Empowering Aotearoa New Zealand's Digital Future

Our national data centre infrastructure

An analysis of the New Zealand Data Centre sector: its impact, energy consumption and benefits for the economy and society.

NZTech

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About NZTech

NZTech is Aotearoa New Zealand's united voice for technology. We're supercharging the growth and uptake of technology in service of a better tomorrow for all New Zealanders.

The NZTech Group is a member-funded NGO that represents over 2000 members, who employ around 10 percent of Aotearoa New Zealand's workforce.

Alongside our members, we bring the tech sector together to create collective impact, in service of our vision for a more prosperous, equitable, sustainable and safe Aotearoa New Zealand.

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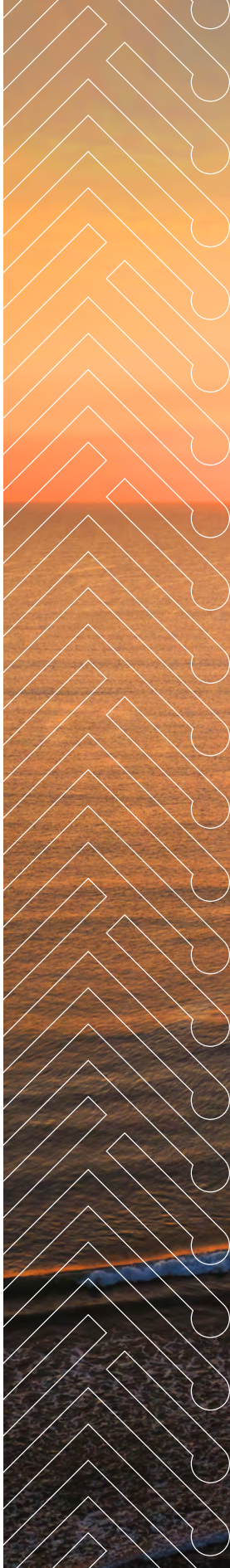


Empowering our Digital Future

Foreword

Every day, New Zealanders use technology to solve problems, grow businesses, save lives, and stay connected.

Whether it's a retailer running an online store, a doctor accessing critical patient records, a developer building the next big app, or a student streaming a lecture, almost every digital interaction relies on the infrastructure inside data centres.

These facilities quietly power the cloud platforms, artificial intelligence (AI) tools, communications networks, entertainment and business systems that make modern life work.

The strategic importance of data centres has never been greater for Aotearoa New Zealand. As digital transformation accelerates across all sectors, the demand for reliable, high-capacity, and secure data centres continues to grow.

Government policy, including New Zealand's Cloud First mandate for the New Zealand public sector, recognises the vital role of cloud and data centre infrastructure in delivering efficient, secure and future-ready services. Recent milestones, such as the government certification of New Zealand's first public cloud data centres, also marks significant progress toward a globally competitive digital economy.

This important infrastructure brings opportunity. As data centre capacity expands to meet growing digital demand, they present opportunities to lead in sustainable technology by driving energy efficiency, supporting renewable energy investment and creating skilled jobs for New Zealanders.

However, we can learn from other countries that unless data centre growth is supported by an equivalent growth in power generation and network infrastructure, this opportunity can become a risk.

As we look ahead, the continued growth and evolution of our digital infrastructure will be fundamental to New Zealand's economic prosperity, resilience, and ability to innovate on a global stage. Data centres are not simply warehouses for information; they are the backbone of growth, security and opportunity in an ever-more connected world.

This report outlines the pivotal role of data centres as crucial infrastructure for New Zealand's digital economy, examining their economic, social, and environmental impacts. It details the current state of our data centre sector and highlights case studies. It also explores how secure, sustainable, and resilient digital infrastructure can help drive New Zealand's economic growth.

Data centres present a significant opportunity for New Zealand's technology sector and broader economy, serving as a catalyst for innovation, high-value job creation, greater digital resilience, and sustainable growth on the global stage.

Delphine Ducarage
Chair, NZTech

Executive Summary

Data centres enable our everyday lives

Data centres are the backbone of digital services that empower the daily lives of every New Zealander, from essential government functions and health systems, to online banking, e-commerce and AI-powered tools. Their growth is not just important, but central to Aotearoa New Zealand's future prosperity and global competitiveness.

As technology continues to transform how we live and work, the services powered by cloud computing and artificial intelligence (AI) will be fundamental for New Zealand's success. To thrive in a fast-changing world, we need the digital infrastructure that lets our people and businesses fully embrace these opportunities.

What is a data centre and why do they matter?

A data centre is a secure, high-tech facility where digital information is stored, processed, and managed. Every email sent, app used, or transaction made relies on these facilities, which underpin the efficiency, security, and availability of digital services for individuals, businesses, and government across Aotearoa.

Exploring New Zealand's data centre landscape

- → There are currently 56 operational data centres nationwide, with another 20 planned or under construction.
- → The sector is a diverse mix of small regional centres and large-scale facilities, hosting the services from local technology businesses to international cloud providers.
- → Most are concentrated near major cities, especially Auckland, due to the proximity to end users, skilled talent, and international connectivity.

Economic, social & environmental benefits

- → **Economic Growth**
  Data centres are fundamental infrastructure, supporting $16.5 billion in ICT sector GDP and enabling a further $76.5 billion in knowledge-intensive services in 2024. The sector is a powerful engine for high-value job creation, both directly and indirectly, supporting thousands of construction, technology, and service roles nationwide.
- → **Efficiency and sustainability**
  New Zealand data centres are among the most energy efficient globally, with an average Power Usage Effectiveness (PUE) of 1.3 (well below the 1.54 global average). They are shifting rapidly to 100% renewable energy, with growth in capacity acting as a catalyst for new renewable generation. Modern data centres are 54% more energy efficient than legacy on-premise server rooms.
- → **Enabling the energy transition**
  The sector's commitment to renewable energy supports New Zealand's move toward a low-carbon electricity grid. Power Purchase Agreements (PPAs) with renewable generators have already accelerated the development of new wind, solar, and geothermal projects.
- → **Job creation**
  Employing over 1,000 direct employees, and supporting a workforce of an estimated 6,800 people looking after ongoing services in and around data centres, the sector is forecast to double its workforce by 2030. On top of this up to 15,000 construction jobs are expected as data centres are built.

