Summary

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1. What is Net Zero?

Net Zero refers to the goal of reducing greenhouse gas emissions to the maximum extent possible and offsetting any remaining emissions by removing greenhouse gases from the environment.

This target was established by the UK Climate Change Act in 2008 and aims to achieve a carbon-neutral economy by 2050. It requires significant reductions in emissions across all sectors.

2. SMEs and Sustainability

The challenges faced by SMEs (small and medium business with 0 to 249 employees) in approaching sustainability and Net Zero require action and initiative at all levels.

Three approaches that can bring focus and motivation to the sustainability journey are supply chain collaboration, sector focus, and realising the commercial risk and benefits.

Sector-specific plans with defined targets and guidance are needed for critical mass and shared endeavor.

In the United Kingdom, SMEs are responsible for…

99% of the economy

60% of employment in the private sector

50% of private sector turnover

3. Problems in Pursuit of Net Zero

Finance – SMEs do not have the budget to accommodate Net Zero solutions.

Control – SMEs have little control over materials which are passed into/out of their domain.

Assessment – SMEs lack tools to measure carbon footprint and monitor their environmental impact.

> "Every business is unique; every sector is unique"
>
> - *Brendan Woulfe (CTO, Lloyds Banking Group)*

Diverse Industries with a Common Goal

Achieving Net Zero by 2050 requires specific solutions for different industries. It is virtually impossible to use the same tools for all sectors due to different business procedures. This problem raises the following questions:

- What if we had one tool which assisted all SMEs in their venture towards Net Zero?
- What if these resources were readily available and easily accessible online?

Our Solution

> SME.ZERO is a modern website which curates practical online tools & resources for any SME to transition to Net Zero solutions.

> It acts as a hub of information which details the goals and importance of Net Zero, while offering contemporary solutions for each industry.

> Users can filter resources by their specific industry and companies that offer Net Zero solutions can submit their online tools to the website.

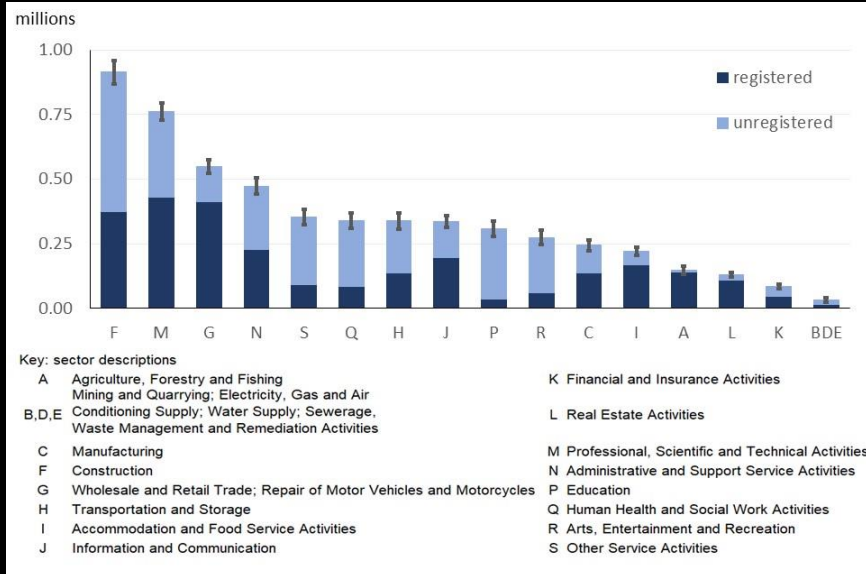## Research

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Figure 1: Estimated private sector business numbers by industrial sector
Source: UK Department for Business, Energy & Industrial Strategy

Key: sector descriptions

A	Agriculture, Forestry and Fishing
B,D,E	Mining and Quarrying; Electricity, Gas and Air Conditioning Supply; Water Supply; Sewerage, Waste Management and Remediation Activities
C	Manufacturing
F	Construction
G	Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles
H	Transportation and Storage
I	Accommodation and Food Service Activities
J	Information and Communication
K	Financial and Insurance Activities
L	Real Estate Activities
M	Professional, Scientific and Technical Activities
N	Administrative and Support Service Activities
P	Education
Q	Human Health and Social Work Activities
R	Arts, Entertainment and Recreation
S	Other Service Activities

Contemporary net zero solutions

When a user searches for 'solutions for SME Net Zero', the results returned are mostly informational PDFs or websites which lead to more PDFs.

