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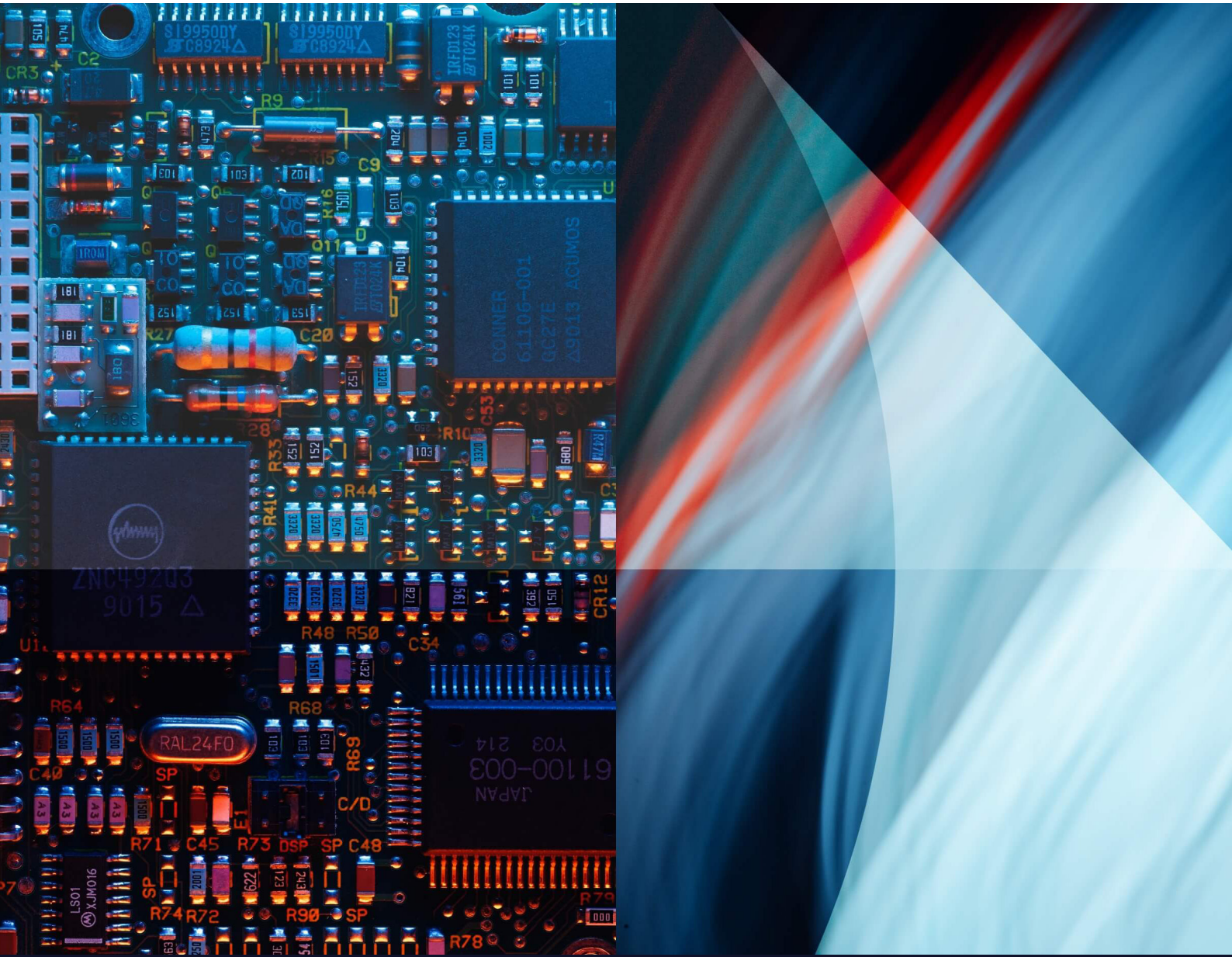
Net Zero & Climate Risk

Smart Innovators: Carbon Accounting And Assurance Service Providers

By Ryan Skinner

September 2024



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This report provides an analysis of the services market for carbon accounting and assurance, as well as a benchmark of the innovation of 20 of the leading providers in the space. Firms are increasingly seeking out these services in order to support both voluntary and mandatory disclosure requirements. Five distinct segments of consulting provider types have established strong positions in the market, though new firms are popping up regularly to address edge use cases and support unique market needs.

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Organizations mentioned

Amazon Web Services, American Petroleum Institute (API), Bloomberg, BP, Bureau Veritas, CBAM, Chevron, Clarity AI, Climate TRACE, Climatiq, DEKRA, Deloitte, Dow, EFRAG, EIME, ELEVATE, ERM, ERM CVS, European Commission, Exelon Corporation, Exxon Mobil Corporation, EY, Frostbyte Consulting, Genpact, Google, Hitachi Digital Services, HowGood, International Organization for Standardization (ISO), International Standard on Assurance Engagements (ISAE), Ipieca, J.S. Held, KPMG, LinkedIn, LRQA, Material Economics, McKinsey & Company, Microsoft, Morningstar, MSCI, NegaOctet, Oracle, Persefoni AI, Position Green, PwC, Ramboll, Reserve Bank of India (RBI), Salesforce, SAP, Schneider Electric, Shell, Singapore Exchange Limited, Sphera, Sustainalytics, The British Standards Institution (BSI), thinkstep, UL, UN FAO, Unilever, US Securities and Exchange Commission (SEC), WayCarbon, Workday, Workiva.

