

PROSIECT
CARTREFI O
BREN LLEOL

THE
HOME-GROWN
HOMES
PROJECT



Early Stage Embodied
Carbon Tool (ESECT)
Progress, Engagement
and Early Impact

Early Stage Embodied Carbon Tool (ESECT)

Progress, Engagement and Early Impact

CONTENTS

Executive Summary	03
<hr/>	
Context:	
Why Early-Stage Embodied Carbon Matters	04
What Is the Early Stage Embodied Carbon Tool (ESECT)?	06
<hr/>	
Project Approach:	
Engagement, Learning And Applied Use	10
<hr/>	
Delivery and Communication:	
Supporting Sector Adoption of the ESECT Tool	12
<hr/>	
Policy engagement highlight:	
Welsh Government (design and standards teams)	13
<hr/>	
The tool's usage, reach, engagement and early impact	14
<hr/>	
Early Adopter Spotlight:	
Hedyn Housing Association	17
<hr/>	
Future Development and Version 2 Roadmap	18
<hr/>	
Conclusions and implications	19
<hr/>	
Appendices	20

This report was written by Dr Diana Waldron of Woodknowledge Wales

EXECUTIVE SUMMARY

This report explains the work Woodknowledge Wales has been doing to support the reduction in embodied carbon on development projects. This work set out to design and test simplified embodied carbon reduction guidance and to support its practical implementation across the housing sector through the development, dissemination and rollout of ESECT - the web-based Early Stage Embodied Carbon Tool.

The [ESECT tool](#) seeks to inform users on the embodied carbon implications of key decisions made as part of a new low rise housing development process. It is intended for use by development professionals and their consultants, with particular focus on supporting housing associations and local authorities to assess opportunities to reduce embodied carbon without the need for detailed modelling and calculation. Structured around three core areas, the tool brings clarity to comparison and discussion of some of the key elements that most significantly influence upfront carbon: Site (nature of existing site and building form), Buildings (fabric, foundations, materials, etc.), and Services (heating, hot water and renewable energy systems). The ESECT tool has been delivered not as a standalone technical product, but as part of a broader programme of sector engagement and capacity-building.

Dissemination and engagement activities included public webinars, conference sessions, Communities of Practice discussions, academic teaching, one-to-one technical conversations and applied workshops. Together, these interventions supported the introduction and practical exploration of the ESECT tool within professional networks, accompanied by ongoing technical dialogue with practitioners.

While formal case studies are still emerging, this programme of engagement enabled structured discussion of the tool's application in live housing contexts. Social landlords like Hedyn and Wales & West Housing, have provided early qualitative insight to inform future refinement.

An analysis of the tool's online platform demonstrates sustained and repeat engagement throughout 2025 and 2026, including interaction with the core assessment tool and downloads of technical guidance. This evidence confirms that the tool is being actively used rather than passively accessed. Usage data and practitioner feedback have provided insight into emerging sector behaviours and areas for further development.

Collectively, these activities have supported increased awareness and understanding within the housing sector of how embodied carbon can be considered at early design stage. ESECT has demonstrated its potential to strengthen carbon literacy, encourage informed design discussion and help translate policy ambition into practical delivery approaches. The work provides a foundation for continued refinement and wider implementation, given the likely continued drive to reduce carbon emissions.

CONTEXT

Why Early-Stage Embodied Carbon Matters

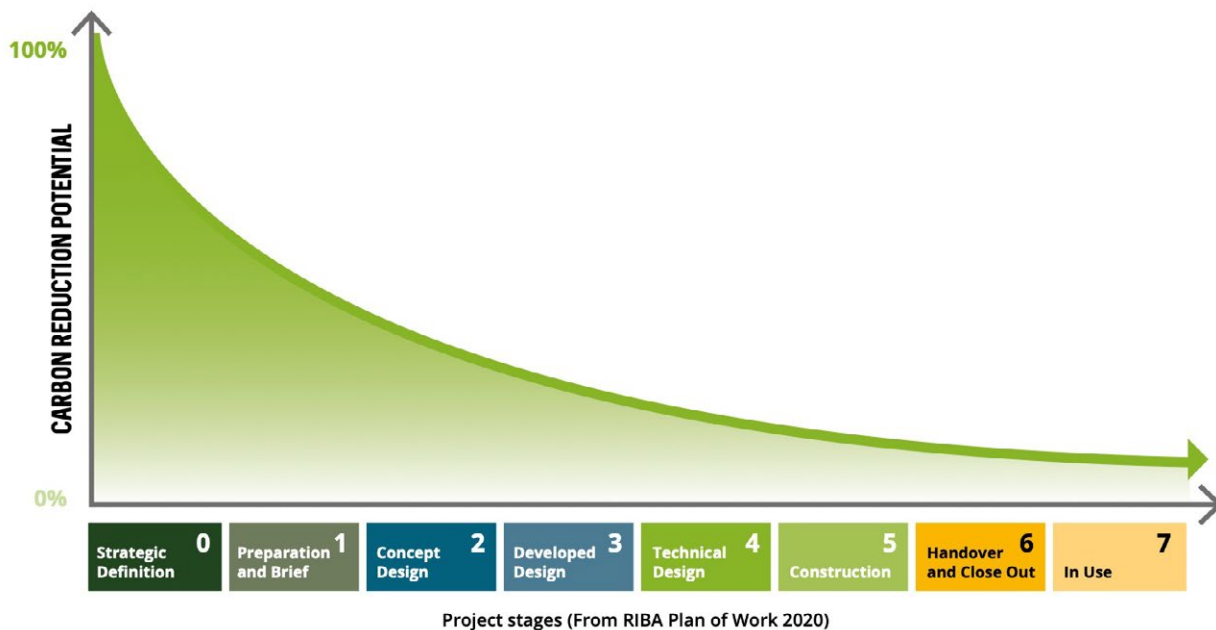
Embodied carbon (i.e. the emissions associated with the production, transport, construction, maintenance and eventual replacement of building materials) is becoming a central issue in housing delivery. As operational energy standards improve and homes become more efficient in use, the carbon impact locked into materials and construction processes represents an increasingly significant proportion of a building's whole-life footprint.

