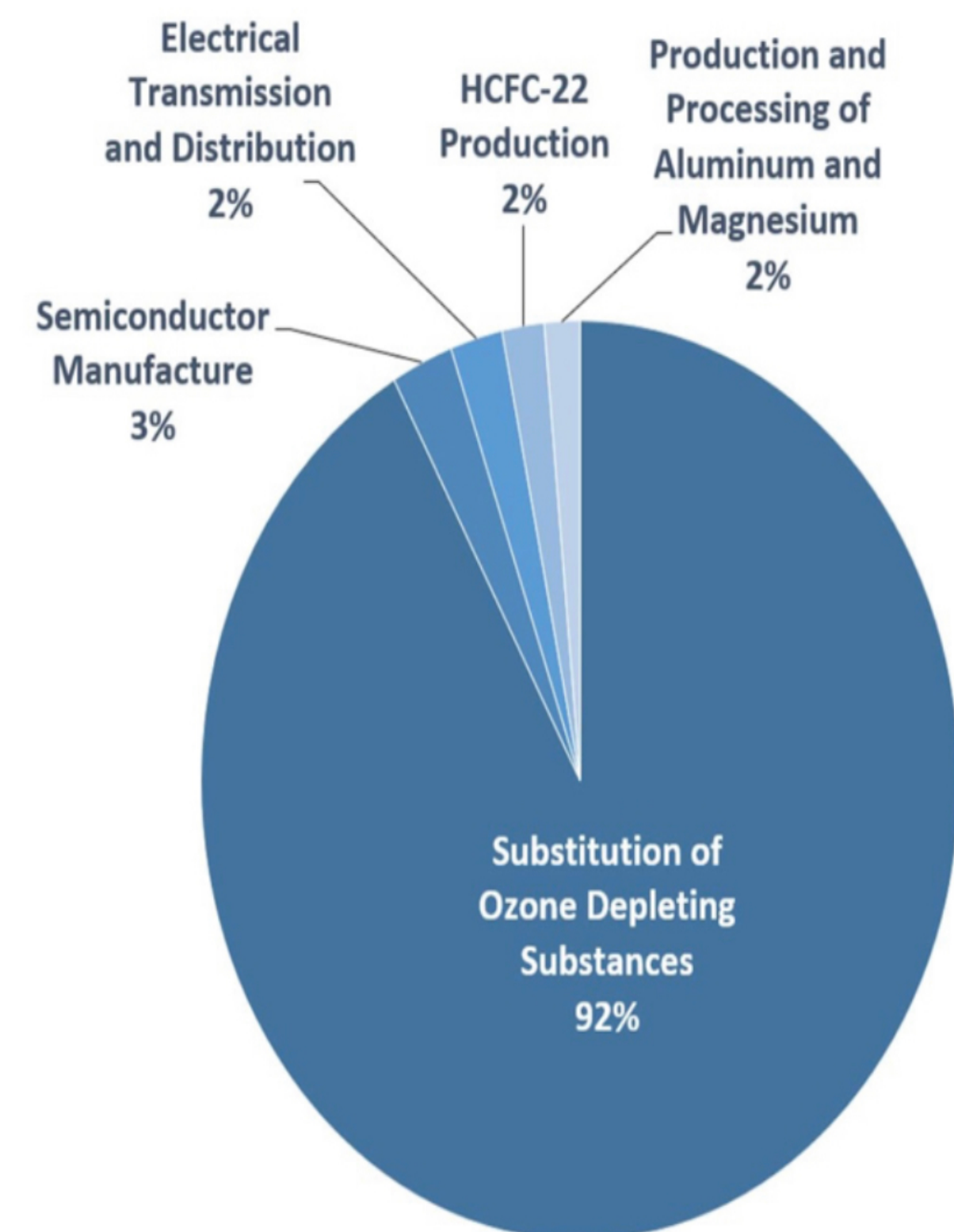
