

GraphenePioneer

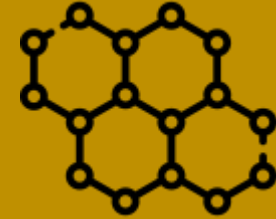
Making climate action concrete



Michel de Ruiter Founder

Winner global graphene call

GraphenePioneer has won the first *Global Graphene Call* which aims to drive forward business projects relating to graphene. GraphenePioneer sets out to impact on society with the production of as yet unknown graphene-based materials. [CIC nanoGUNE](#)



finalist Global Climate Launchpad

GraphenePioneer is developing ways to use graphene in existing production processes. Graphene in concrete is possible due to the “graphene machine”, a device that can be used along side standard production of concrete and other composite materials. [Climatelaunchpad](#)



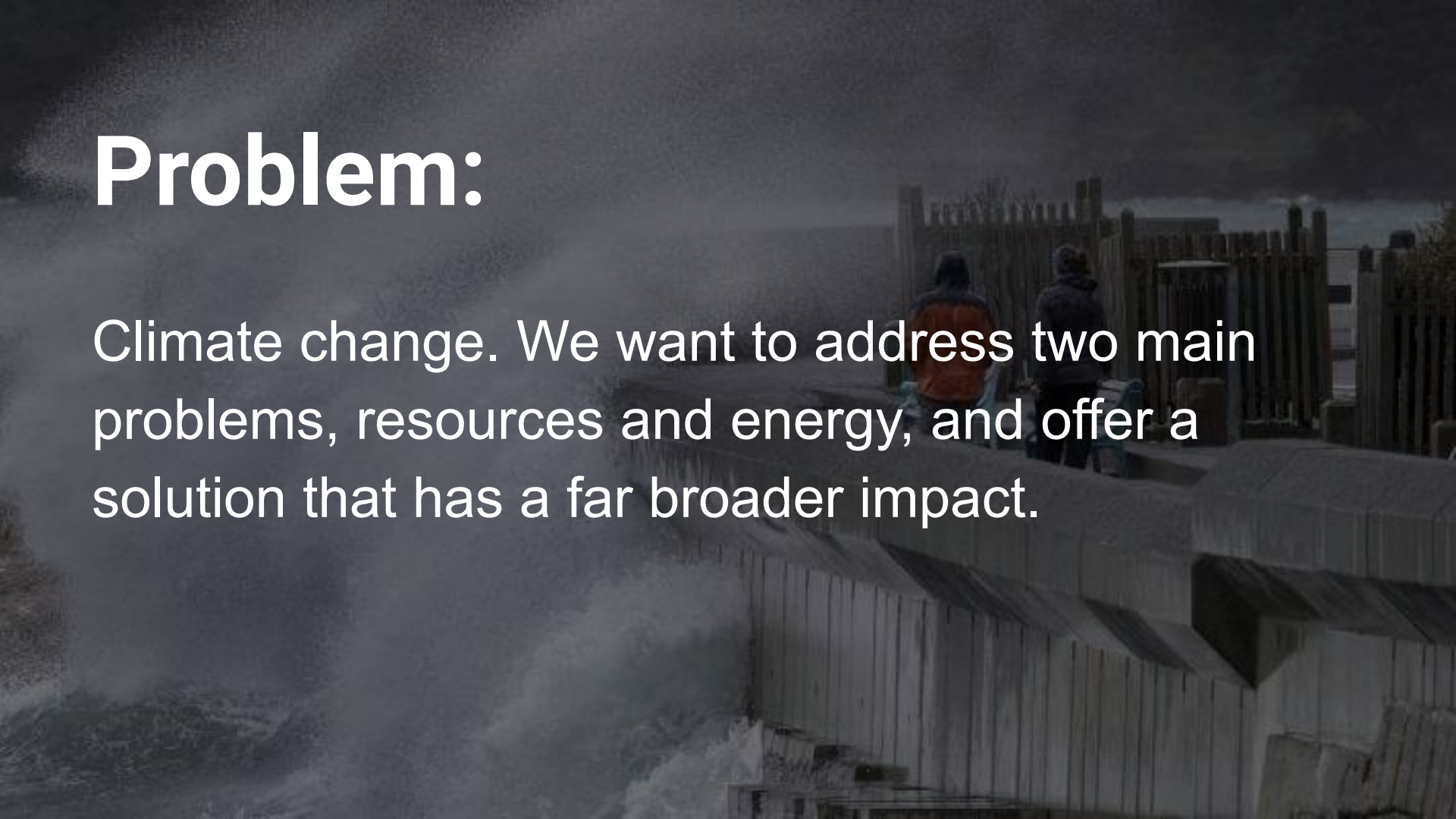
finalist Entrepreneurship World Cup ^{EWC}

finalist Innovation world cup ^{BIMworld}

Runner Up Go Global Awards ^{goglobalawards}

Problem:

Climate change. We want to address two main problems, resources and energy, and offer a solution that has a far broader impact.