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Summary for decision-makers

- Consulting teams are seeing rising demand for carbon accounting and assurance services due to the increased regulatory burden hitting firms, as well as pressure on firms to meet their clients' expectations, who need transparency to support their own Scope 3 emissions reporting. As such, there is considerable opportunity for consulting organizations to grow, based on unique differentiation and service innovation.
- Sustainability leaders are facing the challenge of selecting the right consulting partners for accounting and assurance – especially as they must engage separate providers for these services. Each provider's background offers a set of built-in advantages and drawbacks in terms of their capabilities.
- This report assesses the innovation of 20 of the largest and most prominent carbon accounting and assurance service providers in the market. We assessed innovation across four areas of carbon accounting – Scope 1 & 2 emissions, Scope 3 emissions, financed emissions and product emissions – and three areas of carbon assurance – pre-assurance, limited assurance and reasonable assurance.
- While many vendors specialize in either carbon accounting or assurance, a number of firms deliver strong capabilities across both service areas. Leading providers are innovating with digitally enabled workflows and industry-specific methodologies and experience.
- Buyers of carbon accounting and assurance services should select providers with industry-specific experience, and consider how well a provider will be able to provide complementary services to carbon accounting, such as transition planning or decarbonization strategy.

Figure 2

Carbon accounting and assurance services providers: capabilities assessment

	Carbon accounting				Assurance		
	Scope 1 & 2	Scope 3	Financed emissions	Product emissions	Pre-assurance	Limited assurance	Reasonable assurance
BSI	○	○	○	○	◑	◑	◑
Bureau Veritas	◕	◕	◑	●	◕	◕	◕
DEKRA	◑	◑	○	◑	◑	◑	◑
Deloitte	●	●	●	◕	●	●	◕
ERM	◕	◕	◕	◑	○	○	○
ERM CVS	○	○	○	○	◕	◕	◕
EY	●	●	●	◕	●	●	◕
Genpact	◕	◕	◕	◑	◕	◕	◑
Hitachi Digital Services	◑	◑	○	◑	○	○	○
J.S. Held	◕	◑	◑	◕	◕	◕	◕
KPMG	●	◕	●	◕	●	●	◕
LRQA	◑	◕	○	○	◕	●	◕
McKinsey & Company	◑	◑	◑	◑	○	○	○
Position Green	◑	◑	◑	◑	◑	○	○
PwC	●	●	●	◕	◕	◕	◕
Ramboll	◕	◑	◑	●	◑	◕	◑
Schneider Electric	◕	◕	◕	◑	◔	○	○
Sphera	◕	●	◕	●	○	○	○
UL	◕	◕	○	○	◑	◑	◔
WayCarbon	◑	◑	◕	◑	◔	◔	◔

Unique and innovative capability	●
Strong evidence of capability, with examples	◕
Standard capability	◑
Limited capability	◔
Absent capability	○

Source: Verdantix analysis

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Firms' carbon accounting needs vastly exceed their capabilities

Findings from the 2024 Verdantix global corporate survey of net zero and sustainability leaders show that more than 40% of respondents expect carbon accounting to be one of their team's three most time-consuming tasks in 2024. They will hire more team members, but also look to consultancies to help; 58% of decision-makers say they will hire more external consultants to help with carbon accounting in the next two years, while 64% will do the same to support emissions data assurance (see Verdantix Global Corporate Survey 2024: Climate Change Consulting Buyers' Budgets, Priorities & Vendor Preferences). This will not come cheaply. The US Securities and Exchange Commission (SEC) predicts that compliance with its climate disclosure rule will cost large accelerated filers (LAFs) between $110,000 and $175,000 for limited and reasonable assurance alone per year; costs are likely as high or higher for the EU's Corporate Sustainability Reporting Directive (CSRD). Not surprisingly, approximately three in every four sustainability leaders say they increased consulting spend on carbon data management and accounting by double-digits in 2023; 64% said the same for emissions data assurance.