- → **Tax revenue and regional development**
  More than $10 billion is being invested into data centre growth over the next decade. This large-scale data centre investment generates significant tax revenue, supporting public services and infrastructure. Regional projects are creating new digital hubs beyond the main centres.
- → **Enabling regional opportunity and data localisation**
  The localisation of data centres within New Zealand provides increasing opportunities to enable regional businesses and iwi to manage their data locally and onshore.

A new export opportunity

With global demand for secure, low-carbon digital infrastructure, especially for AI and cloud services, New Zealand is well positioned to become a regional hub for sustainable digital services and exports. Our abundant renewable energy potential, stable political climate and robust regulatory frameworks offer a strong value proposition for international operators and investors.

Sustainability and innovation leadership

New Zealand's cool climate and modern, purpose-built facilities give us a natural advantage in energy and water efficiency. Operators are leading with innovations in cooling, waste heat reuse, and modular construction, while partnerships are unlocking new renewable energy projects and climate solutions.

Unlocking New Zealand's opportunity

To fully realise the benefits and manage the challenges of rapid sector growth, collaborative action between government and industry is essential. This report recommends forming a Data Centre Industry Ministerial Advisory Group to bring together data centre operators, electricity providers and government policymakers.

This collaboration would:

01—
Streamline planning, consenting, and grid access

02—
Accelerate growth in renewable energy supply

03—
Identify opportunities to lift demand in line with capacity

Data centres are no longer just back-end infrastructure, they are the foundation of our digital economy, enablers of innovation, productivity, and a strategic lever for both economic growth and climate leadership. With decisive action and strong partnerships, Aotearoa New Zealand can seize the opportunity to be a global leader in sustainable, resilient, and inclusive digital infrastructure, delivering prosperity to communities today and for generations to come.

Empowering Aotearoa
New Zealand's digital future

56 DATA CENTRES
operating in NZ

20 NEW DATA CENTRES
in planning

104 MEGAWATTS
deployable capacity in 2025

0.6 PERCENT
of the total electricty consumed in 2025

1.8 PERCENT
of the total electricity consumend by 2030

1.3 PUE
highly efficient power usage effectiveness

2x WORKFORCE
creating 1000's of new jobs

PART ONE

Why data centres are important

Every day, we use digital services and devices often without thinking about what happens behind the scenes.

Whether you're checking the weather forecast, streaming music, shopping online, sending emails, paying bills or working and learning remotely, data centres make it all possible. They're the backbone of our digital lives. Businesses depend on them too. From booking appointments to packing New Zealand produce for export, every year more of our everyday business operations are powered by services hosted in data centres.

Even when you're not online, data centres support the essential services we all rely on for daily life and safety, from emergency response systems, natural disaster warnings, transport and banking.

Data centres work in the background to make sure you can store, process and share information whenever and wherever you need it. For example, when you do your banking, your request travels to a server in a data centre, which quickly locates the right information and sends it between your device and the bank. Backing up photos to the cloud or using apps to manage your business accounts? The data is securely stored and managed in a data centre too.

We rely on data centres for everything we do online, from sending emails to streaming videos, shopping and payments.

What is a data centre?

Data centres are highly secure facilities that house the computers and equipment needed to store, process and manage large amounts of digital information. They allow businesses to operate smoothly and efficiently by handling the technology behind online services, working behind the scenes to keep these services running smoothly, 24/7. In the past, companies had to maintain their own computer rooms onsite, managing all the equipment, maintenance and security themselves. This could be expensive, complex and risky, especially in the event of power outages, natural disasters or technical issues.

In today's digital world, almost every service you use, whether for work, learning or staying connected, depends on data centres. They keep our digital lives running smoothly, ensuring everything is available, fast and secure, 24 hours a day, seven days a week. Without data centres, many of the technologies we rely on simply wouldn't be possible.

Today, some companies still keep large servers onsite, but this can be costly, is less efficient and may introduce risks, especially when it comes to protecting customer data. That is why more businesses are choosing to use servers in data centres to manage their files and run their websites and applications.

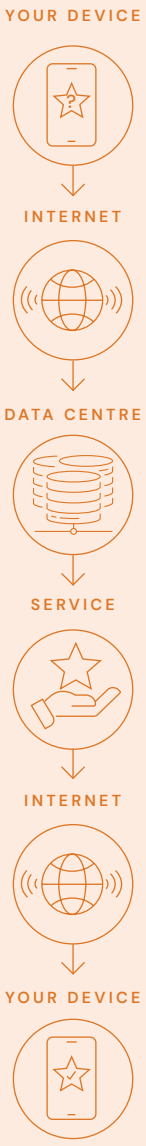
As organisations increasingly move to using data centres to manage their servers or access cloud computing, Kiwi businesses will be better connected in this rapidly evolving digital world.

Cloud computing and data centres

The term 'cloud computing' means having instant access to IT resources (for example storage, software and processing power) over the internet and only paying for what you use. Think of it like flicking a switch to turn on your lights: you don't need to generate your own electricity, you just use what you need, when you need it. In much the same way, the cloud relies on powerful computers and infrastructure housed in secure data centres.

Cloud service providers take care of the underlying technology in these secure facilities, so businesses and organisations can access the resources they need online or through private networks. Capacity can scale up or down instantly, based on customer requirements.

It's likely you're using cloud computing every day, often without even realising it. From connecting with friends and family, working remotely, shopping online and checking your bank balance, to telehealth appointments and streaming your favourite shows or music, cloud computing is the backbone of modern digital life. As our use of cloud services grows, so too does the importance of data centres here in Aotearoa.



A data centre is a secure building where computers and equipment are kept to store, process and manage large amounts of digital information. It's where your online data and services are safely run and stored.

Why use data centres?

Efficiency

Designed for scale, data centres use energy more efficiently than traditional on-site servers. Their expertise in managing energy demands helps reduce environmental impact.

Scalability

Data centres make it easier for organisations to grow, providing instant access to more computing power as business needs change.

Reliability

Built for resilience, data centres keep critical services online, even during power outages or other technical disruptions. This means government and businesses can rely on uninterrupted access to essential services and websites.

Sustainability

By consolidating computing workloads, data centres can save up to 67 percent in electricity, compared to running servers on-premises. [1]

Security

With robust physical, digital and personnel security, data centres safeguard sensitive information from theft or loss.

Cost savings

Using a data centre means businesses don't have to spend as much on expensive equipment, electricity, or IT staff to look after their own servers.

