

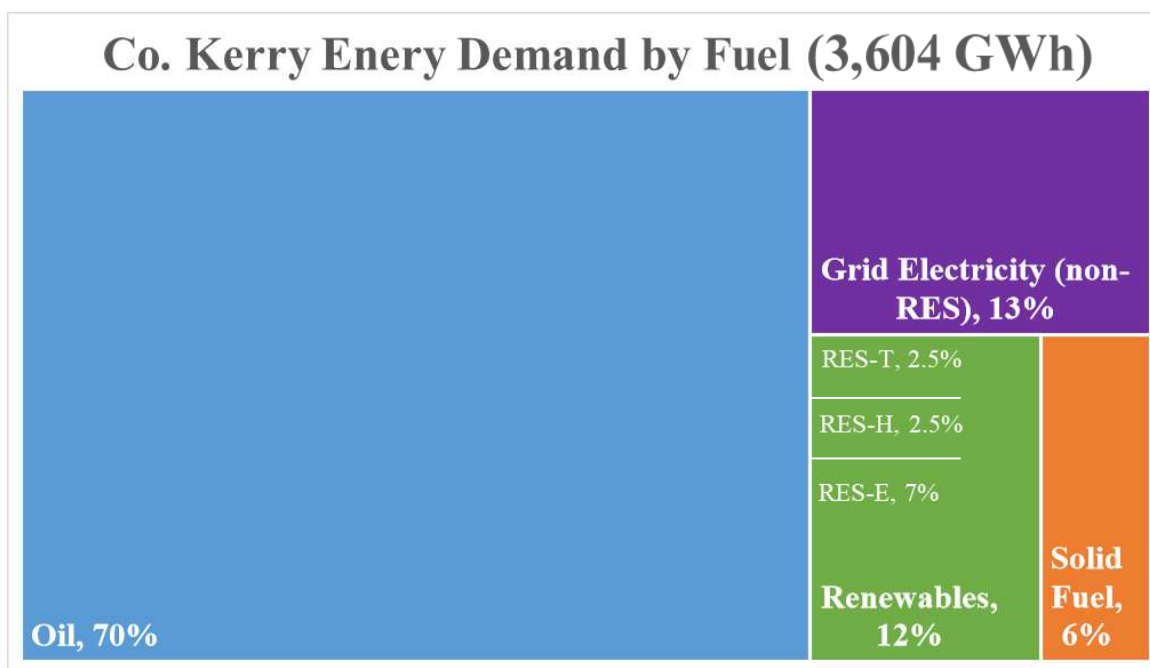
## Challenge 3; Renewable energy

In 2018, Co. Kerry residents and businesses spent around **€250 million on imported fossil fuels** (heating oil, LPG, petrol, diesel) and an additional **€10 million on solid fuels**.

- What renewable energy technologies would be most suitable for your area?
- What fossil fuels could this replace?

Nationally, we have been very successful at decarbonising our electricity sector. In fact in 2019, Ireland had the largest share of on-shore wind energy in the world at 32.5% of our electricity<sup>[1]</sup>. Building on this success, the current Government ambition is that by 2030 we will have an electricity grid that is 70% renewable<sup>[2]</sup>; thanks to a huge growth in on / off-shore wind and solar PV. This helps us reduce emissions from private cars and home heating if these become electrified with electric vehicles and heat pumps.

However; at the moment electricity is only 20% of our total energy demand, some things (like large road vehicles or industrial heat) can't be electrified, and the wind / sun aren't always available, so what other alternatives?



## Example calculations

$$6 \text{ Solar PV panels for a home} - 6 \times 285\text{W} \times 10\% \text{ (capacity factor)}^{[3]} \times 8,7060 \text{ (hours in a year)} = 1,498 \text{ kWh}$$

$$\text{Savings} - 1,498 \text{ kWh} \times 0.375 \text{ kgCO}_2/\text{kWh}^* = 562 \text{ kg CO}_2 \text{ \& } 1,498 \text{ kWh} \times 0.2369 \text{ €/kWh}^* = \text{€}355$$

On the residential information sheet, the example calculation shows the savings from installing a heat pump. An alternative option would be to inject biogas into the gas grid and thus reduce its carbon intensity<sup>[4]</sup>

$$\text{At 20\% renewable gas on the grid} - 0.205 \text{ kgCO}_2/\text{kWh} \times 0.8 = 0.164 \text{ kgCO}_2/\text{kWh}$$

$$\text{CO}_2 \text{ saving per average home} - 108 \text{ m}^2 \times 95 \text{ kWh/m}^2 \times (0.205 - 0.164) \text{ kgCO}_2/\text{kWh}^* = 421 \text{ kgCO}_2 \text{ per year}$$

\*provided in supplementary information

## Useful sources of information

[1] [REN21; Renewables 2020 - Global Status Report](#)

[2] [Government Climate Action and Low Carbon Development Bill](#)

[3] [All-Island Generation Capacity Statement 2019-2028](#)

[4] [Gas Networks Ireland, the Future of Renewable Gas in Ireland](#)