Internal teams struggle to overcome technological and logistical hurdles

Modern carbon accounting capable of assurance tests firms in their ability to collect primary and secondary data from across intricate organizational structures and complex value chains; to standardize various data formats and accounting methods; to allocate appropriate emissions factors; and to present data in reportable and auditable formats. Emerging regulations are shortening timeframes, increasing transparency and granularity requirements, and enforcing standards adherence. Given that the majority of sustainability leaders identify that their climate teams are too small (86%) or lack sufficient expertise (76%), these requirements create significant challenges (see Verdantix Global Corporate Survey 2023: Net Zero Budgets, Priorities and Tech Preferences). Firms must contend with:

- **Engagement with a large supply chain.**
  In the 2024 Verdantix study of sustainability leaders' carbon management efforts, lack of data availability was the most commonly cited 'significant obstacle' (see Verdantix Global Corporate Survey 2024: Climate Change Consulting Buyers' Budgets, Priorities & Vendor Preferences). As firms seek to expand Scope 3 accounting coverage and increase data accuracy by shifting away from a spend-based approach, third-party data from suppliers and other value chain stakeholders becomes increasingly important. Organizations need to develop strategic engagement plans targeted at the highest-value third-party data sources, standardize data formats and evaluate data quality. However, large firms' supply chains are vast; Unilever, for example, plans to engage with only 44% of its suppliers on emissions reduction by the end of 2024.

- **More disclosures at a higher cadence.**
  Carbon accounting is a time-intensive process, particularly for firms with data silos and poorly connected digital infrastructure, requiring substantial resources to coordinate across numerous business units, facilities and suppliers. The granularity and traceability required by new regulations – and the added time for assurance engagements – will make it increasingly difficult for already stretched teams to meet reporting deadlines without external support. For example, the Carbon Border Adjustment Mechanism (CBAM) requires quarterly collection, calculation and reporting of product-level emissions data with only a month between the end of the reporting period and the reporting deadline. CBAM disclosures will also require third-party verification from 2026, further shortening internal carbon accounting timelines.

- **Demands for higher-quality data.**
  Decarbonization is underpinned by specific and accurate emissions data. Therefore, firms are seeking to maximize emissions data quality through primary data collection, custom emissions factors and activity-based calculations. This challenges internal data management and calculation abilities, and has broader ecosystem impacts through heightened demands on value chain stakeholders such as suppliers. This means that B2B firms in more mature manufacturing industries, such as chemicals and automotives,

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are required to increase the granularity of their carbon accounting for sales enablement and market accessibility. For example, Dow's supplier code of conduct states it will favour suppliers disclosing Scope 1, 2 and 3 emissions and product carbon footprints.

- **Technical assurance of emissions data by third parties.**
  Numerous disclosure regulations will require firms to disclose assured or verified emissions data within the next few years. For example, in the first reporting period the CSRD will require 11,700 firms to gain limited assurance of their emissions data for reporting in 2025; this will extend to almost 60,000 firms by 2028 and could progress to reasonable assurance (see Verdantix Strategic Focus: CSRD And ESG Reporting Readiness). Similar assurance requirements will be mandated in the US through the SEC climate disclosure rule and the California Climate Corporate Data Accountability Act. These regulations will force firms to enhance their data governance strategies to meet the data traceability and calculation transparency requirements needed for assurance, which may mean commissioning third-party assurance service providers.

- **Data management needs of carbon accounting in complex organizations.**
  Carbon accounting requires practitioners to access vast quantities of internal data, often stored in isolated systems or spreadsheets and left unaggregated across multiple facility-level repositories. Additionally, firms with complex organizational structures or high merger and acquisition (M&A) activity may be using multiple enterprise resource planning (ERP) platforms, complicating data standardization and sharing. Therefore, organizations must undertake exercises in data mapping, data maturity and gap assessment, systems integration and automation, and data management and governance. These kinds of technical carbon accounting activities are the most common services that firms seek from climate-focused consulting providers.

Carbon accounting and assurance services address compliance and stakeholder expectations

As the gap between corporate capabilities and compliant carbon accounting grows, and assurance becomes a regulated obligation, professional services providers are becoming increasingly important. Spending on carbon emissions data and disclosure services – including carbon accounting and assurance – is forecast to grow at a 30% CAGR to over $4.5 billion by 2028 (see Verdantix Market Size And Forecast: Net Zero Consulting Services 2022-2028 (Global)). The combined carbon accounting and assurance services market is defined by Verdantix as:

Services solutions to directly or indirectly support the collection, management and calculation of GHG emissions and related data, including technical assistance, and the independent assessment – based on professional standards and guidelines – of the accuracy and reliability of emissions data and reporting processes.

Of the more than 70 service providers with offerings in either one or both areas of the market, Verdantix has benchmarked the capabilities and expertise of 20 firms – all with at least 100 full-time equivalent consultants (see **Figure 1**). Our research includes an in-depth analysis of public and privately disclosed information from all of the assessed providers. The firms benchmarked in this report are BSI (The British Standards Institution), Bureau Veritas, DEKRA, Deloitte, ERM, ERM CVS, EY, Genpact, Hitachi Digital Services, J.S. Held, KPMG, LRQA, McKinsey & Company, Position Green, PwC, Ramboll, Schneider Electric, Sphera, UL and WayCarbon.