1st problem: Concrete

Most used material after water

8% of global CO2 emission

Sand shortage

Coastal erosion

Topsoil erosion

Urban heat islands

Dust pollution



2nd problem: Energy

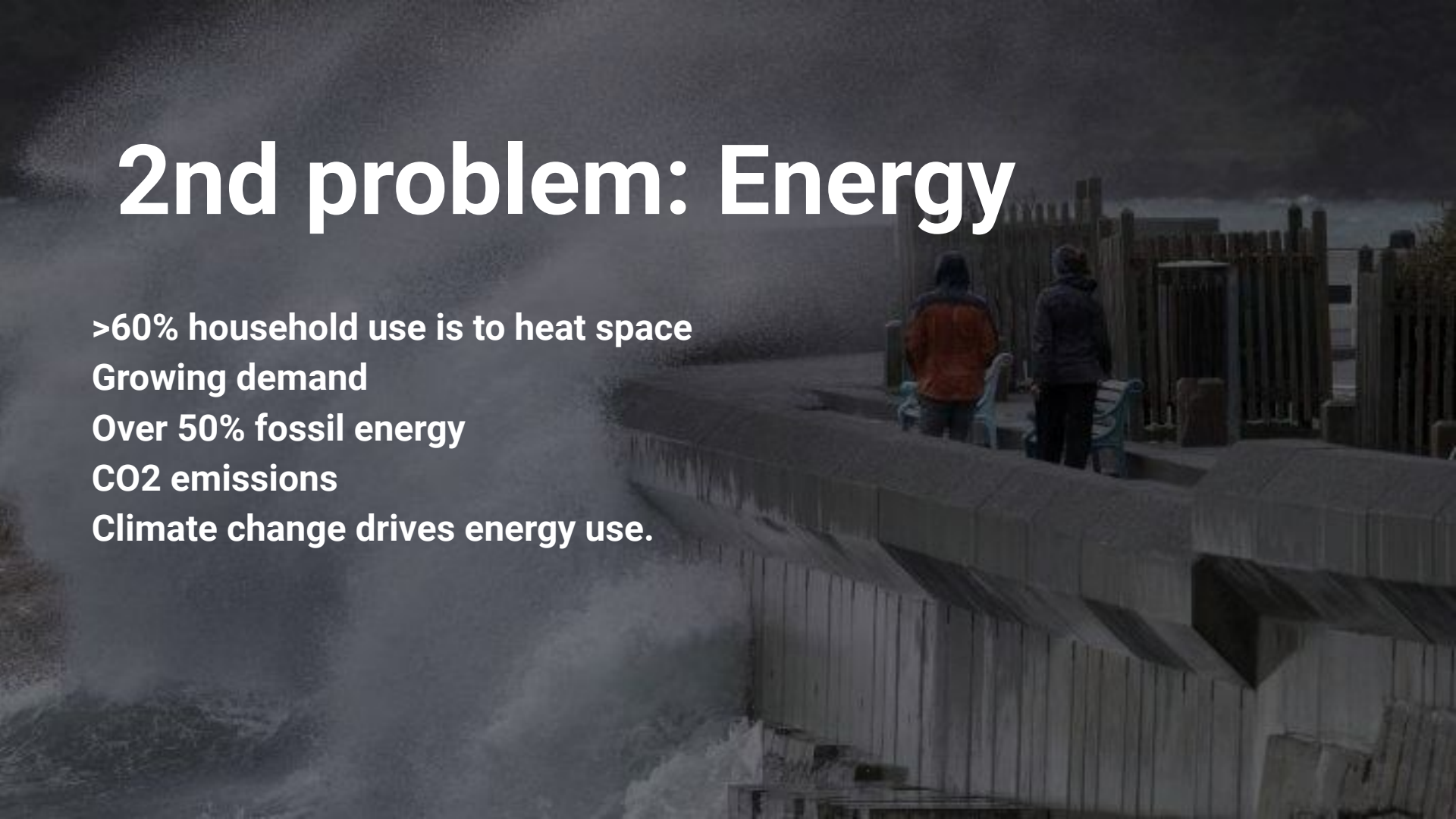
>60% household use is to heat space


Growing demand

Over 50% fossil energy

CO2 emissions

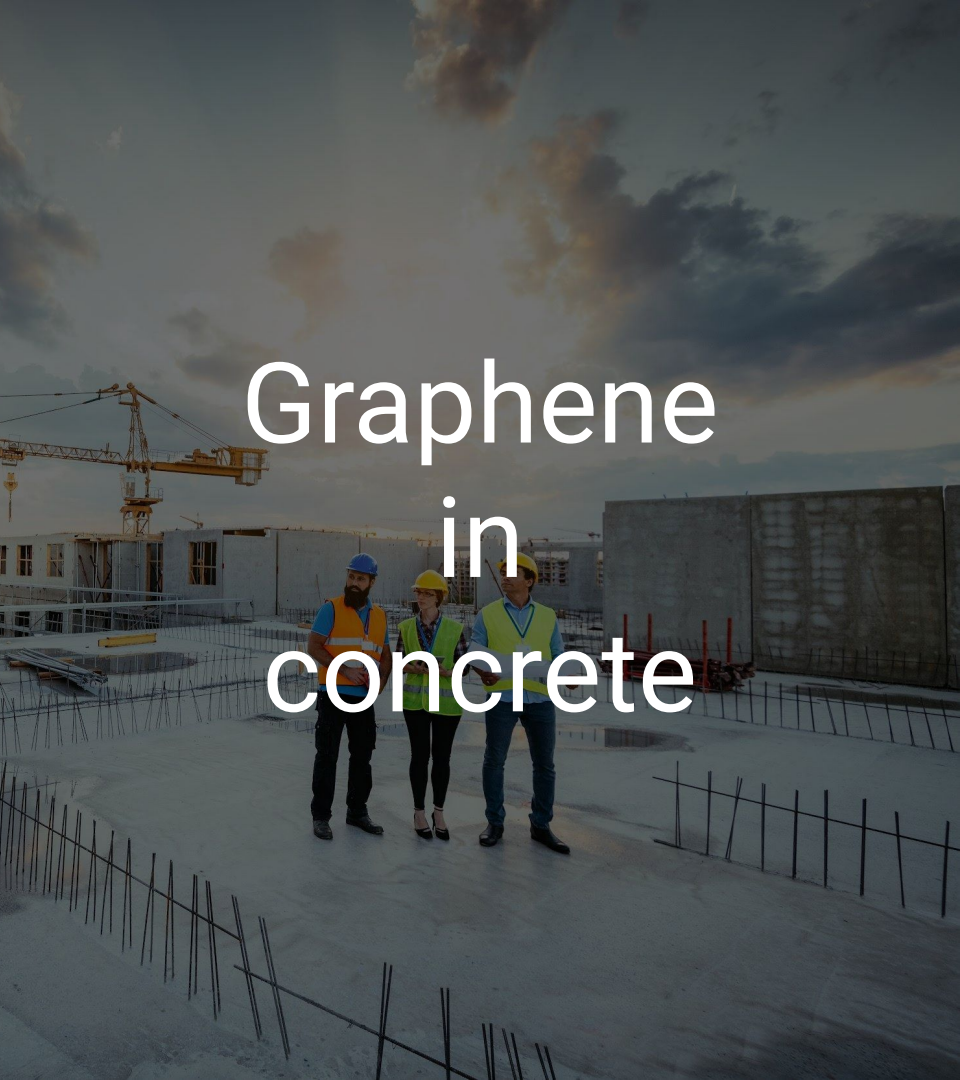
Climate change drives energy use.