Unlike operational energy, embodied carbon is largely determined before a building is occupied. Early design choices around structure, fabric, materials and construction systems set a carbon trajectory that is difficult and expensive to change later. Decisions taken at concept

stage can therefore influence decades of environmental impact. This creates a strong case for practical tools that allow designers and housing providers to understand the consequences of early-stage choices without requiring specialist life-cycle assessment expertise.

Figure 1: How the ability to influence Embodied Carbon decreases as the project progresses

The importance of considering Embodied Carbon as early as possible



CONTEXT

Why Early-Stage Embodied Carbon Matters

As part of the first phase of the Home-Grown Homes Project Woodknowledge Wales published embodied carbon guidance for social housing developers, their design teams, contractors and suppliers. It provides clear and authoritative guidance on how to procure and undertake an embodied carbon assessment, what benchmarks can be set, tools that can be used and how embodied carbon can be reduced. Examples are provided to show how others have tackled embodied carbon within their organisations and projects, with a focus on housing. Where relevant, other guidance and useful information is signposted.

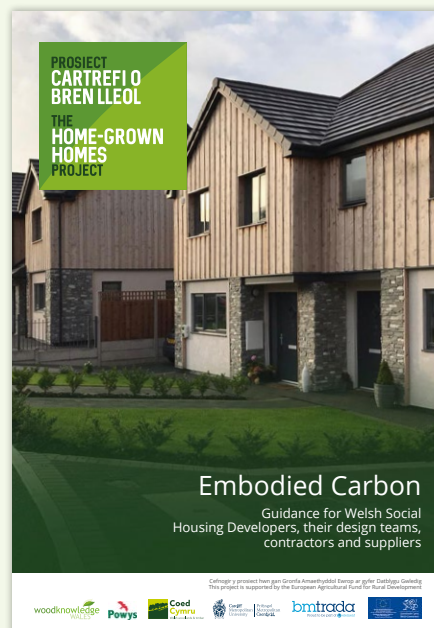
Policy discussions across the UK are moving in this direction. Emerging proposals such as the potential introduction of a UK "Part Z" framework, alongside growing expectations around whole-life carbon assessment, signal a shift toward regulating not only how buildings perform in operation but how they are constructed. Welsh housing policy has similarly emphasised the importance of reducing upfront carbon while maintaining affordability, buildability and social value. In this evolving landscape, housing providers are under increasing pressure to make carbon-informed decisions at the earliest stages of project development.

However, there has historically been a gap between ambition and accessible tools. Many embodied carbon assessment methods are complex, time-intensive, expensive and oriented toward specialist consultants. For early project decision-making, when options are still flexible, practitioners require proportionate, fast and comprehensible guidance that supports comparison rather than perfect calculation. Without such tools, embodied carbon risks remaining a policy aspiration rather than an embedded delivery practice.

The Early Stage Embodied Carbon Tool (ESECT) was originally developed by Woodknowledge Wales in response to this need, and has since been further improved and refined with the valuable contribution of the Good Homes Alliance (GHA) and the Alliance for Sustainable Building Products (ASBP). Rather than replacing detailed life-cycle assessment, ESECT provides a structured, proportionate framework that allows housing providers to explore the carbon implications of early design choices.



[Read publication here](#)



[Read publication here](#)

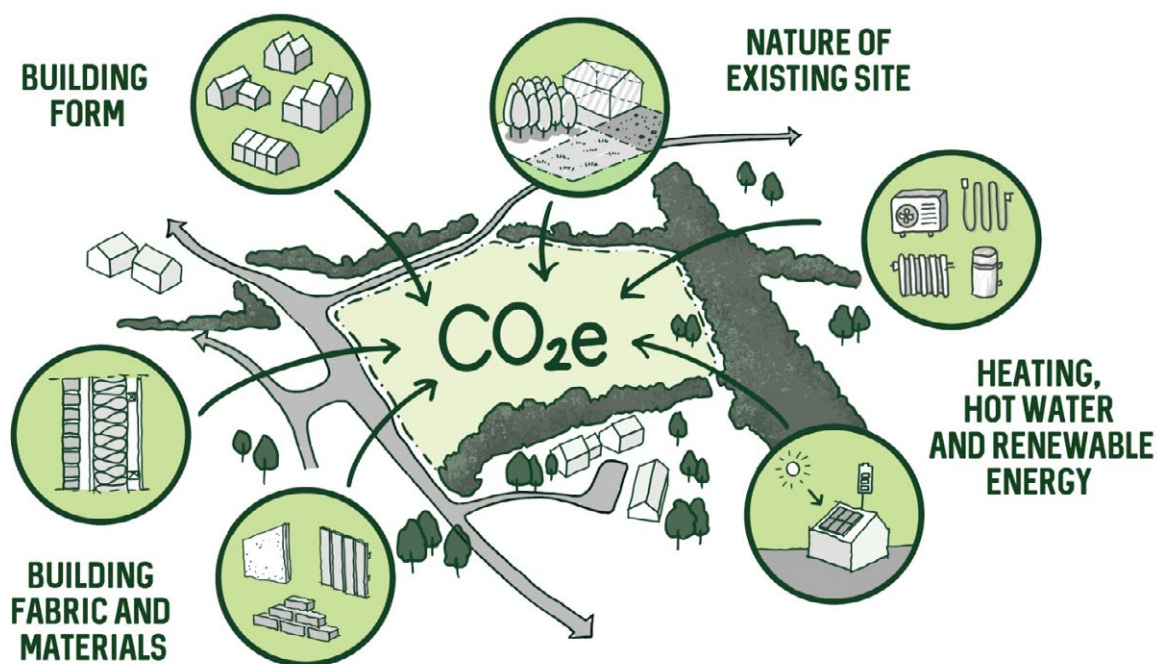
CONTEXT

What Is the Early Stage Embodied Carbon Tool (ESECT)?

