



Cloud Services for Net-zero and Energy Transition Outcomes

GCloud Service Description Document

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Cloud Services for Net-zero and Energy Transition Outcomes

1.1 Short Service Description

PA's energy transition service enables you to drive net-zero and energy transition outcomes using cloud services. We can define your energy transition approach through strategy, policy development and operating model design; create change frameworks including regulation, incentives, technologies, and interventions; and deliver through business change, programme management, digital, and data.

1.2 Key Service Features

1. Market, consumer, public and technology insight
2. Define web-based net-zero and energy transition data management/reporting tools
3. Design/deliver interventions including use of AI to drive impact
4. Design net-zero and energy transition operating models
5. Develop net-zero and energy transition strategies, business cases, options appraisals
6. Assess services, operations, supply chains for carbon emissions (scope 1/2/3)
7. Transform ways-of-working for risks and benefit management
8. Develop cloud-based and other innovative analytics tools
9. Deliver public-spending-rules compliant net-zero and energy transition procurement programmes
10. Create new systems, entities and innovation capabilities

1.3 Key Service Benefits

1. Drive delivery of energy transition, net-zero, and low-carbon outcomes
2. Effective interventions that optimise impact and value for money
3. Track data for better decision-making, strategy and investments
4. Release value through disruptive technologies and innovation
5. ESG embedded in delivery approach ensuring transparency and authenticity
6. Align with UN Sustainable Development Goals (SDGs)
7. Innovative products and services that reduce environmental impact
8. Reduce waste, minimise cost, repurpose products, maintain material value
9. Reduce risk, enhance supply-chain resilience, avoid stranded assets
10. Demonstrate good governance for people, prosperity and planet

1.4 Service Definition

In today's world, the public are increasingly attuned to the impact their actions – and the organisations and brands with which they associate – have on the environment. Policy makers are responding to environmental concerns with new strategies, policies and regulations. All the while, both businesses and public services are realising that people, prosperity and planet go hand in hand, and there are big gains to be made. We have designed this service to help you to tackle some of the biggest societal challenges facing citizens over the next ten years and beyond. It brings together our net-zero, energy transition and digital expertise to design and implement cloud-based solutions and innovative analytical tools to help you achieve your ambitions.

In the design of policy interventions and the delivery of public services there are numerous ways for your organisation to create new value for its stakeholders, sponsoring department and citizens, by embracing net-zero and energy transition – as highlighted in the “Service Benefits” section. Net-zero is no longer a ‘nice to do’ but an important ‘must do’ part of conducting business and governance, and it is increasingly becoming prominent in public sector business and technology strategies, including adoption of cloud services. Increasingly government customers are asking themselves “are we ready to embrace the opportunity to do well by doing good?” In other words, is your organisation making the most of the opportunities to contribute to a positive human future?

We combine this technical expertise in net-zero and energy transition with our unrivalled experience in public sector policies and programmes to offer you support across the programme lifecycle from policy through to delivery, centred on four priority areas:

1. Policy, strategy and investment decisions

- a. We use our business case capabilities to shape investment decisions and to develop robust business cases and options appraisals to support your programme delivery. We can embed net-zero and energy transition throughout our business case best practice and methods, including options development, appraisal and selection, context, risk and opportunity assessment. We specialise in combined cost, carbon and circularity modelling for products and services. We also have measurement frameworks and tools for tracking, and managing, quantitative and qualitative net-zero benefits and costs, including a proprietary cloud-based monitoring platform successfully used to monitor benefits of public spending against net-zero and energy transition outcomes globally. We have experience of mapping sustainability outcomes and impacts across entire public sector organisations using value chain analysis and theories of change.
- b. We can help you to procure sustainably throughout the supply chain and in-line with public procurement principles and best practice. We work with clients to shape ITTs that enable and embed net-zero, and shape procurement approaches to proactively drive energy transition outcomes e.g., establishing social value approaches with procurement teams.

2. Organisational net-zero activities

- a. We work with our clients to design and deliver programmes that will address their net-zero and energy transition challenges. This includes incorporating sustainability and net-zero design into policy design, programme delivery, and procurement. We have developed net-zero functions for public bodies, embedding sustainability into target operating models, by establishing roles, responsibilities and KPIs that deliver on net-zero and energy transition strategy commitments.