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Figure 1

Overview of carbon accounting and assurance service providers

Firm name	Customer regional presence						Firm heritage	No. of employees
	Asia	Oceania	Europe	Middle East and Africa	North America	Latin America and the Caribbean		
BSI (The British Standards Institute)	Not available						Testing, inspection & certification	5,800
Bureau Veritas	◑	◔	◕	◔	◔	◔	Testing, inspection & certification	83,000
DEKRA	○	◔	●	○	◔	○	Testing, inspection & certification	49,000
Deloitte	◔	◔	◑	◔	◕	◔	Accounting	460,000
ERM	◔	◔	◑	◔	◑	◔	Environmental services	8,000
ERM CVS	◔	○	◑	◔	◕	○	Environmental services	100
EY	◔		◑		◑		Accountancy	400,000
Genpact	Not available						Professional services	125,000
Hitachi Digital Services	◔	◔	◑	○	◑	○	Professional services	1,500
J.S. Held	◔	◔	◔	◔	◕	◔	Professional services	1,800

Figure 1 (continued) ↓

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Figure 1 (continued)

KPMG	Not available						Accountancy	273,400
LRQA	◔	◔	◔	◔	◕	○	Testing, inspection & certification	5,000
McKinsey & Company	◑	○	◑	◔	◔	○	Professional services	42,700
Position Green	○	○	●	○	◔	○	Environmental services	300
PwC	◔	◔	◑	◔	◔	◔	Accountancy	364,000
Ramboll	◔	○	◑	○	◕	○	Engineering & energy	17,000
Schneider Electric	◔	○	◑	○	◑	◔	Engineering & energy	128,000
Sphera	◔	◔	◑	◔	◕	◔	Environmental services	1,500
UL	◔	○	◔	○	◑	○	Testing, inspection & certification	15,000
WayCarbon	○	○	◔	◔	◔	●	Environmental services	300

●	above 75%
◕	51%-75%
◑	26%-50%
◔	1%-25%
○	0%

Note: Employee figures rounded to the nearest hundred; figures for Hitachi Digital Services and McKinsey & Company taken from LinkedIn, July 2024.
Source: Verdantix analysis

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Five consulting segments provide carbon accounting and assurance services

The carbon accounting and assurance services market is an attractive proposition for service providers. Increasing demand and mandatory assurance regulations will lead to increasing spend and growth opportunities for the foreseeable future. Additionally, continuous developments in service requirements prevent market stagnation and provide opportunities for specialization and differentiation. Consulting specialists, in nature-related accounting for example, may choose to start up new consultancies, leading to a steady stream of new providers. Nonetheless, five consulting segments have established strong positions in the market through organic growth and acquisitions:

- **Prominent accounting firms with well-developed sustainability credentials.**
  Accounting firms such as the 'Big Four' – Deloitte, EY, KPMG and PwC – entered the broader net zero services market early, and have since established competitive offerings through substantial investments in digital tool development, technology partnerships and practitioner upskilling. These firms utilize their heritage in traditional financial accounting, as well as their influence in international organizations and standards bodies, to develop strong, compliant carbon accounting and assurance offerings.

- **Large professional services providers with deep expertise in digital change management.**
  Professional services firms, including management consultancies such as McKinsey & Company and technology services firms such as Hitachi Digital Services, offer capabilities across a broader range of climate-related areas. These providers combine acquired and developed climate expertise with deep experience in delivering change management projects to transform organizations' internal capabilities to suit carbon accounting needs. In recent years, these firms have capitalized on high brand recognition to secure significant market presence and have invested in scaling climate expertise (see Verdantix Global Corporate Survey 2024: Net Zero Consulting Service Providers Brands Recognition). For example, McKinsey & Company acquired Swedish sustainability consultancy, Material Economics, in 2021 and J.S. Held acquired Canadian sustainability advisory and technical services firm, Frostbyte Consulting, in 2022.

- **Specialist environmental services firms.**
  Environmental services firms offer a wide range of climate-related services across net zero strategy creation and implementation, and climate data and disclosure management. Several of these firms, such as Position Green and Sphera, use internal software offerings in carbon management and ESG data management to enhance and support service offerings. Well-established providers have also developed assurance offerings by setting up distinct, independent entities. For example, ERM CVS – established as an independent entity in 1996, and part of ERM – offers assurance across a range of climate categories such as emissions, reduction targets, green finance instruments and carbon offsets (see Verdantix Buyer's Guide: ESG Assurance Services (2022)).

- **Testing, inspection and certification providers.**
  Several large testing, inspection and certification (TIC) providers, such as BSI, Bureau Veritas, DEKRA, LRQA and UL, have developed suites of assurance services related to carbon emissions and are establishing offerings in carbon accounting – particularly at a product level. These firms often benefit from a global presence offering site-level support and verification services. This coverage supports projects relating to supply chain and product-level carbon accounting. Several providers have strengthened services in this area through acquisitions and tool development. For example, LRQA developed its EiQ platform for supply chain data analytics and acquired supply chain audit specialist ELEVATE in 2022.