The Early Stage Embodied Carbon Tool (ESECT) is a practical decision-support resource designed to help housing providers understand and reduce embodied carbon at the earliest stages of project development. It allows users to compare the carbon implications of different construction approaches before designs are fixed, when meaningful change is still possible and cost-effective. Woodknowledge Wales and the Home-grown Homes project would like to acknowledge the valuable contribution of the Good Homes Alliance (GHA) and the Alliance for Sustainable Building Products (ASBP) to the development of the ESECT Tool. Their input has been instrumental in shaping the tool in its current form. The ESECT tool is available here: [Here](#)

Early Stage Embodied Carbon Tool

This tool seeks to inform users on the embodied carbon implications of key decisions made as part of a new low rise housing development process



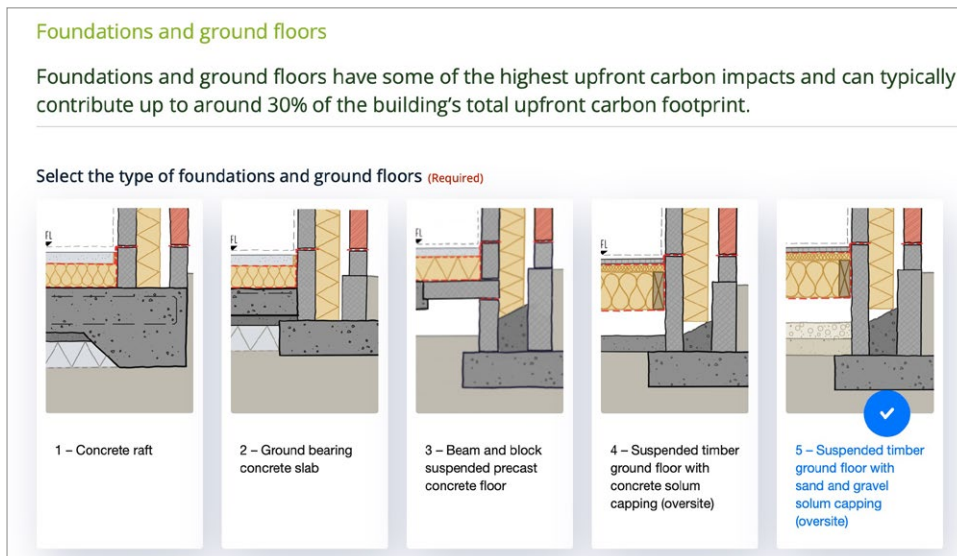
ESECT is intended for use by housing associations, local authorities, designers and project teams involved in early feasibility and concept design. Rather than requiring specialist life-cycle assessment expertise, the tool translates embodied carbon data into an accessible format that supports informed comparison between build-ups, materials and construction systems.

Users interact with the platform by selecting alternative construction options across key fabric elements and other design variables. This allows early exploration of how material and build-up choices influence embodied carbon outcomes. Figure 2 shows a page from the tool's web interface which provides a choice of foundations and ground floors.

CONTEXT

What Is the Early Stage Embodied Carbon Tool (ESECT)?

Figure 2: Example of construction option selection within the ESECT tool, enabling comparison of alternative fabric and system build-ups.



The tool focuses on major fabric and structural elements, including foundations, walls, roofs, floors, windows and services, where early specification choices have the largest carbon consequences. By presenting options in a structured and comparable way, ESECT enables teams to explore trade-offs between performance, buildability, cost and carbon impact. Users can download results as a PDF summary and repeat the process to evaluate alternative

scenarios, allowing side-by-side comparison outside the tool. This iterative workflow supports structured evaluation of design options and informed discussion within project teams, helping carbon considerations become part of normal design conversations rather than an isolated specialist exercise. Figures 3 and 4 present example outputs generated by the tool.

Figure 3: The results from using tool can be presented in a pdf.

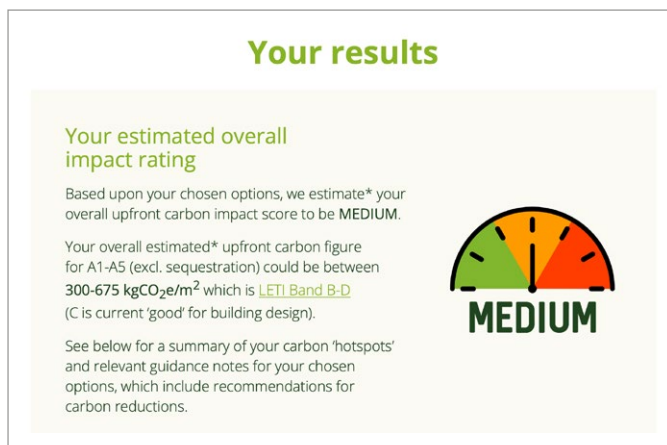
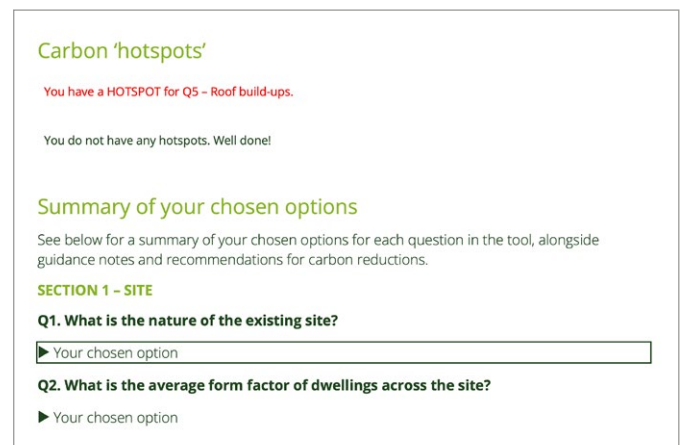


Figure 4: Example screenshots of tools' results



CONTEXT

What is the Early-Stage Embodied Carbon Tool (ESECT)?