Figure 1

Data centres connect the economy

Source: NZTech analysis

Government services
Delivering essential online public services (like education, health, justice, social welfare, transport, taxation) and secure storage of records. Local council services include rates, permits and resource consents.

Banking and financial services
Managing online banking, processing transactions, supporting payment systems, fraud detection, and secure storage of financial data.

Emergency services
Supporting communication and dispatch systems for police, fire, ambulance services, emergency alerts, and disaster response coordination.

Healthcare
Storing and managing patient records, enabling telehealth, supporting hospital management systems, and ensuring fast, secure access to medical information.

Utilities
Managing power grids, waste management, water supply systems, and telecommunications networks.

Public safety and security
Running camera networks, security monitoring. and supporting law enforcement data systems.

Entertainment/gaming
Online gaming services, streaming platforms, TV and video on demand and photo and video storage.

Education
Enabling online learning platforms, storing student records, and supporting digital assessment and research databases.

Transport
Supporting airline, railway and public transport systems, traffic management, and logistics operations.

Figure 2

How data centres enable our everyday life

Illustrative example of digital interactions that take place in a typical day.

This is Sam.

Sam and her partner live in Auckland with their three children. She works for a trucking firm in the accounts team. Sam relies on technology to make her day easier and more productive. Behind every swipe, tap or click lies a vast digital ecosystem enabled by data centres making her digital interactions possible.

7AM **Getting her family ready for the day**

- → Will it rain? She checks her Metservice app
- → Using the AT app she gets the kids on the early bus and checks Google Maps for traffic before heading to work

9AM **At work**

- → Sam joins a video call with the South Island office on Microsoft Teams
- → During the morning she works in a shared Google doc on a report

12PM **On her lunch break**

- → Sam opens her banking app to pay a school fee and while on her phone checks her socials
- → Receiving a reminder from her GP she uses the Tend app to book an appointment

4PM **On her way to pick up the kids**

- → Sam receives an email to confirm next weeks parent teacher interviews

9PM **That evening**

- → Sam lets her kids watch Scooby Doo on Netflix while she makes dinner and listens to her favourite playlist on Spotify

Sam needs data centres to...

Calculate real-time weather and traffic updates

Deliver audio and video content to her laptop

Collaborate in real time

Securely connect to her bank and manage her money

Communicate with her doctor and book appointments online

Receive and send emails

Find and stream content from around the world

What's inside a data centre?

Data centres come in all shapes and sizes, each serving different needs.

Some are small and located close to users, helping deliver online services quickly by reducing delays. Others are large facilities which can be dedicated to one large organisation like the global cloud providers, or they can house more than one customer and are know as colocation data centres. No matter their size, all data centres rely on three main types of infrastructure categories - ICT, cooling and power.

ICT infrastructure

At the heart of every data centre are its servers. These are powerful computers that process and store huge amounts of data every second. These servers are organised in racks and are supported by switches, networking equipment, routers and storage drives to keep information moving and accessible.

Cooling infrastructure

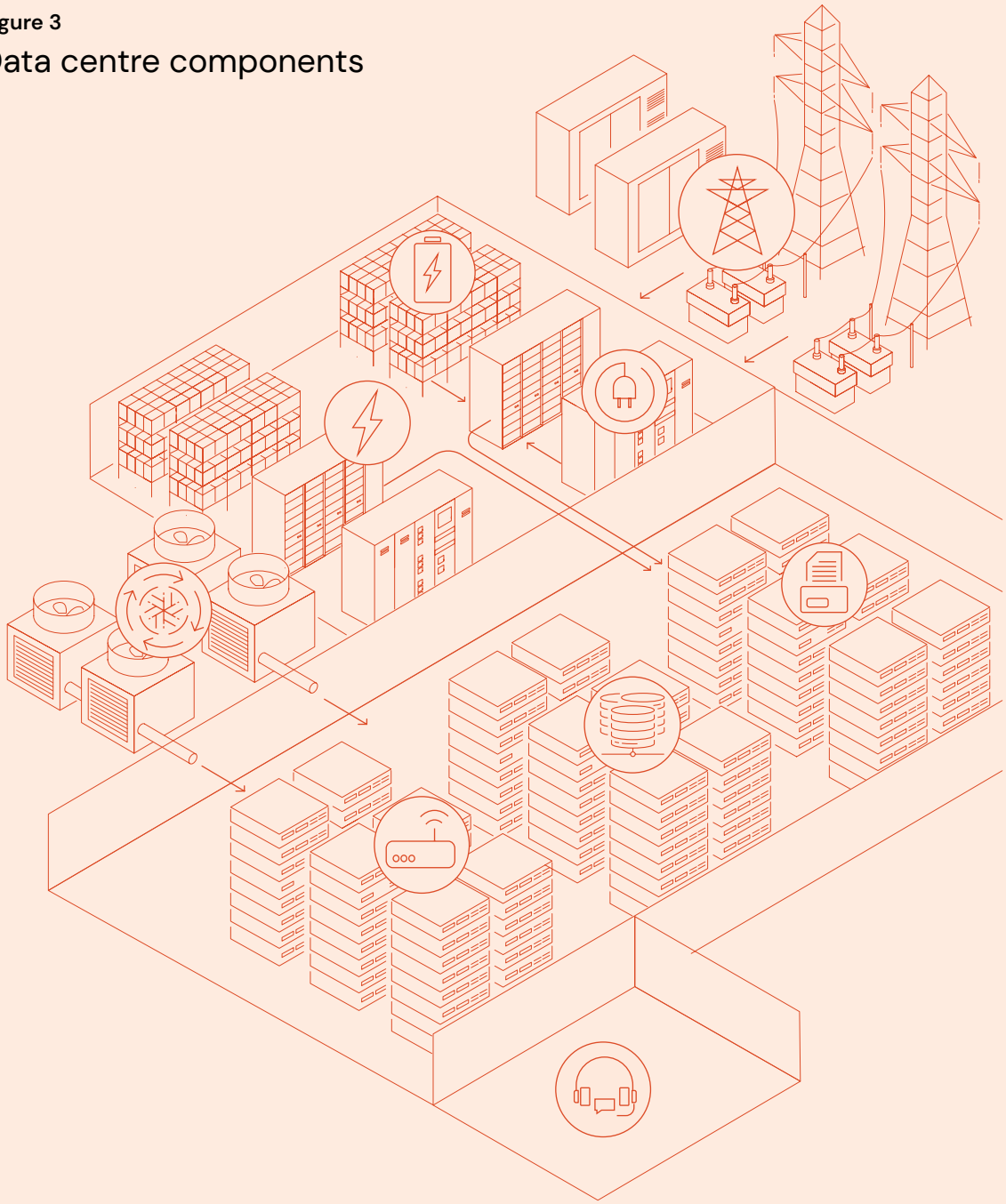
Servers generate significant heat, so effective cooling is essential to keep everything running smoothly. Most data centres use air cooling systems, for example fans, raised floors and air conditioning to circulate cool air around the equipment. Increasingly, especially in hyperscale and high-performance computing (HPC) data centres, liquid cooling is used, either through liquid coolants or immersion to cool the servers. Without adequate cooling, data centres can overheat, leading to malfunctions, hardware damage and downtime.