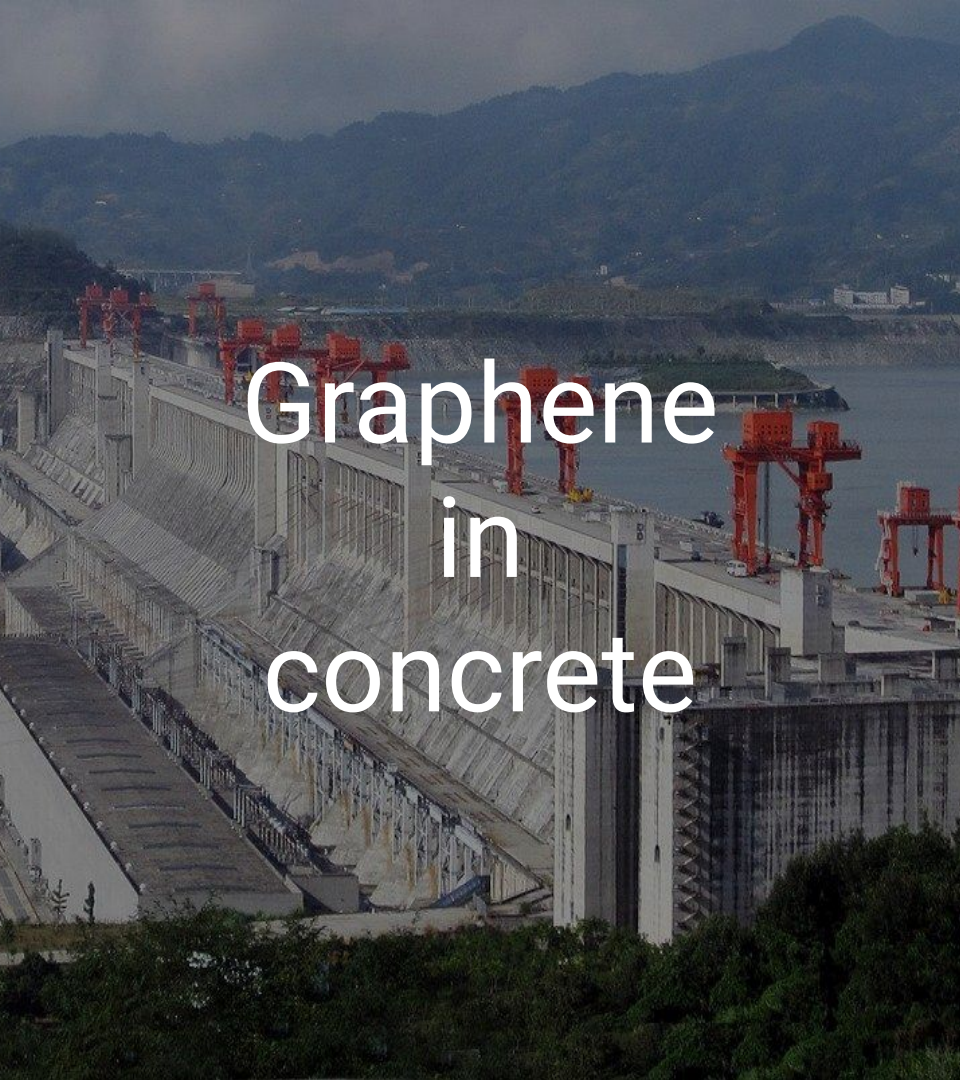
Graphene in concrete

Stronger = less

A photograph of a construction site at dusk. Three people, two men and one woman, are standing on a concrete slab. They are wearing safety vests and hard hats. In the background, there are construction cranes and building structures under construction. The sky is dark with some clouds.

Graphene in concrete

Can heat buildings!



Graphene in concrete

Stores energy!

How does reinforcement work?

A scanning electron micrograph (SEM) showing a dark, textured surface representing concrete. A prominent, jagged crack runs diagonally from the upper left towards the lower center. Two red arrows point towards this crack: one from the left towards the upper part of the crack, and another from the left towards the lower part of the crack. The background is a complex, layered structure of light gray and white, representing the concrete matrix and embedded graphene sheets.

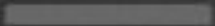
Mixing graphene sheets in concrete.

The graphene flakes attract water and cement.

Accelerates curing

Prevents cracks from curing and stress.

2 μm

A horizontal white scale bar located at the bottom right of the image, corresponding to the 2 μm label.

How does energy saving work?

Mixing a blend of graphene and carbon materials in concrete or plaster.

Applying this mix as layer on concrete wall.

5-30% energy savings as passive system, works complementary with other energy saving measures.

Can be used as active heating.

TAM, SAM and SOM for renovation market energy saving only:

TAM	SAM	SOM
350M houses (EU & US); potential market size: €350 billion.	30% of TAM indicating a realistically targetable market of €105 billion for energy-efficient renovations.	1% of SAM representing a potential capture of €1.05 billion in the energy-efficient renovation market.

We need:

- Funding of € 250,000 for real life product validation
- Leading customers
- Partnerships
- Network
- Climate stakeholders
- Practical support
- Grants
- Events exposure
- Collaborations
- Questions

Letters of intent with:

Block Solutions (200,000 houses)

More in progress

TGN

Gietmooi

Microbrain

CB scientific

International recognised graphene expertise.

An international team of business and leading material experts along with research institutes and universities are involved.

International recognised graphene expertise.



Robert van Hamersveld
business advisor



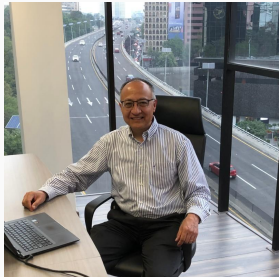
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