Aggregated usage data from the ESECT platform provide high-level insights into the construction options currently being explored by users. Table 1 summarises anonymised selections across key building elements, illustrating emerging patterns in early-stage embodied carbon decision-making across the user community, without identifying individual projects.

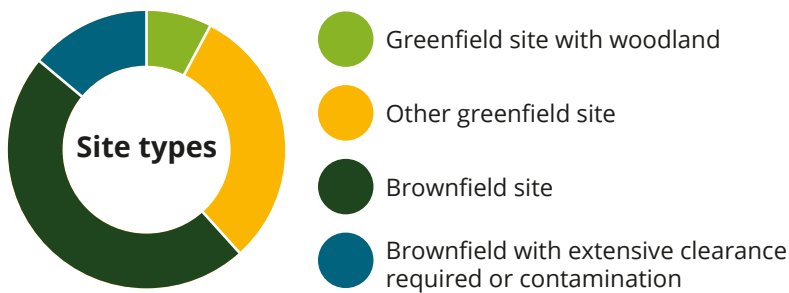
Table 1: Aggregated distribution of construction choices within the ESECT tool

Site	
Greenfield site with woodland	7
Other greenfield site	28
Brownfield site	44
Brownfield with extensive clearance required or contamination	13
Form factor	
Average	2.12
Ground floor and foundations	
Concrete raft	18
Ground bearing concrete slab	23
Beam and block suspended precast concrete floor	0
Suspended timber ground floor with concrete solum capping (oversite)	7
Suspended timber ground floor with sand and gravel solum capping (oversite)	17
External wall	
Steel frame, mineral wool, brick	11
Brick and block, PIR, brick	22
Timber frame, PIR, brick	31
I-beam, cellulose, brick	28
Roof	
Pitched warm roof, PIR insulation between rafters	16
Pitched warm roof, cellulose insulation between i-beams	22
Pitched cold roof, mineral wool insulation	38
Pitched cold roof, cellulose insulation	16
Window	
Aluminium	9
uPVC	32
Composite (Aluminium clad timber)	27
Timber	24
Heating and hot water	
Ground source heat pump (GSHP)	6
Air source heat pump (ASHP)	60
Gas boiler	8
Direct electric (DElec)	17

CONTEXT

What is the Early-Stage Embodied Carbon Tool (ESECT)?

Figure 5: Site choices in the ESECT tool



These aggregated datasets can be translated into graphical summaries that help visualise trends in sector behaviour. For example, Figure 5 presents a pie chart representing the distribution of site options selected by users. Such analysis offers a snapshot of the types of development scenarios being evaluated through the tool.

To protect user privacy and comply with GDPR requirements, the tool does not store personally identifiable project information. Analytics are limited to anonymised, aggregated behavioural data. Ongoing work is exploring how analytics capability can be expanded responsibly to improve the usefulness of the tool while maintaining robust data protection standards.

Importantly, ESECT complements rather than replaces detailed life-cycle assessment. For projects that proceed to advanced stages, specialist assessment can refine estimates. The role of ESECT is to ensure that early design thinking is informed by carbon awareness, reducing the risk of locking high-impact choices into projects before they are critically examined. In doing so, the tool enables embodied carbon to become part of normal project workflows, embedding carbon literacy into decision-making rather than treating it as an external compliance exercise. In this sense, ESECT acts as a bridge between policy ambition and everyday delivery.



PROJECT APPROACH

Engagement, Learning And Applied Use

From the outset, the ESECT tool was developed not simply as a technical output, but as part of an applied programme of industry and academic engagement. The project combined tool development with cross-sector collaboration, knowledge exchange and technical dialogue, ensuring that learning was embedded within real housing delivery contexts rather than remaining theoretical.

During the second phase of the Home-Grown Homes project the ESECT tool's use was promoted through professional presentations, conference sessions, Communities of Practice discussions, academic teaching, published guidance and one-to-one technical conversations. The tool was formally launched on 22 May 2025 through a public webinar [Here](#). Following the launch, the team continued to engage potential early adopters while gradually introducing the tool to wider professional communities through repeated exposure and practical demonstration. This approach enabled practitioners to test the tool in live project contexts, provide feedback, and build confidence over time.

This learning-by-doing model allowed early real-world application to inform ongoing refinement. While formal case studies are still emerging, initial feedback from practitioners has been consistently positive, focusing on usability and relevance to early-stage decision-making. Early adopters have raised practical questions around interpretation and workflow integration, helping shape the tool in response to sector needs. As adoption grows, more detailed case evidence is expected to emerge. ESECT is therefore evolving as a practitioner-informed resource aligned with emerging policy priorities rather than a fixed technical product.

“Using the ESECT carbon tool at an early stage can help us shape the design and materials used on a project. It enables us to look at the carbon impact before finalising decisions. As carbon impact becomes more prevalent and standardised into the development process, I'm sure this tool will evolve with research and help drive a more informed and sustainable approach to scheme development, ensuring carbon considerations are fully embedded from the outset.”

Alison Hammans

Development Quality and Improvement Manager,
Wales & West Housing

A key element of this applied approach was the integration of the tool into placemaking and workshop activities. Workshops delivered with housing providers, including sessions with Wales & West Housing and academic partners at UWTSU, using hands-on exercises and simplified scale housing models to demonstrate how early construction choices influence embodied carbon outcomes. These sessions translated abstract carbon concepts into practical design decisions, supporting embodied carbon literacy and reinforcing the relevance of the tool within real project workflows.