- **Engineering and energy management firms.**
  Engineering and energy management firms have developed climate consulting services, often utilizing technical expertise to offer leading asset-level decarbonization and energy transformation projects. These providers focus on organizations operating in sectors with high real estate footprints and intrinsic industrial emissions, utilizing digital offerings in adjacent service lines such as energy management to

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support carbon accounting across Scope 1 and 2 emissions. In-depth knowledge of industrial processes also supports product-level carbon footprinting and lifecycle assessments (LCAs). Providers in this group include engineering consultancy Ramboll and energy management firm Schneider Electric.

Providers offer services across two distinct service areas

The carbon accounting and assurance services market consists of two logistically related, but operationally distinct, service areas: carbon accounting and assurance services. Due to the potential for conflicts of interest, several providers offer assurance services through independent entities, such as ERM CVS. Therefore, buyers need to separately consider providers' strengths across areas and ensure alignment to their specific needs.

Carbon accounting services are a core component of corporate strategies

The carbon accounting services market has seen substantial growth over the past decade, capitalizing on growing corporate momentum and the substantial climate skills gap. EY and Deloitte are each one of the top three employers of climate-related professionals in nine of the 15 largest climate employee markets in the world, namely Australia, Canada, France, Germany, India, Italy, Netherlands, Spain and the US (see Verdantix Strategic Focus: Mind The Climate Skills Gap). Carbon accounting services are shifting to reflect growing demand for Scope 3 accounting and increasingly complex corporate digital ecosystems, creating opportunities for new market entrants and increased differentiation. The core offerings in carbon accounting services are:

- **Scope 1 and 2 emissions accounting.**
  This area of carbon accounting is the most mature offering, with many firms providing this service for several decades. Providers of Scope 1 and 2 emissions accounting are increasingly having to deal with complex digital ecosystems and are facing competition from software solutions. This is creating a need for services that are digitally enhanced and that support the digital requirements of carbon accounting. Firms such as J.S. Held offer a range of implementation and integration services to connect adjacent ESG and EHS systems to ensure data flow from operational sources into carbon inventories, technology roadmap development and data management platform optimization.

- **Scope 3 emissions accounting.**
  Internal targets, external pressure and mandatory disclosure regulations such as the CSRD and CBAM are forcing firms to extend their accounting practices to consider Scope 3 emissions. Scope 3 emissions accounting entails unique challenges relating to data accuracy and accessibility, and service providers offer tools and services such as supply chain engagement support and extended data collection. For example, Genpact has an AI-based emissions data extraction tool to enhance data collection from supplier invoices. Additionally, organizations with internally developed software solutions can support service offerings with dedicated digital tools for supplier engagement and data collection. For example, Sphera's SpheraCloud can enhance data accessibility through supplier portals.

- **Financed emissions accounting.**
  Collecting, calculating, managing and modelling financed emissions entails challenges similar to those faced in supply chain emissions management, therefore services similarly benefit from supporting digital tools. For example, PwC's financed emissions accounting offering is supported by its Portfolio Emissions Manager (PEM) platform. PEM is aligned to the PCAF (Partnership for Carbon Accounting Financials) methodology, covering financed (Part A) and facilitated (Part B) emissions across various PCAF asset classes. The platform uses data waterfall capabilities to support optimal calculations using varying data sources. PwC also partners with climate financial data providers such as Bloomberg, Morningstar (Sustainalytics) and MSCI to increase access to portfolio data.

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- **Product emissions accounting.**
  Product carbon footprint (PCF) creation is a developing area of carbon accounting, gaining traction through regulatory developments such as the EU Green Claims Directive and the necessity of more granular emissions hot-spotting to inform decarbonization. PCF services are often provided in connection with LCAs. Bureau Veritas and Sphera have well-established product accounting capabilities. Sphera acquired thinkstep's GaBi LCA software in 2019, while Bureau Veritas acquired EIME (a software solution for LCA and ecodesign) in 2008, and in 2023 developed a standard to measure environmental performance of digital services, through its participation in the NegaOctet consortium.

Carbon emissions assurance is becoming a regulated obligation

Assurance-related services – comprising limited, reasonable and pre-assurance – are essential for ensuring regulatory compliance, improving carbon accounting processes, and mitigating transition and liability risks. These services include:

- **Pre-assurance engagements.**
  Pre-assurance includes any services that a firm may seek prior to an assurance engagement to help them identify gaps in their reporting processes and to prepare for external assurance. During this process, an organization receives preliminary feedback on its current performance, as well as recommendations for improving disclosure processes and systems, but no assurance statement is issued. Accounting firms have mature pre-assurance offerings that benefit from involvement in regulations and standards development. For example, Deloitte is a member of EFRAG's ESRS Digital Reporting Consultative Forum (ESRS DRCF), helping to inform pre-assurance double materiality and gap assessment services for CSRD compliance.