Power infrastructure

To keep data flowing, data centres need reliable, uninterrupted power. This is achieved with robust power systems including, uninterruptible power supplies (UPS), backup generators and advanced power management equipment, ensuring services stay online even during outages.

Figure 3

Data centre components



- Data racks
- Power supply and back up generators
- Power distribution
- Switches and routers
- Battery back-up
- Air conditioning and cooling systems
- Storage racks
- Uninterrupted power supply
- Tech support

Operating and powering a data centre

The energy a data centre uses depends on the volume of transactions or calculations carried out by the users of the digital services being run in the data centre. This means data centre energy use fluctuates in line with our everyday digital activity. This is why energy efficiency is so important.

Running a data centre effectively means more than just keeping the lights on. It requires maintaining reliable system uptime, supporting the high processing demands of today's digital world, and optimising energy use and costs. Robust power infrastructure, including uninterruptible power supply (UPS), backup generators, and intelligent energy management is essential for keeping IT hardware, cooling systems, and other critical components operating without interruption.

Uptime and why it matters

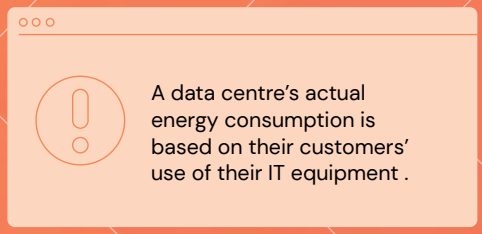
Uptime is a top priority for every data centre. Uptime refers to the amount of time a data centre and its services are operational and available for use. In other words, it's a measure of how reliably a data centre can keep digital services, for example websites, banking, email or business applications, up and running without interruption.

For data centres, maintaining high uptime is essential. Modern life depends on secure, reliable access to digital tools around the clock, whether it's for business, learning or simply staying connected. Even a brief outage can mean lost productivity and missed opportunities.

For mission critical services including healthcare, emergency services, banking and telecommunications, even a brief period of downtime can have serious, and sometimes life-threatening consequences. Even if a customer doesn't need 24/7 access to their data, the data centre must continue running to store and manage information securely. That's why data centres are designed with robust power systems and advanced security to ensure continuous operation. High uptime also means businesses, government services and everyday users can trust that their data and digital services will be available whenever they need them.

Where does this energy come from?

The primary source of electricity for data centres is the national grid, the same network that powers our homes and businesses. This grid includes power stations, high-voltage transmission lines and local distribution networks delivering energy directly to the data centre. To ensure uninterrupted service, data centres also have back-up systems, for example onsite batteries and generators to provide energy if there's a grid outage.



CASE STUDY

Advanced battery monitoring in data centres

In today's digital economy, constant and uninterrupted power is essential for data centres - particularly with the exponential growth of digital and AI applications that demand always-on, high-performance computing. Yet power from the grid is not always stable. Even brief fluctuations can trigger UPS alarms, server reboots, and in worst cases, unplanned downtime. The cost of such failures is significant, not just in financial terms, but in reputation damage, contractual liabilities, and regulatory exposure. Power failure for a data centre can even have consequences for public health and safety and order.

Downtime is expensive. According to the Uptime Institute, one in five impactful outages cost more than $1 million.[2]

Battery systems are now a critical layer of infrastructure in this environment. However, cost pressures have led to a decline in overall battery quality, regardless of whether they use lithium-ion, lead-acid, or other chemistries. Monitoring battery health has never been more essential.

PowerShield is a market leader in advanced battery monitoring and management solutions. For 25 years, this New Zealand hi-tech firm has delivered robust systems globally, used in data centres, hospitals, utilities, and where power is critical. PowerShield8, its flagship solution, developed and manufactured in New Zealand, is in operation in over 50 countries ensuring batteries remain healthy and ready, empowering facilities with reliable backup power when it matters most.

Renewable energy supply

Data centre operators are seeking to lower their environmental impact through renewable energy sources, including solar and wind. Many now use Power Purchase Agreements (PPAs) or Large Generation Certificates to secure renewable energy directly from generators, helping to reduce their carbon footprint and support New Zealand's sustainability goals.

Power Purchase Agreements (PPAs) offer benefits for everyone involved: the purchaser, energy supplier and national grid. By securing long term agreements to buy renewable energy, PPAs bring vital investment to enable renewable energy developers, helping them deliver new projects and accelerate the transition to renewable energy sources. This means more renewable energy is added to New Zealand's overall energy supply.

For data centres, PPAs are an effective way to balance customers needs with sustainability goals. They allow data centres to remain close to where demand is highest, typically near cities, so they can deliver fast, reliable service and minimise latency (the delay users experience when accessing online services). Lower latency means quicker response times and a better experience for users.

Many organisations are focused on delivering latency-sensitive workloads as close to their customers as possible, supporting back up and disaster recovery. This ensures critical business information is protected and always available. At the same time, some data centre operators are planning facilities next to renewable energy zones. These sites are ideal for tasks that aren't as sensitive to latency, for example dedicated AI training, and allow operators to maximise the use of renewable power directly at the source.

Understanding latency: why speed matters!

Latency is the time it takes for data to travel between a user's device and the data centre where information is processed, stored or retrieved. It is typically measured in milliseconds (ms).

Long lag times or poor latency means:

- Your apps and data take a long time to load
- The software or system you are using crashes and loses your data
- The kids complain because they can't watch YouTube or their favourite TV shows
- Your music isn't loading quickly
- and in the future, your autonomous car can't respond fast enough.