PROJECT APPROACH

Engagement, Learning And Applied Use

Figure 6: Images from a placemaking workshop which referenced the ESECT tool.



Collectively, these engagement activities functioned as capacity-building interventions. They enabled housing associations, local authorities, designers, consultants and educators to understand the purpose and application of the ESECT tool, embedding carbon-aware decision-making into ongoing professional conversations. The tool entered the sector as a shared learning resource rather than a standalone digital platform. Its value lies as much in the conversations and skills it has generated as in the interface itself.

DELIVERY AND COMMUNICATION

Supporting Sector Adoption of the ESECT Tool

Delivery of the ESECT tool was supported through a coordinated programme of sector engagement, technical dissemination and applied learning. These activities translated the engagement model described above into practical sector uptake.

Sector engagement, professional dialogue and Communities of Practice

The tool was introduced and discussed through Community of Practice meetings and sector forums, where its intended use was outlined and early feedback was gathered from practitioners working on live projects. These sessions enabled peer-to-peer discussion and positioned the tool within ongoing professional conversations about embodied carbon.

Conference-based dissemination formed an important part of this engagement. The ESECT tool featured in embodied carbon-focused sessions at WoodBUILD 2025, including a dedicated breakout session that introduced the structure and functionality of the tool and facilitated practical discussion with delegates. Early adopters shared case reflections, helping translate the tool from concept into applied practice.

Supporting guidance and explanatory resources

Complementary written guidance supported the rollout of the tool. A complementary [article](#) introducing the New Build-Up Library illustrating embodied carbon impacts was published on the Woodknowledge Wales website to support understanding of the assumptions and data underpinning the platform and to aid informed practitioner use. Independent sector organisations, including the Good Homes Alliance (GHA) and Alliance for Sustainable Building Products (ASBP), amplified awareness by publishing introductions to the tool within their professional networks.

Woodknowledge Wales gave presentations on the ESECT Tool at various specialist events and invited presentations, such as the webinar [“Delivering Low Embodied Carbon Social Housing”](#) for the Welsh Zero Carbon Hwb network and the GHA, extending the reach of the project to wider professional audiences.

Applied learning and emerging case examples

Practitioners shared qualitative feedback and early applications of the tool through conferences, workshops and professional exchanges. Contributions from housing developers, designers and sustainability consultants (including Hedyn Housing Association, Spring Design, Coaction, Cardiff Metropolitan University and the Sustainable Building Consultancy), provided insight into how the tool is being interpreted in practice.

Academic teaching also formed part of the dissemination strategy. The ESECT tool is gradually being incorporated into university lectures on embodied carbon, supporting awareness and skills development among emerging professionals and reinforcing the educational dimension of the programme.

Policy-facing technical engagement

Ongoing technical dialogue with Welsh Government officials explored the role of ESECT in supporting early-stage embodied carbon assessment. These discussions have informed policy review processes and future guidance development, ensuring that the tool remains aligned with evolving regulatory expectations. Taken together, these activities demonstrate that the project delivered proportionate and appropriate support for sector adoption of the ESECT tool. Engagement extended beyond dissemination to include applied learning, practitioner feedback and policy dialogue, reinforcing the tool's role as a shared sector resource. These delivery activities demonstrate not only awareness-building, but measurable early adoption across the housing sector.

POLICY ENGAGEMENT HIGHLIGHT

Welsh Government (design and standards teams)

Engagement with Welsh Government has formed an important part of the development and positioning of the ESECT tool. As part of the Welsh Government's ongoing review of the Welsh Development Quality Requirements (WDQR 2021), Woodknowledge Wales provided formal commentary and participated in detailed discussions with officials across multiple meetings.

Engagement included direct technical dialogue with members of the Welsh Government's Housing Quality Standards team, including senior housing standards technical officers within the Department for Housing & Regeneration.

Following progress meetings during the development of the tool, a presentation and live demonstration of ESECT was given to Welsh Government officials. This session enabled detailed discussion of the tool's methodology, intended use and potential role in supporting early-stage housing assessment. Officials confirmed that the issues raised would be considered as part of the WDQR review process, with relevant updates expected to be communicated to the sector following completion of the review.

Welsh Government representatives indicated that the ESECT tool will be referenced within future updates to the Technical Review Submission Procedures, and is already being referenced in design review feedback which the team provides to housing associations and local authorities following the review of scheme design proposals. This reflects recognition of the tool's potential value in supporting embodied carbon awareness among housing associations and local authorities.

This engagement demonstrates that ESECT is aligned with current Welsh Government priorities around upfront and embodied carbon reduction and is contributing to ongoing technical dialogue within policy review processes. The tool is therefore positioned as a practical resource capable of supporting early-stage housing development decision-making in Wales.



Llywodraeth Cymru
Welsh Government

THE TOOL'S USAGE, REACH, ENGAGEMENT AND EARLY IMPACT

A review has been made of web analytics data extracted from AWStats, the ESECT web analytics tool that generates usage data from server log files. Examining patterns of access, geographic distribution, engagement with the core assessment tool, and use of supporting technical resources. While web analytics do not capture individual user outcomes, they provide a robust indication of uptake, relevance and early value.

The evidence demonstrates sustained and repeat engagement with the tool over time, including use beyond Wales and the wider UK. Users are navigating beyond the homepage to interact directly with the assessment tool and to access component-level technical guidance, indicating purposeful use rather than incidental browsing.

Taken together, the findings support the conclusion that ESECT is functioning as an applied, scalable decision-support resource. While further qualitative evaluation would strengthen understanding of downstream impacts, the observed patterns provide proportionate assurance that the tool represents a credible outcome of public investment.

