

## Can We Produce a Carbon-Negative Material Made of Carbon?

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Our planet is warming. As the global temperature keeps rising, we are experiencing more frequent and severe weather events, such as heavy rainfall, flooding, droughts, and heatwaves.

The increase of greenhouse gas concentrations in Earth's atmosphere has a direct effect on the rise of global temperatures. Among various greenhouse gases, the International Energy Agency (IEA) shows that anthropogenic methane ( $\text{CH}_4$ ) emissions account for approximately 30% of global warming [1]. Therefore, driving methane emissions reductions across all scales in the next few years will be a critical factor in our journey to fight climate change.

Here, I will present Levidian's LOOP technology (figure 1), a system designed to decarbonise carbon-intensive industrial processes, transforming decarbonisation from a cost into a source of revenue [2]. LOOP converts methane into two valuable products: hydrogen and graphene - a super-material with high commercial value, that can be used to enhance the intrinsic characteristics of products in several industries.

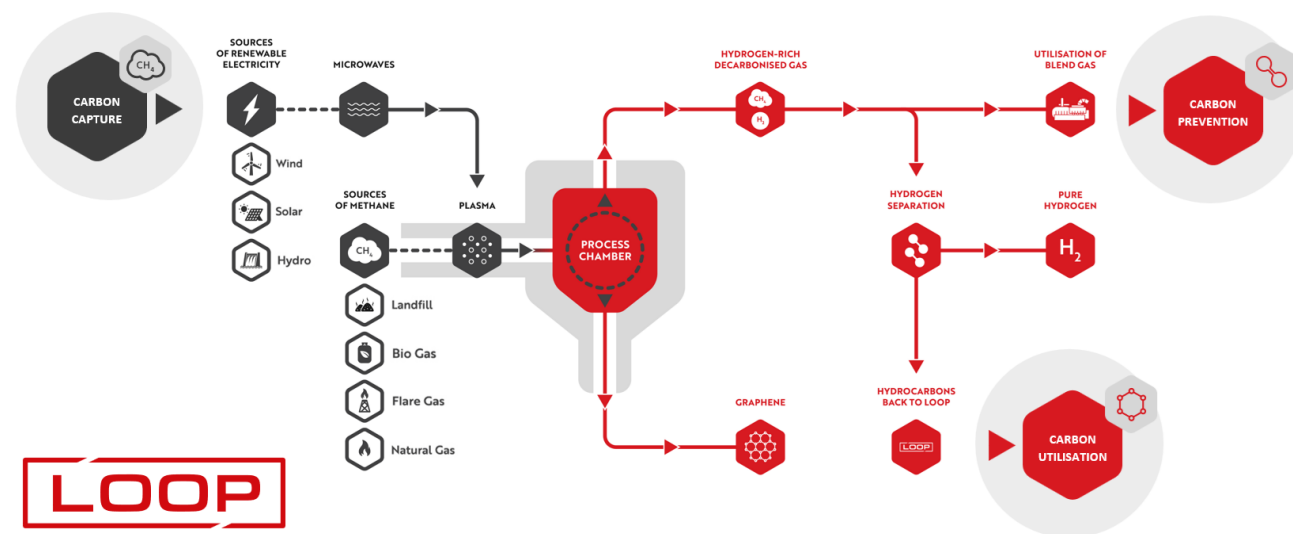
The LOOP process is one of the most sustainable production techniques for graphene. Indeed, when biomethane is used as an input gas and renewable energy is deployed to electrically power the LOOP, the resulting graphene carbon footprint could even be negative.

Levidian graphene's unique characteristics will be presented, as well as its impact on batteries performance.

### References

- [1] [Methane and climate change – Global Methane Tracker 2022 – Analysis - IEA](#)  
 [2] [LOOP \(levidian.com\)](#)

### Figures



**Figure 1:** LOOP technology decarbonising via 3 mechanisms: carbon capture, carbon prevention and carbon utilisation.