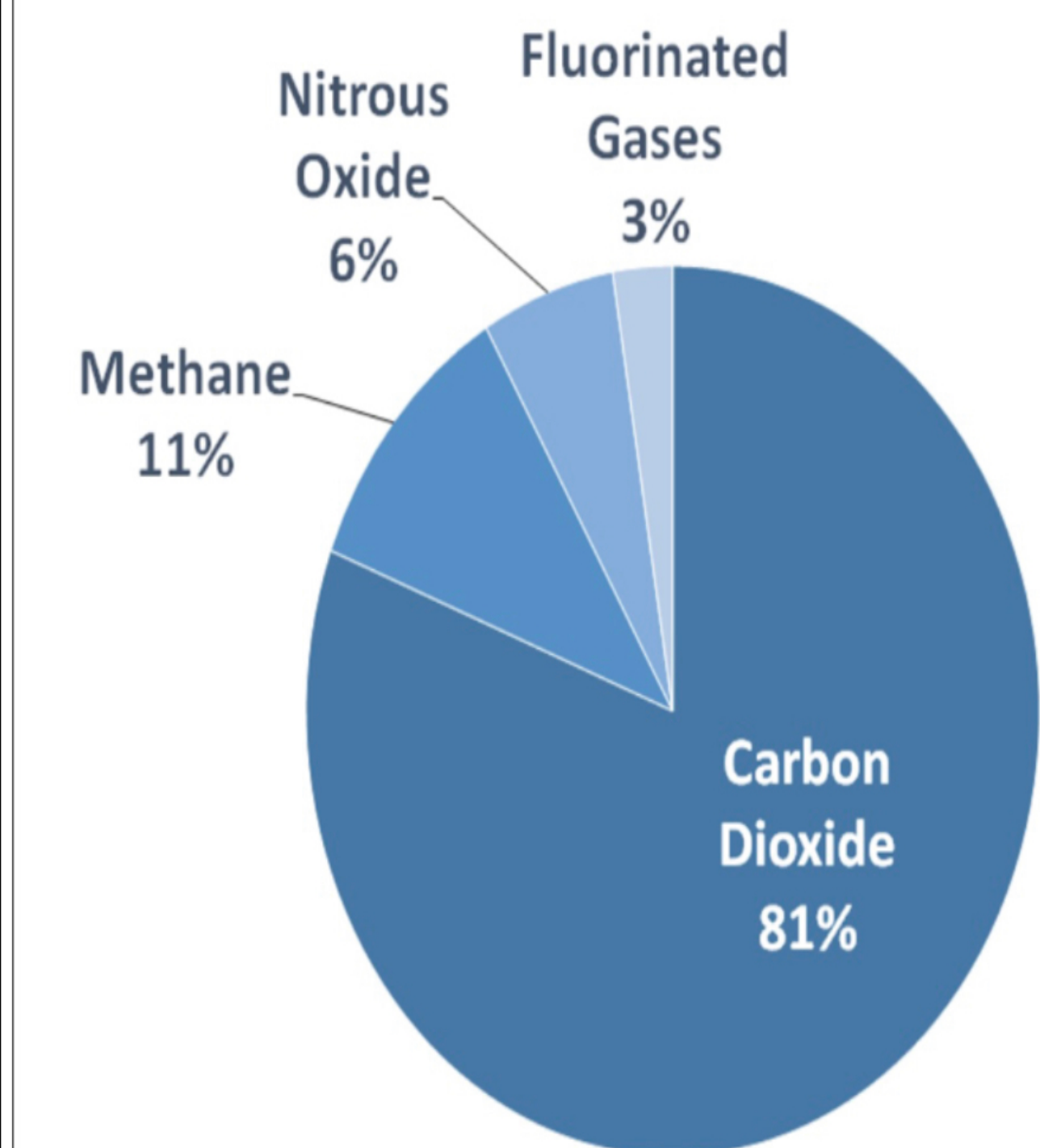