- **Provision of limited assurance.**
  Limited assurance is already required by the CSRD and consists of an assessment with a limited scope and less evidence collection; resultingly the conclusion is framed in negative terms. This provides firms with a lower level of confidence in a disclosure. LRQA has conducted consecutive limited assurance engagements for several large firms in the energy industry, including Exelon Corporation, Exxon Mobil Corporation and Shell. LRQA's limited assurance of Exxon Mobil Corporation's 2022 Scope 1 and 2 emissions included sampling specific assets, reviewing data control processes and data management systems in a methodology outlined in ISO 14064-4 from the International Organization for Standardization (ISO) and the International Standard on Assurance Engagements (ISAE) 3000.

- **Provision of reasonable assurance.**
  Demand for reasonable assurance of carbon emissions is at an earlier stage than limited assurance and yet to be mandated. These engagements entail the highest level of assurance that can reasonably be obtained. To reduce the risk of material misstatement to an acceptably low level, more evidence is collected, and more tests are performed, providing firms with a higher level of confidence. As this field is still developing, assurance providers have had less opportunities to demonstrate innovative offerings. Many of the capabilities demonstrated in limited assurance engagements will be transferred and applied more comprehensively to reasonable assurance engagements – and again, those providers involved in regulatory development will be better positioned to meet client needs.

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Figure 2

Carbon accounting and assurance services providers: capabilities assessment

	Carbon accounting				Assurance		
	Scope 1 & 2	Scope 3	Financed emissions	Product emissions	Pre-assurance	Limited assurance	Reasonable assurance
BSI	○	○	○	○	◑	◑	◑
Bureau Veritas	◕	◕	◑	●	◕	◕	◕
DEKRA	◑	◑	○	◑	◑	◑	◑
Deloitte	●	●	●	◕	●	●	◕
ERM	◕	◕	◕	◑	○	○	○
ERM CVS	○	○	○	○	◕	◕	◕
EY	●	●	●	◕	●	●	◕
Genpact	◕	◕	◕	◑	◕	◕	◑
Hitachi Digital Services	◑	◑	○	◑	○	○	○
J.S. Held	◕	◑	◑	◕	◕	◕	◕
KPMG	●	◕	●	◕	●	●	◕
LRQA	◑	◕	○	○	◕	●	◕
McKinsey & Company	◑	◑	◑	◑	○	○	○
Position Green	◑	◑	◑	◑	◑	○	○
PwC	●	●	●	◕	◕	◕	◕
Ramboll	◕	◑	◑	●	◑	◕	◑
Schneider Electric	◕	◕	◕	◑	◔	○	○
Sphera	◕	●	◕	●	○	○	○
UL	◕	◕	○	○	◑	◑	◔
WayCarbon	◑	◑	◕	◑	◔	◔	◔

Unique and innovative capability	●
Strong evidence of capability, with examples	◕
Standard capability	◑
Limited capability	◔
Absent capability	○

Source: Verdantix analysis

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Carbon accounting and assurance service providers innovate to keep pace with market requirements

Corporate demand for carbon accounting and assurance services has been consistently high for several years, attracting a huge number of competitors offering similar standards of service. However, the emergence of regulations, the growth of the adjacent software market and evolving corporate priorities have led to shifts in demand across different service areas, creating space for innovative and differentiated offerings (see **Figure 2**). For example, providers are innovating by:

- **Enhancing digital support for software-enabled workflows.**
  As emissions-related data is spread across multiple – and often disparate – systems, service offerings need to be compatible with and utilize complex digital landscapes. This is especially important as carbon accounting processes scale in Scope coverage and advance in both complexity and inclusion of primary data. Service providers are adapting services to support firms in improving their carbon accounting workflows through system data mapping, data source integration and carbon accounting solutions implementation. For example, DEKRA develops custom automated data collection systems capable of incorporating Internet of Things (IoT) devices and sensors to monitor emissions and energy usage in real time. Similarly, EY's Sustainability Ledger Accelerator enables data source identification and organizational data model creation.

- **Developing digital suites to supplement or replace traditional consulting services.**
  Commercial carbon management software represents a substantial threat to traditional consulting services, with over a third of Verdantix survey respondents using such solutions for carbon accounting in 2024 (see Verdantix Global Corporate Survey 2024: Net Zero Budgets, Priorities & Tech Preferences). There has also been a substantial increase in the number of organizations using multiple point solutions for carbon accounting (20%) compared with in 2023 (8%). Services firms are adapting to this by offering targeted software solutions and bespoke software development services. For example, McKinsey & Company offers its cloud-based Portfolio Alignment Toolkit for calculating financed, insurance associated and facilitated emissions in line with PCAF. DEKRA and Hitachi Digital Services also develop bespoke software solutions for carbon accounting.

- **Building industry-specific carbon accounting capabilities.**
  To improve the accuracy of carbon accounting and provide broader carbon management and decarbonization services, several providers offer distinct industry-specific capabilities. For example, Deloitte uses industry-specific data from HowGood's Latis platform and the UN FAO's GLEAM (Global Livestock Environmental Assessment Model) to support food and agriculture carbon accounting. It has also developed specific tools for certain industries, such as CarbonNOW for technology organizations. CarbonNOW supports in data collection and calculation for IT premises and has specific analytics capabilities for hardware, data centres, network devices and printers.