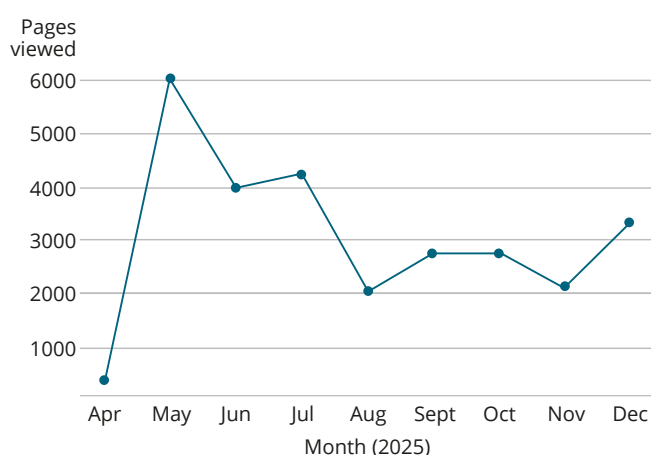
Data sources and methodological approach

Usage evidence presented in this report is derived from AWStats, drawing on processed server access logs for the ESECT website. Automated system traffic has been excluded where possible. The analysis aims to reflect trends and patterns.

Tool usage over time

Monthly usage data indicate sustained engagement with the ESECT tool throughout the reporting period. Figure 7 shows monthly trends in visits and page views during 2025.

Figure 7: Monthly visits and page views for the ESECT platform (AWStats)



THE TOOL'S USAGE, REACH, ENGAGEMENT AND EARLY IMPACT

Monthly usage overview

Usage data shows sustained engagement with the ESECT tool over the reporting period, with clear peaks corresponding to dissemination activity and project milestones.

Table 2: Summary of monthly usage statistics for the ESECT tool (AWStats).

Month (2025)	Unique visitors	Visits	Pages viewed	Downloads
April	187	237	388	-
May	451	789	5,936	High
June	572	961	4,059	Medium
July	495	898	4,215	Medium
August	413	741	2,110	Low
September	381	720	2,753	Low
October	501	853	2,769	Low
November	470	819	2,133	Low
December	673	1,268	3,334	Medium

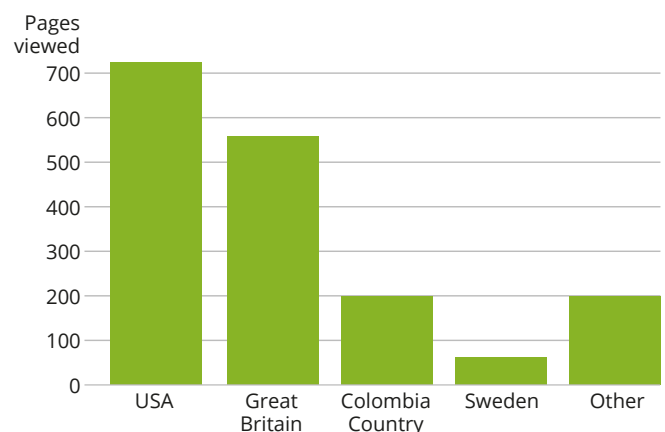
Geographic reach

Geographic analysis based on page views shows that engagement with the ESECT tool extends beyond Wales and the wider UK. Figure 8 summarises page views by country for the most active locations. More detailed information on views by country can be found in Appendix 1.

Evidence of engagement with the ESECT tool

Page-level analysis shows that users are navigating beyond the homepage to access the core assessment tool and supporting technical resources. Download data indicate use of component-level guidance relating to walls, roofs, windows and services, consistent with applied technical use.

Figure 8: Geographic distribution of ESECT page views (top countries)



THE TOOL'S USAGE, REACH, ENGAGEMENT AND EARLY IMPACT

Table 3: Most downloaded technical resources

Resource summary	Downloads	Purpose
Foundations & ground floors	49	Component-level technical guidance
Windows	14	Component performance overview
Roofs	7	Component performance overview
Walls	7	Component performance overview
Services	4	Building services overview

These figures demonstrate:

- Use beyond browsing
- Engagement with **technical, component-based material**
- Users are engaging with the tool beyond initial landing pages, navigating through multiple content and tool pages within a single session. This pattern is consistent with active use of a structured assessment tool rather than casual browsing, particularly during periods of targeted dissemination and early adoption.

Interpretation and limitations

Web analytics provide insight into patterns of access and engagement, but do not capture user intent or downstream decision outcomes. Exit metrics, in particular, may reflect task completion rather than disengagement. Findings are therefore interpreted cautiously as indicators of engagement.

Value for money and public benefit

As a digital platform, ESECT demonstrates strong value-for-money characteristics. Now operational, the tool is freely available to users, enabling wide uptake and scalable dissemination across the sectors. Its digital nature allows for continuous use, adaptation and updating over time, maximising the value of the initial research investment. By supporting early-stage decision-making and increasing awareness of embodied carbon considerations, the platform contributes to more informed and sustainable construction practices.



EARLY ADOPTER SPOTLIGHT

Hedyn Housing Association

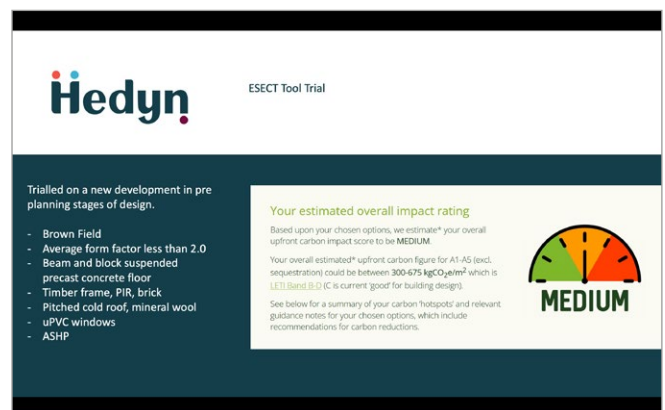
While formal case studies are still emerging as sector adoption grows, early adopter engagement provides valuable insight into how the ESECT tool is being used in practice. Hedyn Housing Association undertook a pilot application of the tool during early design exploration of a housing scheme, using the tool to compare alternative construction strategies and understand embodied carbon implications at concept stage.