# A Global Problem of Refrigerant production and USE

Winner ENGINEERS IN BUSINESS 2022

Furthermore UMMACH is pioneering the advancements of Alternative (scalable) methods of reducing carbon footprints in the HVAC sector, committing to 0 emissions but also conditioning the climate in the process.



U.S. Environmental Protection Agency (2020). Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2018

# Uni of Greenwich Spin-off: UMMACH SYSTEMS LTD

415, High Street , London E15 4QZ – EU H/O - +447399288433 - ummach.com

Universal Modular-Miniature Air-Con and Heating – Dinul Wijetunge : BEng 1<sup>st</sup> Div – MPhil-PhD (Pending)

## Introduction

Fossil fuel run HVACs loses the harmful substance into atmosphere, there isn't a low-power climate conditioner that runs on overload. Therefore I've built the worlds first micro-domestic, renewably powered (single PV panel), Coolant-less, Carbon neutral range of climate conditioning solutions. UMMACH created a £ Billion market by offering air-cons at 33% of the standard price. The goal was to create a split unit system which cools water thermo-electrically to effectively transport heat between two locations. Currently MVP is on testing/trial for the debut product that retrofits a fan into a new born air con. The power rating for indoor (1250 BTU-350W) & outdoor (180W) sets a new era eliminating the space measurement issue when buying/selling Air-cons. No overload criteria

As scientists urged the ban of CFCs due to the Ozone depletion, the stagnant phasing out of HFCs gives rise to the novelty in the UMMACH thermo-electric range, which can be powered by a 12V DC Solar panel or A/Current supply. This solution could prevent serious health risks and death by humidity exhaustion.

The climate conditioning segment for the middle-low-income demographic is an untapped market. There isn't a product to remedy the prolonged cost & renewed climate protocols. There is no A/C system that can run off-grid via a DC 12V Solar panel. UMMACH is attempting to solve this problem.

The current competitors (Daikin, Hitachi) produce expensive split-unit air-conditioners, which the middle-lower Class average family can't afford- proposed is a fully modular multi-functional system which can cool items or the ambience.

## THE OPPORTUNITY AND VALUE PROPOSITIONS – Competitive Analysis

UMMACH is the next revolutionary step in cooling the developing/developed world

Carbon neutral (a first of its kind)- sources - manufacturing to transport and operational life

The current air conditioners that use/expel harmful gases (Fluorinated gases or HCFCs) trapping the sun, makes the world need more air conditioners (defeats purpose) due to its contributions to the causation of global warming (Fossil fuel trail).

Therefore UMMACH built a climate conditioner that doesn't use fossil fuels (HCFC) that's runs on 12 Volt direct current (model dependant). This game changer could potentially make these revolutionary climate conditioning systems to be completely carbon neutral (if powered by two solar panels). Once the carbon spent on the product has been minimised in production and transport, UMMACH systems

## Value Propositions

Current air conditioners expel harmful gases into the air inducing climate change and global warming which requires more air condoning which causes more global warming etc.

Benefits of UMMACH systems-

- An Incredibly Affordable range (£90+) to retrofit any fan
- 0% skilled installation required for set-up and operation, troubleshooting
- Almost 0% maintenance, no coolant refill required for 15 Years, guaranteed product range
- No greenhouse gas emissions
- Modular Functionality- transforms into a cooler and warmer – in order to cope with scaling needs/demands of upper-middle-low-income domestic household or SME corporates
- World's first Carbon Neutral range of climate conditioners,
- World's first range of solar powered (renewable & Carbon neutral) micro-domestic HVAC solutions

## Future of Innovative Business : UMMACH Limited - London

The first product from the range which includes a retrofit model split unit chiller that can cool and location indoors or outdoors once the radiator or HE is placed in front of any existing fan. UMMACH is set to launch worldwide in Dec-Jan '23 amassing global interest upon reaching TRL 9. A World-class board of advisors ranging from inventors, scientists, engineers & strategists. UMMACH Ltd starts here in London.