3. Deliver more sustainably

- a. We can adapt your portfolio to deliver more sustainably, and frequently support our clients to transform their current operations and ways of working to become more sustainable. This begins with strategic objective alignment and prioritisation, using system-wide and whole-life carbon assessments. We can carry out life-cycle assessments to identify carbon emission hotspots and take data driven decisions to

deliver emissions reductions. We also help clients develop robust ESG baselines, to inform strategies for mitigation, and provide roadmaps for implementation. We can advise and manage projects to reduce waste, minimise cost, repurpose products, maintain material value.

- b. We also work with public sector to deliver digital services more sustainably, focusing on low-carbon IT assessments, using tools and assessment techniques to calculate impact and identify the greatest opportunities for emissions reduction. We apply our led by design principles to integrate sustainable design thinking and processes into digital strategies, and when planning digital service provision.

4. Delivering sector and market interventions to drive change

- a. Designing the programmes and market interventions to drive change. We design and deliver programmes for central government, local government and Regulators to help them meet challenges in the market relating to net-zero and energy transition. We work across the policy life cycle to research challenges, design interventions, deliver new policies and monitor and learn from their implementation. We can develop business models and deliver programmes to drive net-zero and energy transition activity in the market.
- b. Delivering interventions on your behalf. We bring insight of successful policy making, and understanding of industry challenges to identify policy options, and programme delivery expertise to ensure they are delivered on time. Using operating model, capability mapping, programme management, IT development and business change, we ensure complex policies are delivered and operational to tight deadlines.

1.5 Why PA Consulting Group (PA)?

A trusted partner for cloud, AI, and digital technologies

PA Consulting Group (PA) is a leading technology and innovation consultancy and one of the UK government's most trusted advisors, combining strategy, delivery assurance and deep engineering to turn complex ambition into assured outcomes. We bring end-to-end capability across cloud architecture, data and AI, cyber, and advanced technology R&D, backed by a track record of scaling innovation in the public and private sectors.

Our UK work is anchored by secure, standards led delivery. PA maintains ISO/IEC 27001 certification across global operations, demonstrating disciplined information security and operational control, and applies UK government good practice (GDS, NCSC CAF) across cloud and digital programmes.

We combine consultancy with real engineering. At our Global Innovation & Technology Centre (Cambridge), 300+ scientists, designers and engineers operate extensive labs and studios to prototype and industrialise solutions, bridging physical and digital from concept to production.

1.5.1 Why PA for cloud, data and AI

- **Hyperscaler alliances without vendor lock-in.** PA is Premier Tier with **Google Cloud** (13+ years; 150+ certifications; specialisations in infrastructure, data analytics, app dev and security) and holds deep **AWS** and **Microsoft** credentials, accelerating secure data foundations and generative AI at scale while keeping advice independent and outcome-led.
- **Responsible AI you can trust.** Our Responsible AI framework, governance toolkits, and risk policy make AI adoption transparent, auditable, and compliant, embedding lifecycle controls, model documentation, and human-in-the-loop safeguards aligned to evolving regulation.
- **Impact beyond pilots.** We help organisations become *intelligent enterprises*, using data and agentic AI to create and protect value, with pragmatic roadmaps from use-case selection to scaled operations.
- **Proof through delivery.** Our client stories span enterprise data platforms, IoT and analytics (e.g., Rentokil Initial), and product innovation at scale (e.g., Unilever) where PA has put data and AI at the heart of continuous, market-leading improvement.

1.5.2 Cloud capability (assess, design, build, assure, run)

PA applies an assured cloud delivery approach to complex government and regulated environments, blending client-side delivery assurance, multi-cloud architecture, and resilient operations:

- **Strategy & readiness.** Maturity assessments, target operating models for hybrid/multi-cloud, and cost/benefit modelling; proportionate GDS compliance and ISO 27001 controls embedded upfront.
- **Design & architecture.** Secure, well-architected patterns across Azure, AWS, and Google Cloud; data platforms, identity and access, and cross-domain solutions for sensitive estates.
- **Build & deploy.** Cloud-native engineering, DevSecOps (CALMR), CI/CD, infrastructure-as-code; automated testing and quality assurance to accelerate safe release.
- **Migration & modernisation.** Legacy transformation, platform reviews, and workload migration tuned to resilience and cost; pragmatic FinOps to keep spend predictable and efficient.
- **Operate & optimise.** Observability, incident management, performance tuning, backup/restore, and change management, maintaining business continuity and reducing total cost.
- **Client-side delivery assurance.** Forward-looking, risk-based assurance that keeps complex programmes on track, covering governance, architecture, testing, migration, service readiness and cutover. See our *IT Delivery Assurance* service.