Often these websites do not offer any practical tools to measure carbon footprint/environmental impact or provide specific advice on outsourcing/insourcing for Net Zero.

As such, SMEs only get a surface level understanding of Net Zero and not actionable statistics that are relevant to them. Again, all SMEs are unique and so they need different tools to deal with carbon emissions.

This inherently makes it more difficult to find actual solutions that can accommodate SMEs in their journey for Net Zero.

Examples

1. https://smeclimatehub.org/
2. https://www.britishchambers.org.uk
3. https://www.carbontrust.com/
4. https://zerocarbonbusiness.uk/
5. https://www.sseenergysolutions.co.uk/
6. https://www.bankersfornetzero.co.uk/
7. https://normative.io/
8. https://www.netzeronation.scot/

There is a time and place for informational websites, but it decreases visibility and prevents web traffic to genuine services/tools which decrease carbon emissions.

- The number of private sector businesses are **still increasing** today and are expected to grow in the 2030s to 2050s.
- SMEs contribute **99.2%** of businesses, **47.8%** of employment, and **34.1%** of total turnover in the UK.
- Around **51%** of businesses are not registered for **VAT** or **PAYE** which contributes to Net Zero solutions.
- SMEs can opt for clean energy solutions:
    1. Unabated coal plants
    2. Reduce usage of fossil fuel boilers
    3. Use electric vehicles
    4. Phase out oil-based power plants
    5. Make use of solar PV and wind

COMMON TARGETS
[BY 2021] - No new oil/gas fields approved, no new coal mines/extensions
[BY 2023] - 150 Mt low-carbon hydrogen, 850 GW electrolysers
[BY 2034] - 4 Gt CO_2 captured
[BY 2045] - 435 Mt low-carbon hydrogen, 3000 GW electrolysers
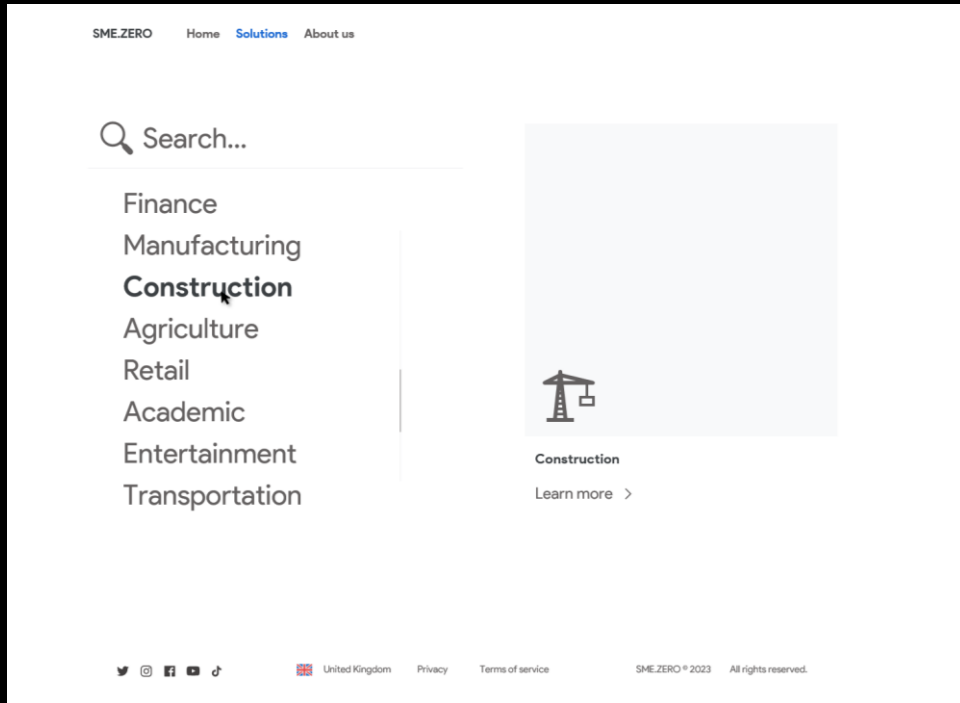[BY 2050] - 7.6 GT CO_2 captured