The services market will undergo transformative change with shifting regulatory requirements and emerging technologies

Over the next five years, organizations will be subject to a wave of emerging regulations, obligating and incentivizing carbon accounting and assurance beyond current practices (see **Figure 3**). Additionally, new technologies and firms' increasing digital maturity are opening new opportunities in data collection, validation and modelling to support carbon accounting and assurance processes. Services firms need to be aware of new opportunities and compliance requirements to keep pace with the adjacent carbon management software market. Organizations also need to consider a range of factors when selecting a services partner to ensure that capabilities meet future requirements.

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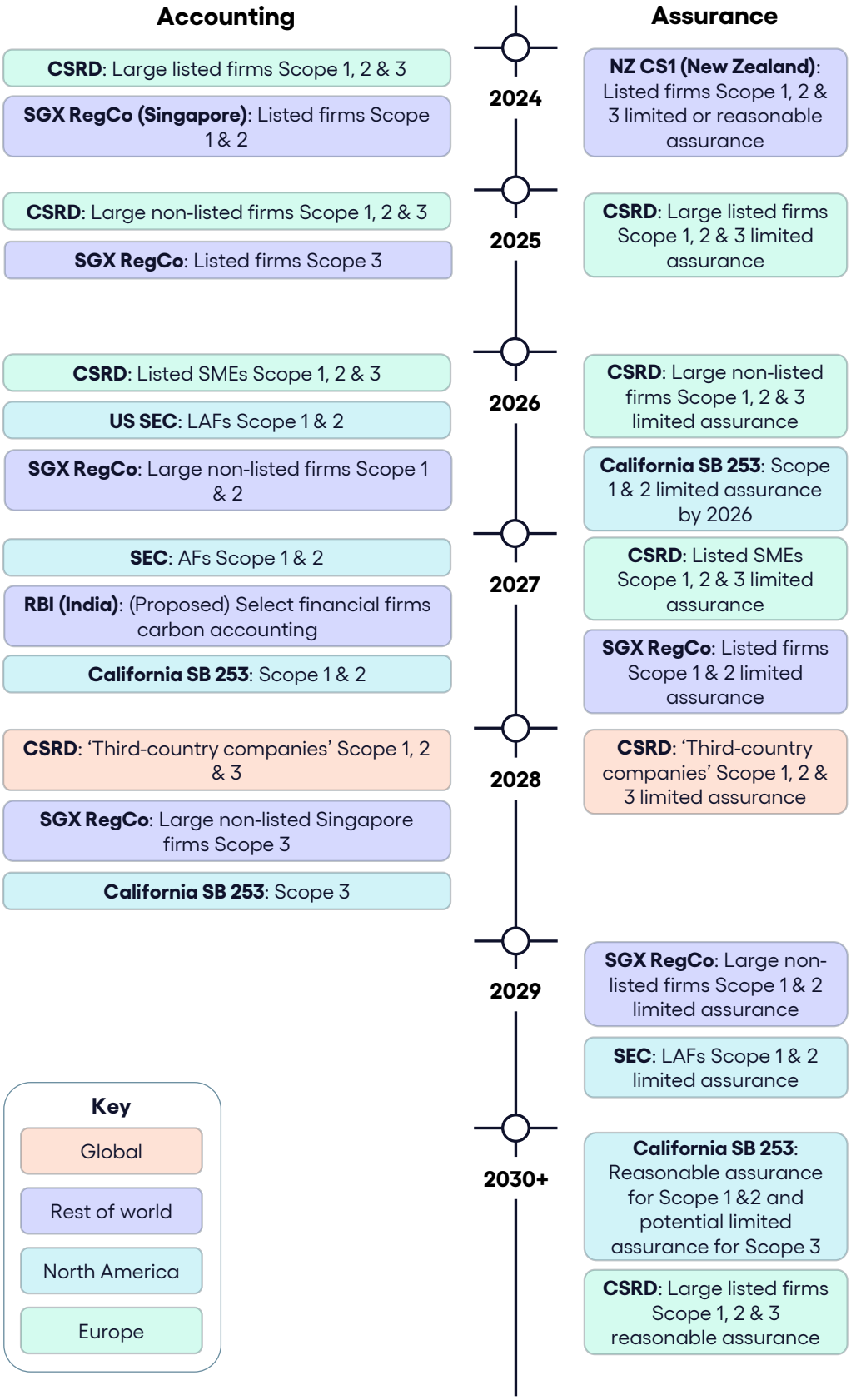
Figure 3

Carbon accounting and assurance related regulatory timeline



Note: LAFs (large accelerated filers); AFs (accelerated filers).