CASESTUDY

Pioneering renewable-powered data centres in New Zealand

In 2023, Amazon Web Services (AWS) and Mercury NZ announced New Zealand's first long-term corporate power purchase agreement (PPA) between an energy company and a technology provider. This 103-megawatt (MW) agreement supports the Turitea South wind farm, near Palmerston North. AWS will purchase approximately 50 percent of the wind farm's output, more than the renewable energy required to power the new AWS Asia Pacific (Auckland) Region data centres. This PPA with Mercury NZ enables AWS's Auckland data centres to run on renewable energy from day one, supporting New Zealand's transition to a low-carbon digital economy. The deal also provided Mercury with the commercial certainty needed to invest in new renewable generation, directly supporting the development of additional renewable generation capacity for New Zealand's electricity grid. AWS's investment in renewable energy in New Zealand is part of its more than 600 global solar and wind projects. Amazon is the largest corporate purchaser of renewable energy globally for the fifth year in a row.

> Our agreement with Amazon reflects our shared ambition to contribute to the low-carbon transition. We're proud to be powering their operations here in New Zealand, helping drive the continued growth of renewable generation.
>
> **Tim Thompson,**
> **Executive General Manager - Wholesale Markets, Mercury NZ**

AWS Asia Pacific (Auckland) Region

In September 2025, AWS launched its AWS Region in Auckland, a long term investment of $7.5 billion, expected to contribute $10.8 billion to New Zealand's GDP over 15 years and create 1000 jobs.[3] The new Region will enable Kiwi organisations of all sizes – from startups to enterprises, and from public sector to non-profits – to leverage cutting-edge technologies, meet data residency requirements, and serve the growing demand for cloud services in New Zealand. Through the Region, companies and organisations will be able to access the broadest and deepest portfolio of cloud services, including analytics, artificial intelligence, compute, database, Internet of Things, machine learning, mobile services, and storage.

Sustainability and resiliency

AWS's infrastructure is designed for energy and water efficiency, with advanced cooling, custom AWS processors (like Graviton), and a commitment to being water positive, returning more water to communities and the environment than used by data center operations by 2030. These innovations make AWS up to 4.1 times more energy efficient than typical on-premises data centres. AWS also provides tools to help customers measure and reduce their own IT emissions.

New data center components are projected to reduce mechanical energy consumption by up to 46% and reduce embodied carbon in the concrete used by 35%.

Where some other cloud providers may define a region as a single data centre, AWS's Region design of having at least three availability zones (AZs) offers significant advantages for customers. Each AZ has independent power, cooling, and physical security, and is connected via redundant, ultra-low-latency networks. This offers AWS customers high availability and greater fault tolerance. This distinct design helps ensure applications are protected against disruptions, like human mistakes, unexpected traffic spikes, floods, utility failures, earthquakes, or even a global pandemic.

Where does the power go?

A data centre uses electricity to run and cool a range of critical components, all of which make up its essential infrastructure. Here's how the energy is used:

Servers and IT equipment

The main energy draw comes from servers and other computing hardware. These are the engines that store, process and move our digital information. A steady supply of electricity is needed to ensure servers, processors, hard drives and networking equipment run reliably.

Cooling systems

Servers generate a lot of heat, so cooling is vital to maintain safe operating temperatures. Modern data centres in New Zealand are designed to minimise water use, often relying on free air cooling that uses the mild local climate to keep equipment cool. Some centres use closed-loop cooling systems that recycle water, ensuring its efficient use. Fortunately, New Zealand's mild weather means our data centres have an advantage that they need less energy and water for cooling compared to many overseas facilities.

- → **Cooling efficiency**
  Cooling remains one of the largest sources of energy use in data centres. Operators are always looking for ways to improve efficiency, for example using outdoor air, real-time sensor data and adapting systems to seasonal changes. This not only reduces costs but also helps meet sustainability goals.
- → **Water usage effectiveness (WUE):**
  WUE is an industry standard that measures how much water is used per kilowatt-hour (kWh) of IT load. International best practice is to minimise water use by using real-time data to identify leaks and track efforts to maintain or improve WUE. In New Zealand, most data centres use very little water due to our naturally cool climate.

Lighting and other systems

Beyond the IT hardware, data centres also need power for lighting, so staff can safely work and inspect equipment, as well as security systems, alarms and monitoring technology to keep the facility operational.

CASESTUDY

World leading approach to water efficiency

Since 2007, CDC Data Centres has pioneered a world leading standard for water efficiency in data centre operations through its innovative closed-loop liquid cooling system. Unlike conventional cooling methods that consume and evaporate large volumes of water, CDC's system recirculates cooling water within its purpose-built facilities. This breakthrough design saves CDC more than 1 billion litres of water annually across its New Zealand sites, the equivalent to approximately 400 Olympic swimming pools.[4]

Driven by the objective to build sustainable, future-proofed data centres, CDC has redefined how the sector approaches water use. The closed-loop system is at the heart of CDC's water strategy, ensuring water is used efficiently while providing the cooling necessary for modern IT infrastructure. This technology enables CDC to support high power density workloads, including AI and advanced cloud computing, across its entire footprint, without drawing excessive water resources from local communities.

CDC commitment to water conservation extends beyond its core cooling technology. The company has also implemented water-efficient fittings and on-site rainwater collection tanks, further minimising its environmental footprint. CDC also actively collaborates with partners to identify new water-saving opportunities, supporting ambitions for net-zero water use and water positivity.

By removing the need to consume millions of litres of water daily for cooling, CDC's approach ensures that vital water resources remain available for communities. This world-leading initiative demonstrates that it is possible to deliver critical digital infrastructure while setting new benchmarks for environmental stewardship in the data centre industry.

Energy efficiency in data centres

Data centre operators are increasingly focused on measuring and tracking the capacity, efficiency and sustainability of their facilities. By doing so, they can optimise operations, ensure reliable service and make informed investment decisions.

Power usage effectiveness (PUE): what it means and why it matters

Power usage effectiveness (PUE) is the most widely used measure of data centre efficiency. The lower the PUE, the more efficiently a data centre uses energy. A perfect PUE score is 1.0, meaning all energy goes directly to computing, with nothing used on cooling, lighting or other infrastructure. PUE is calculated using internationally recognised standards of the International Organization for Standardisation (ISO). Globally, data centre efficiency is improving. The average PUE has dropped from 2.5 in 2007 to 1.54 in 2024.[5] New Zealand's data centres stand out for their efficiency, with an average PUE of 1.3, aligned with recent Australian research.[6] This is largely due to our cooler climate and the fact that most of our data centres are modern and purpose-built.