1.5.3 AI, ML and data (from strategy to scale)

- **Strategy & governance.** AI blueprints, operating models, and policy; enterprise data governance; regulatory readiness; centre-of-excellence setup and change adoption.
- **Engineering & MLOps.** Data platforms on Azure/AWS/GCP, pipelines and feature stores; robust ML lifecycle with monitoring, drift detection and auditability.
- **Generative & agentic AI.** Secure integration of LLMs (including Copilot) into workflows for measurable productivity and quality gains, using guardrails, system cards and ROI framing.
- **Responsible AI.** Lifecycle controls and assurance tooling to manage bias, security and transparency.

1.5.3.1 Quantum and emerging technologies

PA's applied physics and quantum engineering teams help clients unlock near-term value, combining quantum techniques with classical systems for decision support, advanced sensing and secure communications:

- **Decision support & optimisation.** Hybrid quantum/classical algorithms to accelerate complex planning, routing and resource allocation where speed and quality of decisions matter.
- **Quantum sensing & RF.** Novel quantum radio and Rydberg-based sensing to enhance spectrum use, detection sensitivity and resilience in contested environments.
- **Commercialisation insight.** Advisory at the “whole-stack” level, hardware, supply chain, interfaces, and ethics, to move from lab to market within national strategies.

These capabilities are industrialised at our Cambridge centre, turning concepts into robust prototypes and pre-production systems across sectors like defence, energy and transport.

1.5.4 Cyber security and digital trust

Digital trust is central to PA's approach. We design security into architecture, operations and culture, aligning to NCSC CAF and GovAssure, and delivering testing, red-team, SOC design and OT/IoT security:

- **Transformation & architecture.** Secure-by-design patterns, cloud security, identity, and cross-domain data protection (including NCSC-approved Oakdoor data diode products).
- **Assurance & regulation.** CAF/GovAssure alignment and pragmatic remediation plans for government organisations.
- **Testing & resilience.** CREST-aligned penetration testing, red-teaming, incident readiness, and operational resilience.

1.5.5 What PA will bring

Ideation & Strategy

- Cloud strategy and advisory services
- Cloud readiness assessments
- Cost/benefit and ROI modelling
- Security and compliance by design.
- AI/ML and data strategy (blueprints, operating model, governance) with Responsible AI policy and guardrails.
- Quantum opportunity framing and whole-stack commercialisation roadmaps.

Design & Architecture

- Bespoke enterprise and cloud architectures
- Integration with existing IT infrastructures
- Hybrid/multi-cloud design
- Continuity and disaster recovery
- Data platforms and MLOps patterns
- Security, privacy and resilience embedded by design in technical designs
- User-centred-design
- Secure cross-domain solutions and high-side/low-side integration where required.

Development & Deployment

- Cloud-native engineering
- Containerisation, microservices and serverless
- DevSecOps (CALMR) with CI/CD and automated testing
- Generative AI and Copilot enablement with measurable productivity outcomes and run-controls.

Implementation & Migration

- Data migration and legacy modernisation
- Vendor selection and management
- Infrastructure-as-code with progressive, low-risk cutover.

Operations & Management

- Observability, incident management, SIEM/SOC design
- Performance optimisation and cost management (FinOps)
- Backup/restore
- User training and change adoption.

Innovation & Scaling

- Scalable cloud infrastructure to support growth
- AI/ML implementation and scaling
- IoT integration
- Ongoing innovation sprints and R&D, supported by our Cambridge engineering labs for rapid prototyping and pre-production.