The exercise focused on testing how different fabric and structural options influenced upfront carbon impact. By working through the tool iteratively, the project team was able to structure internal discussion around material choices and identify where carbon reductions could be achieved without compromising buildability or delivery constraints. Practitioners reported that the tool supported clearer communication between design and sustainability considerations, helping translate abstract carbon targets into tangible construction decisions.

Although the project remains at an early stage, feedback from the Hedyn team suggests that the primary value of the tool lies in its ability to act as a decision framework rather than a standalone calculation exercise. The platform enabled structured comparison, encouraged early questioning of assumptions, and supported carbon-aware thinking within routine project workflows.

This emerging example illustrates how ESECT can be integrated into real housing delivery contexts. As adoption expands and projects progress, further documented case evidence is expected to develop, strengthening the evidence base for early-stage embodied carbon decision support across the sector.

Figure 9: Snapshot from an early trial application of the ESECT tool.



FUTURE DEVELOPMENT AND VERSION 2 ROADMAP

The current version of the ESECT tool establishes a practical foundation for early-stage embodied carbon decision support and represents an important first phase of platform development. With the tool now demonstrated to function effectively in real project contexts, the next stage of work would focus (subject to future funding availability) on structured evidence-building through expanded case study implementation, data gathering and more detailed statistical analysis of usage patterns. This would strengthen the empirical basis of the platform and inform targeted future improvements.

Building on this evidence, a natural progression would be to expand the technical capacity of the tool. Priority areas include broadening the database of materials and construction variables, introducing additional build-ups (i.e. wall, roof, foundations, etc.), improving representation of building systems such as heating, and extending indicative embodied carbon estimates to renewable technologies including photovoltaic systems and battery storage. These enhancements would allow the platform to more accurately reflect the diversity of real housing projects while maintaining its accessible, early-stage focus.

Taken together, this staged approach, combining research, evaluation and technical expansion, positions ESECT as a platform capable of evolving alongside sector needs. The work completed through the Home-Grown Homes project provides a strong foundation from which this next phase could proceed, supporting the continued integration of embodied carbon considerations into mainstream housing delivery, subject to appropriate future resourcing.



CONCLUSIONS AND IMPLICATIONS

The evidence presented in this report indicates that the ESECT tool has met its core delivery objectives as part of the Home-Grown Homes Project. The Project aimed both to design and test early-stage embodied carbon reduction guidance and to support practical use of the tool through training, engagement and technical assistance. Community engagement, practitioner feedback and online usage patterns together demonstrate sustained uptake, purposeful interaction and relevance beyond the immediate project network.

While longer-term evaluation would be valuable to quantify downstream decision impacts, the current findings provide confidence that the Project outputs are valid, credible and proportionate to the level of public investment.

More broadly, the project demonstrates that early-stage embodied carbon guidance can be embedded within normal housing delivery workflows when tools are designed to be accessible, proportionate and practitioner-focused. The ESECT tool has functioned not only as a digital resource, but as a delivery mechanism for applied learning, supporting training, workshops and technical dialogue across the sector. Its value lies in enabling informed discussion at the point where design decisions still carry leverage, reinforcing the objectives of the work package to translate carbon ambition into practical action.

The emerging adoption of the tool suggests that housing providers are actively seeking structured methods to integrate embodied carbon considerations into concept design. Through testing, engagement and applied support, the Project has contributed to building early sector capacity in this area. ESECT makes embodied carbon visible and discussable during design development, strengthening evidence-informed decision-making in public housing delivery.

As adoption expands, opportunities exist to deepen evaluation, strengthen analytics and develop enhanced functionality. Future iterations of the platform could support more advanced comparison features, expanded datasets and improved reporting capabilities, further embedding carbon literacy within mainstream practice and extending the impact of the work package.

Taken together, the activities documented in this report demonstrate that proportionate digital tools, combined with active sector engagement, can accelerate learning and support scalable improvement. The Project has delivered both a practical decision-support resource and a framework for continued sector development. The ESECT tool therefore represents a credible foundation for ongoing refinement and a meaningful step toward integrating whole-life carbon thinking into everyday housing decision-making.

APPENDIX 1

The ESECT tool's geographic reach

The ESECT tool demonstrates international reach, with the highest levels of engagement observed in Great Britain, the United States, and Colombia.

Locales		Pages	Hits	Bandwidth
United States	us	720	2,008	219.05 MB
Great Britain	gb	571	1,301	134.40 MB
Colombia	co	205	808	78.10 MB
Sweden	se	62	64	1.14 MB
Romania	ro	17	67	6.72 MB
India	in	17	36	3.94 MB
Japan	jp	15	58	1.19 MB
Iran	ir	15	21	2.05 MB
Canada	ca	14	22	2.39 MB
Slovenia	si	14	52	8.00 MB
Brazil	br	12	33	7.43 MB
Israel	il	12	48	24.56 MB
Argentina	ar	10	62	5.82 MB
Chile	cl	9	29	4.02 MB
Germany	de	8	37	8.90 MB
China	cn	7	15	3.11 MB
Netherlands	nl	7	7	267.76 KB
Uzbekistan	uz	7	15	3.11 MB
Russian federation	ru	5	6	372.42 KB
Belgium	be	3	3	68.28 KB
Honduras	hn	3	3	45.52 KB
Australia	au	2	4	47.87 KB
Vietnam	vn	2	5	828.82 KB
Denmark	dk	1	2	3.03 MB
Poland	pl	1	2	20.77 KB
Hong Kong	hk	1	1	22.76 KB
United Arab Emirates	ae	1	1	12.08 KB
Ireland	ie	1	1	22.76 KB
Norway	no	1	1	22.75 KB
Portugal	pt	1	1	19.59 KB
France	fr	0	1	2.99 MB
South Africa	za	0	1	2.37MB
Peru	pe	0	1	2.00 MB
Philippines	ph	0	1	1.18 MB
Others		0	0	0