Why scale matters

Large-scale data centres can achieve much greater resource utilisation and energy efficiency compared to organisations running their own servers in-house. By pooling resources, data centres enable customers to share infrastructure, reducing waste and boosting efficiency. An international study shows that running optimised workloads in a data centre is up to 4.1 times more efficient than running them on-premise.[7]

Predicting and improving performance

Before building new data centres, operators often use advanced modelling methods, including computational fluid dynamics tools, to predict and optimise data centre design.[8] These tools help design for maximum reliability and efficiency. Once operational, real-time, physics-based models allow ongoing optimisation.[9]

Why do data centres running AI workloads differ?

Data centres running artificial intelligence (AI) workloads are less concerned about latency and in some instances workloads can be scheduled rather than following the timing demands of users. However, running these workloads requires servers packed with high density graphics processing units (GPU). The need for fast communication between these GPU chips means they are installed close together, which increases heat. To manage this, many advanced data centres now use a mix of air and liquid cooling, known as multimodal cooling, to keep systems running efficiently and reliably, even under the heavy demands of AI.[10]

New Zealand's data centres are very efficient with an average PUE of

1.3

PART TWO

New Zealand's Data Centre Landscape

As Aotearoa New Zealand steps into the digital age, data centres have become vital engines powering economic growth, digital innovation and a potential new export opportunity for our country.

Modern data centres are now essential infrastructure, removing barriers to innovation, enabling secure and high-speed environments for AI, data storage, processing and connectivity. They support productivity across every sector and are the backbone of seamless digital technologies. New Zealand's unique strengths, including abundant renewable energy, political stability and proximity to Asia-Pacific markets, position it as a leading destination for sustainable, world-class data centres. These facilities not only drive productivity gains for New Zealand, but also create new pathways for economic growth and high-value digital exports across Aotearoa.

Data centres in New Zealand

Most data centres in New Zealand are located near our main cities to meet local demand, minimise latency and ensure network resilience. The sector is a diverse mix: from small, regionally focused data centres to large colocation and cloud facilities. These serve a wide client base, including government, banks, Software as a Service (SaaS) exporters, local businesses, startups and everyday consumers.

Currently, there are 56 data centres operating nationwide, with another 20 in various stages of planning or construction. The majority are small, over half (58 percent) have less than 1MW of capacity. Of the planned facilities, ten are small regional sites of less than 1MW.

This research does not include the small number of private large scale on-premise data centres operated by data intensive organisations.

Data centres often need to be close to consumers to meet their demand

As can be seen in Figure 4, data centres are concentrated near our main cities. Auckland is the clear hub, hosting 45 percent of New Zealand's operational data centres. Outside Auckland, most new projects are smaller regional facilities, with notable growth in Hamilton, driven by its proximity to Auckland, its tech sector and its role as an agri-business hub. The South Island is also set for growth, as the new Te Wai Pounamu submarine cable will boost local data centre development around Invercargill by improving international connectivity.

Understanding the pipeline

It's important to note that public announcements about new data centres reflect a mix of scenarios and timelines, from fully consented projects already under construction, to long term plans. Publicly listed companies including CDC[11] and Spark[12] break down their data centre portfolios by Total Operating Capacity, Total Capacity Under Construction and Total Future Build Capacity. More detailed analysis of these scenarios, including their impact on electricity use, can be found in the section on power consumption. What's clear is that data centre investment is planned across the country, supporting our digital future.

Situating data centres close to cities helps deliver fast, low-latency digital experiences, provides easy access to skilled workers and reliable power supplies, and strengthens overall network resilience. These strategic locations ensure data centres can efficiently support the needs of local businesses and communities, while maintaining high standards of service and reliability.

