Domestic and commercial heating choices

In 2013, 62% of homes were heated with oil boilers (in terms of total domestic heat demand by technology), 33% with gas boilers, and the remaining 5% used electricity, biomass, heat pumps or thermal solar. It is expected that the heating systems in existing homes will need to be replaced by 2050 and the systems in approximately 1 million new homes (including rate of obsolescence) will need to be installed.

In 2013, 43% of commercial heating was supplied by gas boilers, 30% by electric heaters, 23% by oil boilers, 3% by biomass, and 1% via heat pumps. It is also expected that all commercial heating systems will need to be replaced by 2050, so the choices offered in the Calculator reflect the range of replacement options.

The 2050 Calculator considers eleven technologies for heating buildings. Combinations of these can be selected through two choice steps, one that mainly influences the trajectory of amount of electric heating and the other that influences the choice of heating alternative to electricity.

The table below sets out the technologies covered by each choice.

- **Electrification choice** is selected by the levers 'Home heating electrification' and 'Commercial heating electrification' as applied to the home and commercial sectors;

- **Other heating choice** is selected by the levers 'Home heating that isn't electric' and 'Commercial heating that isn't electric'.

The technology which could be used to supply Ireland's building heat in 2050 include:

- **Conventional gas boilers**, assumed to be capable of using either biogas or natural gas. (Their use is maximised by choosing A for electrification and A for the other heating choice).

- **Solid fuel boilers**, assumed to be capable of using either coal or biomass. (Maximised by choosing A for electrification and B for the other heating choice).

- Electrification via the installation of **resistive heating technologies, ground-source and air-source heat pumps**. (Maximised by choosing D for electrification and D for the other heating choice).

- Home heating technologies, designed to produce electricity while they are producing heat, e.g. **micro-Combined Heat and Power** (μCHP). (Maximised by choosing B for electrification and A for the other heating).

- Piped-in heat, for example **district heating** that takes steam or hot water from large power stations (Maximised by choosing A for electrification and C for the other heating choice), or from community scale gas or solid-fuel CHP systems (Maximised by choosing B for electrification and C for the other heating choice).

Electrification trajectory	Primary non-electric source			
	Gas (A)	**Solid (B)**	**District (C)**	**Mixed (D)**
Very low (A)	9	6	15	7
Low (B)	11	5	14	12
Medium (C)	10	8	13	16
High (D)	3	2	4	1

Figure 10: There is a large existing stock of heating systems dominated by oil. Every year heating systems are replaced, and the table below shows the split by technology of those new heating systems.