1.5.6 PA is fully equipped to manage any challenges or requirements you may present

Across strategy, design, build and run, PA blends independent advice with hands-on engineering, operating to ISO 27001 and UK government standards, and backed by hyperscaler partnership depth. Whether the brief is modernising a sensitive cloud estate, industrialising AI responsibly, or de-risking a quantum-adjacent programme, we bring the multidisciplinary team to get from idea to reality, safely, quickly, and at scale.

1.6 A Genuine commitment to Social Value

At PA, we believe in the power of ingenuity to create a positive human future. Central to this ambition is our commitment to developing high-quality opportunities that enable individuals to acquire leading-edge skills, all within an environment that supports personal wellbeing and growth. We invest in our people through comprehensive training and development, ensuring they are fully prepared to tackle our clients' most complex challenges and advance their own careers.

We recognise that diversity drives innovation. Therefore, our recruitment practices are inclusive, welcoming individuals from all backgrounds. Every member of our team is empowered to reach their full potential through inclusive policies, processes, and a culture that is continuously improved using robust data.

We are passionate about creating genuine opportunities for those facing significant barriers to employment. Since 2023, our Digital Apprenticeship Programme has offered a Digital and Technology Solutions Degree through the University of Roehampton or Northumbria University. Our apprentices typically include first-generation professionals, college leavers, and individuals from ethnic minority backgrounds, many living in deprived areas. Additionally, we offer summer internships for undergraduates entering their final year, hosted at both our central London office and the Global Innovation and Technology Centre in Cambridge.

Economic responsibility is integral to our purpose. PA is accredited as a Living Wage employer, and where relevant, we ensure that our suppliers and subcontractors are paid at least the minimum living wage. We are also a signatory to the Prompt Payment Code, demonstrating our commitment to fair and responsible payments to suppliers.

Our carbon reduction targets have been validated by the Science Based Targets initiative (SBTi). We have a published carbon reduction plan and are committed to achieving carbon net zero by 2040, in alignment with PPN 06/21 criteria for UK public sector contracts exceeding £5 million. In 2024, we achieved a silver EcoVadis rating, reflecting our ongoing progress in sustainability.

We are dedicated to delivering targeted social value and will collaborate with you to determine the most effective approach for you, ensuring our efforts have the greatest possible impact.

1.7 Security Clearance

PA are fully compliant with industry best practices for information security, which includes compliance with the UK MOD Industry Personnel Security Assurance (IPSA) standard, against which we are independently audited every three years. PA also has multiple sites with FSC (previously List X) where our dedicated in-house Security Vetting team are based. This allows PA to achieve security vetting of its employees in a time effective manner ensuring the correct processes are always followed (In accordance with the Security Policy Framework/GS007). As a matter of standard process, PA puts all its eligible employees through the Baseline Personnel Security Standard (BPSS), set out by the Cabinet Office. Those employees working on, or planning to work on, government projects are automatically put forward for SC clearance which are processed via UK-SV (formally the Defence Business Services – National Security Vetting). PA also process DV vetting through the UK-SV and other agencies, these are generally client sponsored.

PA currently have a large pool of cleared individuals (80% of UK Staff). Should a resource be identified where clearance is needed, the PA Security Vetting team will then process the individual through the relevant clearance procedure. The team will also be able to validate all existing clearances held by PA employees when requested.

1.8 Next Steps

This service is intended to help customers develop and deliver successful outcomes regardless of the life cycle stage they are at. PA prides itself on working with clients and helping them to deliver outcomes whilst also providing them the ability to 'stand on their own' so that they can move their solutions forward without future involvement. Please contact us on GCloudFramework@paconsulting.com to discuss your needs further.



About PA.

We believe in the power of ingenuity to build a positive human future.

As strategies, technologies, and innovation collide, we create opportunity from complexity.

Our diverse teams of experts combine innovative thinking and breakthrough technologies to progress further, faster. Our clients adapt and transform, and together we achieve enduring results.

We are over 4,000 strategists, innovators, designers, consultants, digital experts, scientists, engineers, and technologists. And we have deep expertise in consumer and manufacturing, defence and security, energy and utilities, financial services, government and public services, health and life sciences, and transport.

Our teams operate globally from offices across the UK, Ireland, US, Nordics, and Netherlands.

PA. Bringing Ingenuity to Life.

Discover more at paconsulting.com and connect with PA on [LinkedIn](#) and [X](#).

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