Source(s)
[1] Lloyds Bank plc, 'From now to net zero'.
[2] F. Businesses The Federation of Small, 'UK Small Business Statistics'.
[3] J. Lupita, 'SMEs: Key Drivers of Green and Inclusive Growth'.
[4] A. P. Goodwin, 'Green growth: opportunities for the UK'.
[5] UK Department for Business, Energy & Industrial Strategy, 'Business population estimates for the UK and regions 2022: statistical release'
[6] S. Lennox, 'The Ultimate Wholesale UK Guide for SMEs'
[7] EU Commission, 'Corporate sustainability and responsibility'
[8] United Nations, 'Net Zero Coalition'
[9] Science Based Targets, 'Low Carbon Future'
[10] International Energy Agency, 'Net Zero by 2050'

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Website Mockup

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🔍 Search...

Finance
Manufacturing
Construction
Agriculture
Retail
Academic
Entertainment
Transportation

Construction

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Users can search and choose their industrial sector. If none of these categories fit the SME, SME.ZERO offers bespoke advice for such cases. The tools that are curated for each industrial sector must be proven with evidence to work, based on the IEA data sets. They can either be user-submitted for approval or scouted by our own agents to be featured in the platform.

Functional requirements
1. Search – for any industrial sector.
2. Contacts – for any enquiries.
3. Privacy – must be compliant with GDPR.
4. Maintenance – must be coded modularly such that it is easy to maintain.
5. Updates – tools must be updated and validated monthly.

"Journey to SME Net Zero"
github.com/athirazizi/sme-zero

Introducing SME.ZERO (using Moore's product vision statement)

For small and medium sized enterprises, who are looking to achieve Net Zero by 2050, SME.ZERO is an online platform that offers contemporary and practical tools which are affordable, allows SMEs to analyse the environmental impact of outsourcing/insourcing, and finds resources which can help SMEs measure their carbon footprint. Compared to different net zero tools, it is an elegant no-frills solution which provides SMEs with the instruments they actually need in their pursuit of net zero.

"a simple solution in troubling times"

Non-functional requirements
1. Performance – all requests must be met in 5ms or less.
2. Usability – all requests can be completed in less than 5 clicks.
3. Scalability – all tools offered must work for small or medium enterprises.
4. Responsiveness – the platform must work for any modern device.
5. Security – the platform must be protected from external attacks.