APPENDIX 2 Usage Statistics

Table 1:

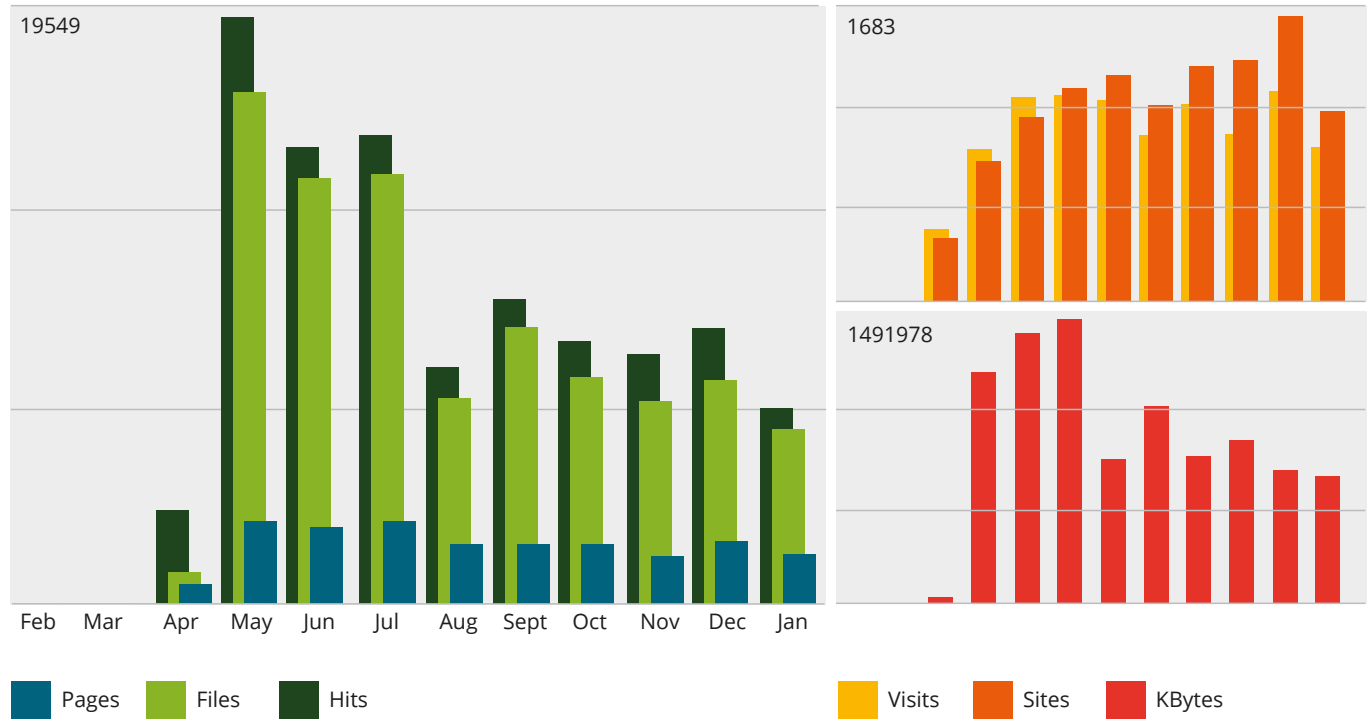


Table 2: Summary by month

Month	Daily Average				Monthly Totals					
	Hits	Files	Pages	Visits	Sites	KBytes	Visits	Pages	Files	Hits
Jan 2026	226	204	53	32	1110	645697	905	1487	5718	6339
Dec 2025	295	237	63	39	1683	675974	1223	1980	7367	9169
Nov 2025	271	222	50	32	1418	850372	967	1529	6681	8153
Oct 2025	277	240	63	36	1385	758058	1133	1978	7450	8592
Sep 2025	336	308	62	32	1137	994929	964	1886	9259	10091
Aug 2025	252	219	60	38	1326	738466	1178	1863	6816	7818
Jul 2025	500	461	86	38	1251	1491978	1204	2682	14320	15524
Jun 2025	504	469	81	39	1066	1415315	1185	2455	14075	15125
May 2025	632	551	86	28	808	1212147	887	2687	17083	19594
Apr 2025	213	64	40	29	370	7625	410	567	906	2982
Totals						8790561	10056	19114	89675	103387

From a January 2026 snapshot alone:

- 658 visits
- 383 unique visitors
- 1,744 pages
- 2.65 pages per visit
- 1.71 visits per visitor

APPENDIX 3

Page engagement and exit behaviour

Page-level analysis highlights how users interact with different parts of the tool. The /tool page is among the most viewed content pages, while exits from the homepage and feedback form suggest natural session completion rather than user drop-off.

Table 3: Selected user-facing pages with entry and exit counts.

Page	Views	Entries	Exits
/	362	312	197
/tool	176	36	34
/feedback-form	47	25	28

Interpretation and limitations

Exit metrics should be interpreted with caution. An exit does not necessarily indicate dissatisfaction; it may reflect task completion or offline use of downloaded materials.



Woodknowledge Wales Limited
22 Cathedral Road, Cardiff, CF11 9LJ