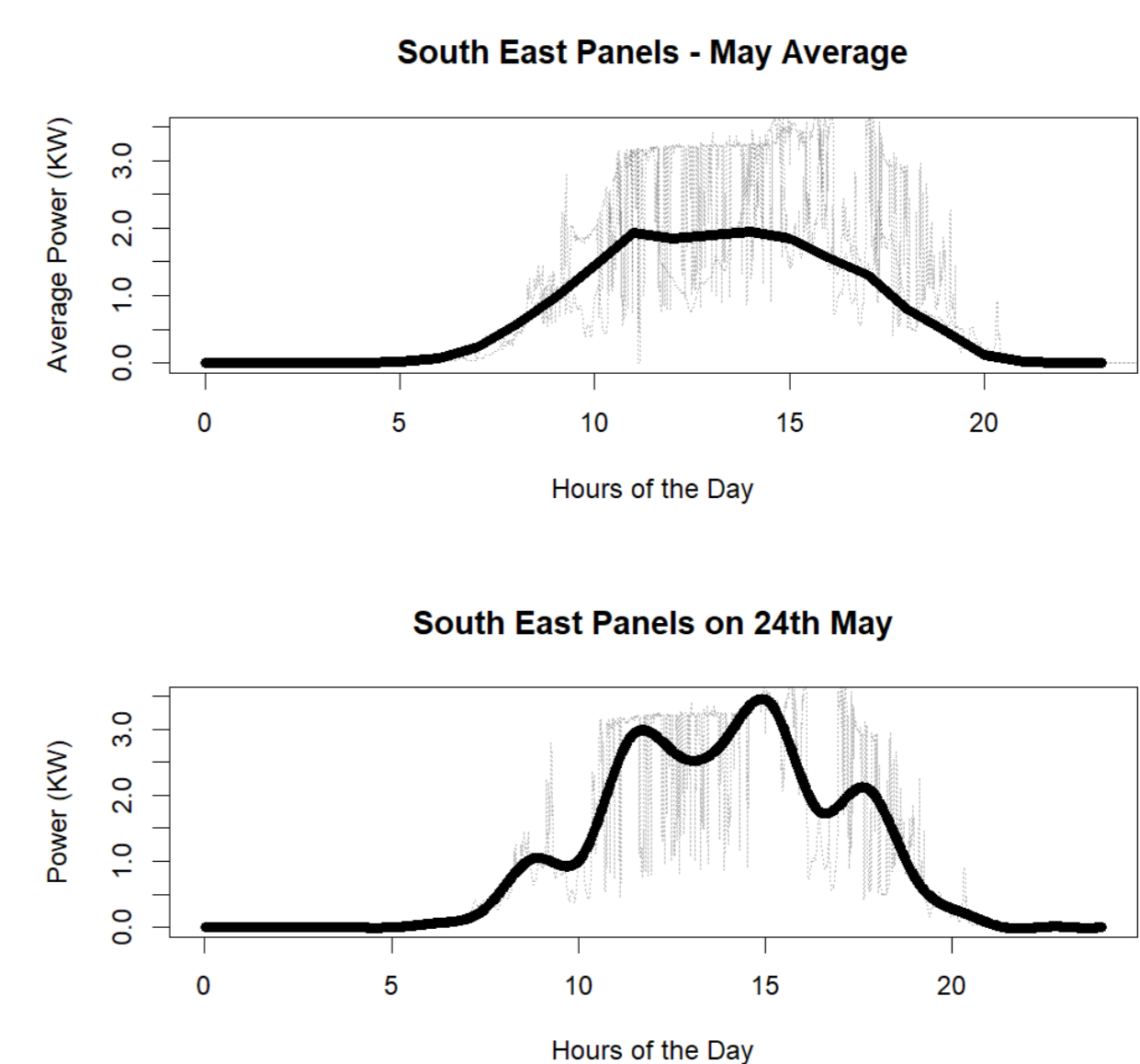
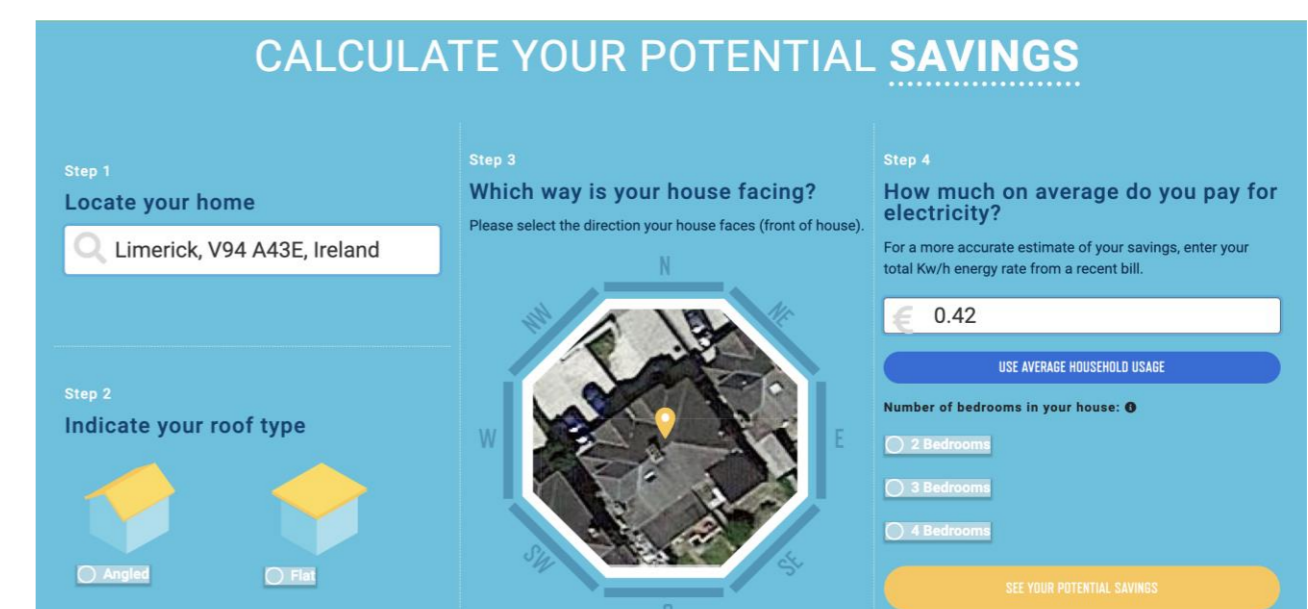


Figure 5: Template of app interface based on example from MySolar Ltd.

- Data insights used to engage with non-profits and government authorities to inform policy on how individuals with the greatest need for cheaper energy can be supported to transition to solar generation.