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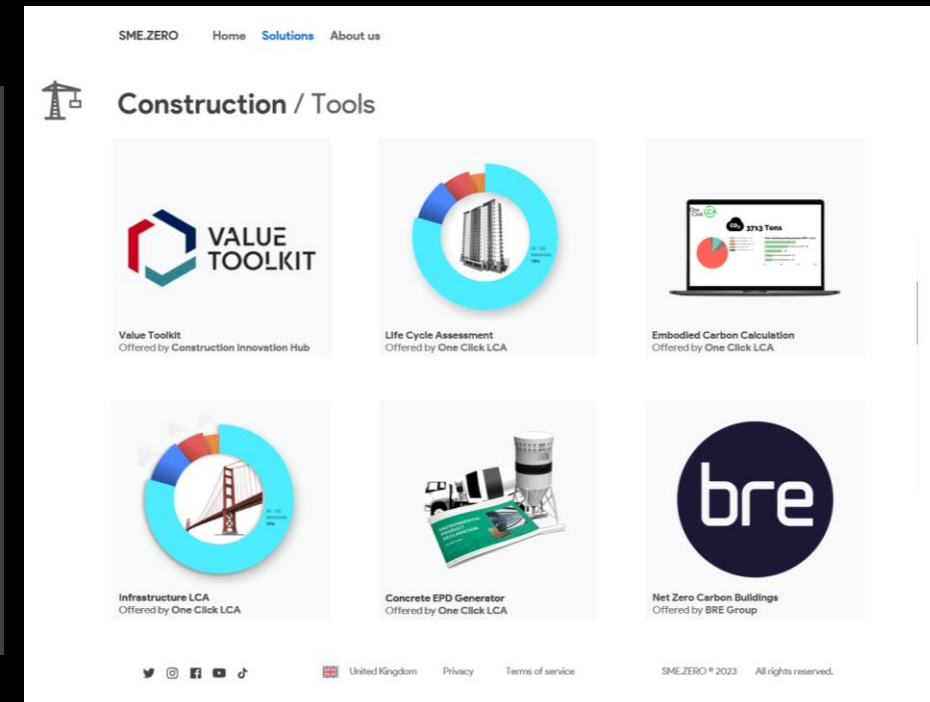
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Data sets and their value to SMEs

SME.ZERO obtains analytics from the International Energy Agency. These data sets contain information about CO_2 capture, transport, coal, emissions, renewables, gas, oil, electricity, efficiency, and costs for every business sector globally.

Data is unique for every business type, and this is why we have separate advice/tools for different sectors. Our goal is to help SMEs no matter what their business type is using these analytics.

https://www.iea.org/data-and-statistics/data-sets

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Construction / Tools

VALUE TOOLKIT
Value Toolkit
Offered by Construction Innovation Hub

Life Cycle Assessment
Offered by One Click LCA

Embodied Carbon Calculation
Offered by One Click LCA

Infrastructure LCA
Offered by One Click LCA

Concrete EPD Generator
Offered by One Click LCA

bre
Net Zero Carbon Buildings
Offered by BRE Group

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"Journey to SME Net Zero"

github.com/athirazizi/sme-zero

Business Model

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Feasibility

Market Analysis

I. Target audience: SMEs interested in achieving net zero by 2050.
II. Demand: Interest levels of SMEs who are willing to use net zero solutions.
III. Competition/contemporary solutions: Existing websites which collect net zero solutions into a convenient location.

Technical feasibility

I. Website development: Assign developers for building the platform, including web hosting, database management, front-end design.
II. Tools and resources: for making the platform, including HTML, CSS, Javascript, NoSQL, VS Code, and Figma.

Content creation

I. Net Zero experts: Our agents are responsible for finding experts in sustainability, energy efficiency, and carbon reduction and any tools which they may offer.
II. Updates: These tools must be updated frequently (biweekly/monthly) in order to stay relevant.

Monetisation & marketing

I. Advertising: should be kept to a minimum. If there are ads on the website, they should be unobtrusive and out of sight (e.g., at the very bottom of the website)
II. User engagement: We will utilise social media (Twitter, Instagram, Facebook, YouTube, and TikTok) to connect with potential SMEs.

Risks & responsiblity

I. We are committed to providing quality tools for SMEs. In cases where inadequate solutions were provided, we will hold individual investigations to help our customers.

Scalability

Server capacity should handle any possible increase in traffic.

Database management should be efficient in terms of the data structure and time to execute queries.

Software quality assurance – the website should cater to ISO 9001, ISO/IEC 9126, and ISO 25010 for ensured quality in portability, maintainability, efficiency, usability, reliability, and functionality.

Impact

SME.ZERO aims to provide solutions for all SMEs no matter which industrial sector they are in.

As such, the project is ambitious in nature as it can be challenging to gather and curate tools for all industrial sectors. However, the website will offer meaningful impact towards all SMEs approaching into the carbon zero future.

We aim to establish a network for SMEs to connect with each other to discuss strategies on how to tackle carbon emissions by 2050. This will be beneficial for all participants of the project in pursuit of this common goal.