Source: Verdantix analysis

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Service providers will need to adapt offerings across several key areas in the next 24 months

Carbon accounting and assurance service providers must continually develop their offerings to align with market expectations and retain compliance with regulations and standards at a global, regional and industry level. Over the next two years, providers must:

- **Strategically scale solutions to deliver projects over greater scopes within shorter periods.**
  Due to emerging and evolving regulations, the number of firms obligated to calculate and disclose emissions across Scope 1, 2 and 3 is set to dramatically increase over the next few years. In the US in 2026, California's SB 253 will require approximately 5,300 organizations to calculate emissions across all three Scopes and the SEC disclosure ruling will require 2,800 organizations to disclose Scope 1 and 2 emissions. From 2028, approximately 3,300 US-based firms – as 'third country companies' – and over 50,000 EU firms will also be obligated to disclose under the CSRD. To capture opportunities from increased services demand while contending with the seasonality of assurance engagement, providers should first focus on upskilling current employees in adjacent or related service lines, rather than hiring additional employees.

- **Evolve their digital capabilities.**
  The carbon management software market will continue to grow over the next few years, signalling both opportunities and challenges for traditional service providers. Organizations will not be able to dispense with service providers, and implementation projects will become a value opportunity as many software vendors are incapable of commercially scaling their supporting services. Several service providers have already developed capabilities in this area. For example, PwC has alliance partnerships with Persefoni AI and Workiva, acting as an advisor for their co-deployment, while in March 2024, ERM acquired two small systems integrator consultancies, with one focused on Salesforce Net Zero Cloud.

- **Build out alternative emissions data sources.**
  In the last 18 months, technologies with the potential to enhance carbon accounting and assurance services delivery have emerged. For example, the coverage and granularity of satellite geospatial emissions data can support the collection and validation of third-party emissions data. Software providers Clarity AI and Climatiq have already partnered with Climate TRACE to enhance their emissions factor databases for supply chains and portfolio climate analytics capabilities. Accessing these data sets would allow service providers to improve the granularity of their Scope 3 and product-level accounting solutions. Partnerships with satellite geospatial data providers could also support assurers in boosting the reliability of their supply chain emissions verification services and allow them to increase their geographical coverage without increasing their geographical footprint.

Buyers should shortlist providers with contextual benefits like adjacent services or industry focus

Services offerings will continue to differentiate through innovation, partnerships and digital tool support, building solutions specialized to specific use cases, industries and geographies. Prospective services buyers should shortlist providers that offer:

- **Strong adjacent services.**
  Carbon accounting is foundational to corporate climate strategies; it is an essential precedent to target-setting, transition plan creation and decarbonization implementation. Firms that provide carbon accounting services are therefore best placed to provide subsequent climate strategy services, utilizing their pre-existing knowledge of data management processes and emissions hotspots. Alongside technical carbon accounting services, many providers also offer adjacent strategy and implementation services

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(see Verdantix Smart Innovators: Net Zero Consulting Services Providers and Verdantix Green Quadrant: Climate Change Consulting 2023). Prospective buyers should evaluate whether potential carbon accounting service providers have the required capabilities to support broader, long-term engagements for adjacent climate-related projects.

- **In-depth industry expertise.**
  Industry standards and best practices are now commonplace for carbon accounting, with many receiving inputs from prominent services firms. Prospective services buyers should determine whether providers offer suitable expertise to ensure accurate and compliant carbon accounting services. For example, ERM has authored the American Petroleum Institute's (API) Compendium of Greenhouse Gas Emissions Methodologies for the Natural Gas and Oil Industry (2021) as well as multiple Ipieca guidance documents. Ipieca membership comprises many of the world's largest oil and gas firms including BP, Chevron, Exxon Mobil Corporation and Shell.

- **Appropriate credentials and coverage for assurance provision.**
  The European Commission is yet to stipulate the exact requirements for CSRD assurance providers – such as which firms are suitable to undertake assurance and to which standards they must adhere – and it is likely that this will be conducted on a country-by-country basis. Member States are entitled to apply national assurance standards, and several have already indicated that only statutory auditors will be able to offer CSRD assurance. Assurers authorized in one Member State can use a passporting system to operate in other states without additional approval. Organizations will need to ensure that potential assurers have the appropriate credentials and methodological alignment to conduct assurance. As reasonable assurance becomes a potential requirement in 2028, firms should also ensure that providers have an adequate geographical footprint to enable site-level visits to support engagements.

- **Technologically enhanced services through partnerships and internally developed tools.**
  Organizations need to assess whether service providers have the technical capabilities needed to support long-term service partnerships with increasing digital complexity. Those with complex digital ecosystems, multiple ERP systems at a subsidiary or acquisition unit level, and immature data management procedures should select providers with appropriate technical capabilities. PwC has alliance partnerships with some of the world's largest technology firms and software providers – spanning Amazon Web Services (AWS), Google Cloud, Microsoft, Oracle, Salesforce, SAP and Workday – and offers a range of technical services to enhance process governance, develop data strategies and integrate digital infrastructure.

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