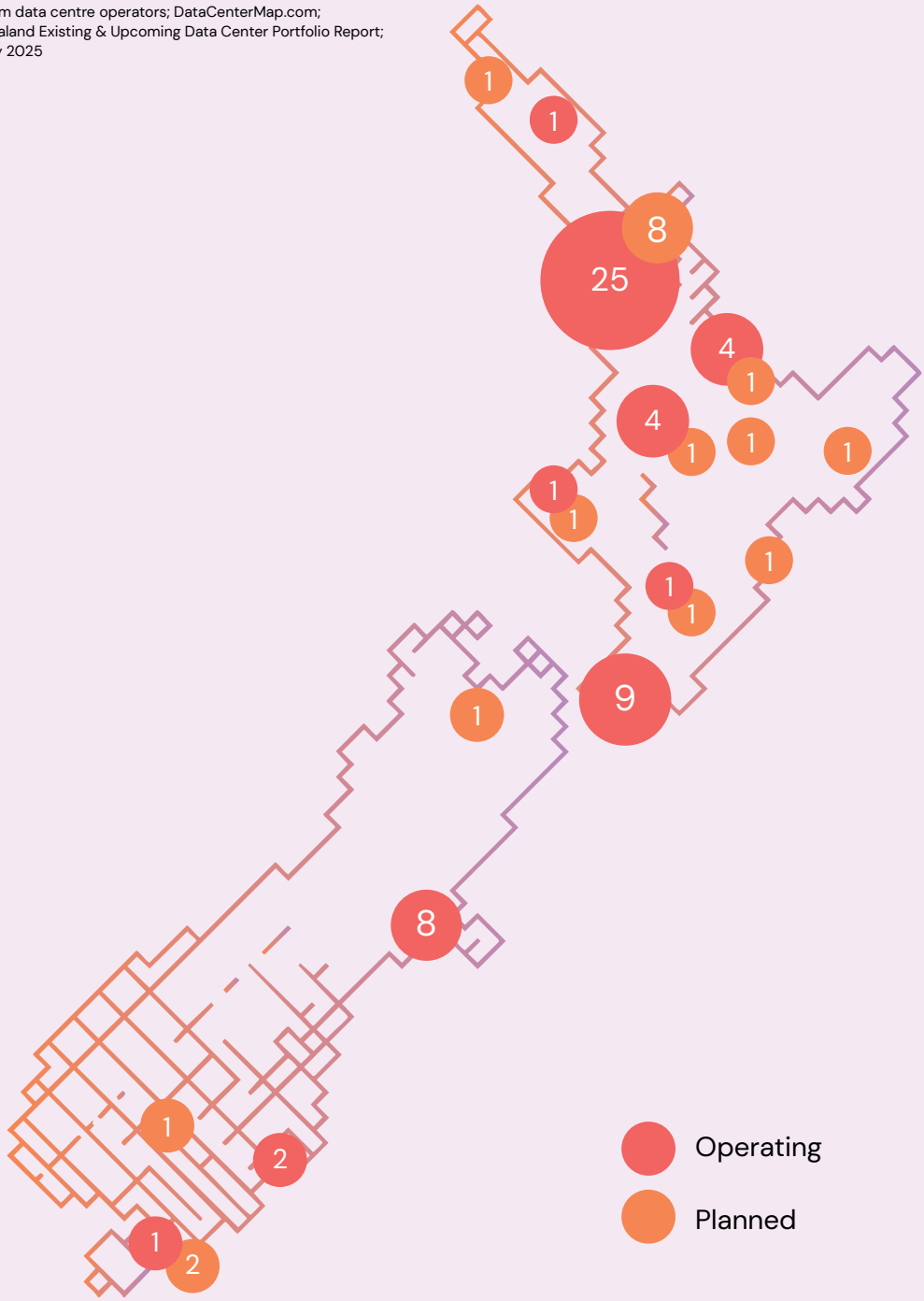
56

data centres currently operating throughout New Zealand

Figure 4

New Zealand Data Centre Locations

Source: Data collected from data centre operators; DataCenterMap.com; DataCenters.com; New Zealand Existing & Upcoming Data Center Portfolio Report; and expert interviews. July 2025



This figure excludes on-premise data centres. Bubble size reflects the number of data centres in each location. Planned data centres represent all operators' current and future plans, from facilities already under construction to longer-term projects that may proceed as demand grows.

CASESTUDY

Bringing hyperscale cloud to Aotearoa

In late 2024, Microsoft opened its first hyperscale data centre region in Aotearoa New Zealand, marking a significant milestone for the nation's digital infrastructure. This move, part of a multi-billion-dollar investment, was designed to boost local cloud computing, AI capabilities, and support New Zealand's ambitions for digital transformation—all with a strong focus on environmental sustainability.

Hyperscale Cloud: What It Means for Aotearoa

- **Scale and Capability**
  Microsoft's New Zealand cloud region consists of three separate data centre zones in Auckland, equipped for high-availability, low-latency, and disaster recovery.
- **Local Benefits**
  This infrastructure enables public sector organisations (like government agencies) and businesses (from banks to farms) to store and process data onshore, improving speed, security, and compliance with data residency requirements.
- **Innovation Platform**
  The cloud region supports rapid adoption of AI, big data analytics, and next-generation digital services, positioning New Zealand as a digital leader in the South Pacific.

Sustainability Commitments: Setting a New Benchmark

Microsoft has declared its New Zealand data centres as one the most sustainable in its global portfolio[13], setting ambitious environmental goals:

- **Renewable Energy & Local Partnerships**
  Microsoft signed a 10-year agreement with Contact Energy in 2022, investing $300 million to support the construction of the Te Huka 3 geothermal power station in Taupō. This 51.4MW plant generates reliable, renewable electricity—enough to cover Microsoft's needs and feed surplus energy back to the grid. Microsoft's Auckland data centre operates on 100% renewable energy.
- **Innovative Water-Free Cooling**
  Unlike many overseas data centres that use huge quantities of water for cooling, Microsoft's New Zealand facility uses air-based cooling systems. This reduces strain on local water resources, an important factor in regions prone to drought.
- **Supporting Local Sustainability Initiatives**
  Microsoft committed to upskilling 100,000 New Zealanders in digital and cloud-related skills over two years, partnering with educational providers and offering free certifications. This initiative helps ensure the local workforce can support and innovate with cloud and AI technologies.

Microsoft's hyperscale cloud investment in Aotearoa is more than just a technology upgrade—it's a blueprint for how business growth, digital transformation, and environmental stewardship can go hand-in-hand. By tying infrastructure expansion to renewable energy development, pioneering water-free cooling, and enabling local businesses and communities to innovate sustainably, Microsoft is helping to "see tomorrow first" for New Zealand's digital and green future.

Private investment is fuelling data centre growth

The growth in data centres across New Zealand is being driven by consumers' increasing needs and by private businesses seeking more computing power as they adopt digital solutions to boost sales, productivity and innovation. Businesses are investing in digital infrastructure to unlock new capabilities, strengthen cybersecurity, reduce costs and create new ventures. Research suggests that if New Zealand businesses increase the use of advanced digital technologies by 20 percent, industry output could grow by up to $26 billion over the next decade, with GDP rising as much as 2.08 percent per year.[14]

It's not just demand that's private sector-led, the supply side is too. More than $10 billion of private sector capital will be invested across the next decade, including investment in renewable energy.[15] In comparison, the ultra-fast broadband roll-out, the last major build of digital infrastructure, cost the Government $1.8 billion over 12 years.[16]

Auckland: New Zealand's data centre hub

Auckland is at the heart of New Zealand's data centre activity for several key reasons:

Economic and population centre
Home to over a third of New Zealanders and a high concentration of businesses, Auckland generates strong demand for digital infrastructure.

International connectivity
As the landing point for most international submarine fibre optic cables, Auckland enjoys direct, high-capacity links to Australia, the USA and Asia, supporting global cloud services and digital exports.

Proximity to customers and infrastructure
A significant number of major enterprises, government services, and SaaS exporters are clustered in Auckland. This concentration enables operators to deliver low-latency, reliable services, supported by the city's robust energy, telecommunications and transport infrastructure, as well as its cool climate, which aids efficiency.

CASESTUDY

Enabling sovereign cloud and connectivity

For more than fifteen years, Voyager Internet has partnered with Datacentre220, making the Auckland facility a cornerstone of Voyager's national network. Attracted by DC220's carrier-neutral approach and its prime location in the heart of Auckland's CBD, Voyager established a major presence there, anchoring its Auckland infrastructure. The independence from carrier ownership meant Voyager could avoid vendor lock-in, access a fair and open ecosystem, and connect directly to a wide range of ISPs and fibre providers. This enables delivery of low-latency, high-reliability internet and cloud services to customers.

This partnership has enabled Voyager to scale up its virtual data centre and hosting services, offering fully onshore, sovereign cloud solutions for New Zealand businesses. Sovereign cloud refers to cloud computing services that ensure data is stored, processed and managed within a specific country or jurisdiction, in compliance with local laws and regulations. The goal is to give organisations, especially governments, public sector agencies and regulated industries, greater control over their data, ensuring it remains protected from foreign access or influence. Voyager's investment in DC220 means customers benefit from a hyper-connected environment, with direct access to national fibre providers, internet exchanges, and peering partners, reducing complexity and improving resilience.

Sustainability has been a key focus throughout. Datacentre220 is powered entirely by renewable energy and built for efficiency, achieving a power usage effectiveness (PUE) below 1.4. By consolidating infrastructure within this energy-efficient environment, Voyager has reduced its carbon footprint and electronic waste, supporting environmental goals without compromising performance or reliability.

Voyager invested early in educating the market about the benefits of sovereign cloud, highlighting the risks of offshore solutions and the value of local control. Choosing a carrier-neutral facility was essential in avoiding restrictive vendor relationships and enabling a truly multi-provider, resilient architecture. Scaling infrastructure in a dense urban environment brought logistical hurdles, but DC220's design, including diverse fibre routes, dual power feeds, and robust cooling made it possible to build a scalable, high-performing presence at the city's core.

> Voyager's partnership with Datacentre220 demonstrates how local collaboration can fuel sovereign digital infrastructure that is scalable, sustainable, and ready to power New Zealand's future economy.
>
> **Deidre Steyn, CEO of Voyager Internet**

Data centres are creating jobs across Aotearoa

The evidence is clear: greater adoption of digital technology drives economic growth and job creation.[17] Data centres underpin this growth and transformation. Not only do they enable new digital services and business opportunities, but they also directly contribute to job growth in New Zealand.

Every new data centre build generates significant local employment, particularly in construction. A single facility can require upwards of 2,000 construction jobs during its build phase. With all currently planned data centres, the total construction workforce is estimated to reach between 11,500 and 15,000 jobs.

Once operational, data centres are highly efficient, employing just over 1,000 people directly in data centre operations nationwide. However, only looking at the people directly employed by data centres misses the point that data centres support a much broader range of employment in New Zealand. When you include IT professionals working onsite for customers, as well as workers supporting plant maintenance, power systems and security. In total, ongoing services in and around New Zealand's data centres support an estimated 6,800 jobs.

As many as

15,000

construction jobs will be created by the current planned data centre investments

Data centres and the ongoing services in and around them support an estimated

6,800 jobs

Looking ahead, the growth in data centres is expected to double the data centre workforce by 2030.[18]

Drawing on experience from Australia, the data centre workforce is made up of a wide range of roles (see Figure 5). With 11 percent maintaining and operating critical hardware, 17 percent overseeing operations planning, 21 percent looking after day-to-day operations and 30 percent managing the IT infrastructure, data security and system performance.

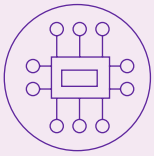
As in other countries, there's a real risk of skills shortages slowing the development of New Zealand's digital infrastructure. Many roles are in short supply, leading to a heavy reliance on international talent - 45 percent of technology workers in 2023 held resident visas.[19] Addressing these skill gaps will be essential to ensure the sector's success.

Figure 5
Composition of data centre workforce
Source: Empowering Australia's Digital Future. Mandala, 2024

Data centre workforce

Composition of workforce

% of data centre workers



Operational roles

1 in 10 workers maintain and operate critical hardware

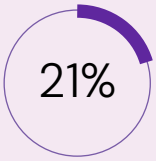
Executives and managers

2 in 10 workers oversee operations and strategic planning

Business ops. & other professionals

1 in 10 support the overall functions and administration

Clerical, sales, admin. workers and other



2 in 10 handle day-to-day operations

ICT professionals

3 in 10 manage IT infrastructure and ensure data security and system performance

Data centres and electricity

Digital technologies and services are deeply embedded in modern life, impacting communication, business, education, and various other aspects of daily living. New Zealanders are spending more time online than ever[20], and business use of cloud computing is driving digital transformation in Aotearoa, contributing nearly 6 percent of the country's GDP.[21] On top of this, emerging technologies like AI are expected to significantly enhance productivity and convenience across various aspects of life and work. All of this economic activity relies on electricity and the most efficient way of supporting this demand at scale is via aggregation in data centres.

Understanding deployed capacity

The power consumption of a data centre is highly commercially sensitive, as it can reveal information about their customer's business performance. For this reason, most operators don't publicly disclose their current or projected energy use. Instead, for marketing and reporting purposes, data centres typically promote their total planned maximum power consumption, known as deployed capacity.

Deployed capacity refers to the maximum amount of power, cooling and network resources a data centre can provide to support current and future IT workloads. It's measured as the total power the facility could draw when operating at full capacity. However, data centres rarely use their full deployed capacity in practice. Recent Australian research shows that large, modern data centres on average operate at about 89 percent of their designed maximum.[22]

It's also important to avoid double counting when operators lease space in other facilities, known as colocation. In our calculations, we excluded leased capacity, as these figures are already included in the colocation provider's total numbers. For a full explanation of our methods, please see the appendix.

New Zealand data centres deployed capacity

New Zealand's data centres currently have a combined deployed capacity of 104 megawatts (MW). This figure represents the maximum power available for data centre operations across the country. It includes, not just the energy needed for IT equipment, but also the power required for essential support systems, including cooling and backup infrastructure. For a detailed breakdown of how this capacity is calculated, please see the methodology in the appendix.

New Zealand data centres currently have

104MW

of deployed capacity

How much electricity do New Zealand data centres use?

Data centres act as central hubs that concentrate the electricity needed to power everything we do online. Every swipe, tap and click generates a demand for energy that's efficiently managed by data centres. This demand is consolidated by data centres, rather than being spread across thousands of individual businesses and homes. This centralisation allows data centres to leverage the most modern, efficient computing infrastructure available.

While New Zealand's data centres have a combined deployed capacity of 104MW, this figure represents their potential rather than their day-to-day electricity use. Actual electricity consumption is lower, as many of the data centres are not yet operating at capacity. Even then data centres will always maintain spare capacity to manage fluctuating demand and heat.

Using industry averages, we estimate that currently operating data centres will use around 238 gigawatts hours (GWh) of electricity this year, or 0.6 percent of New Zealand's total electricity consumption. For comparison, New Zealand households account for 34 percent of the national total.[23] For further detail on how we calculated these figures, please refer to the appendix.

How data centre electricity use compares

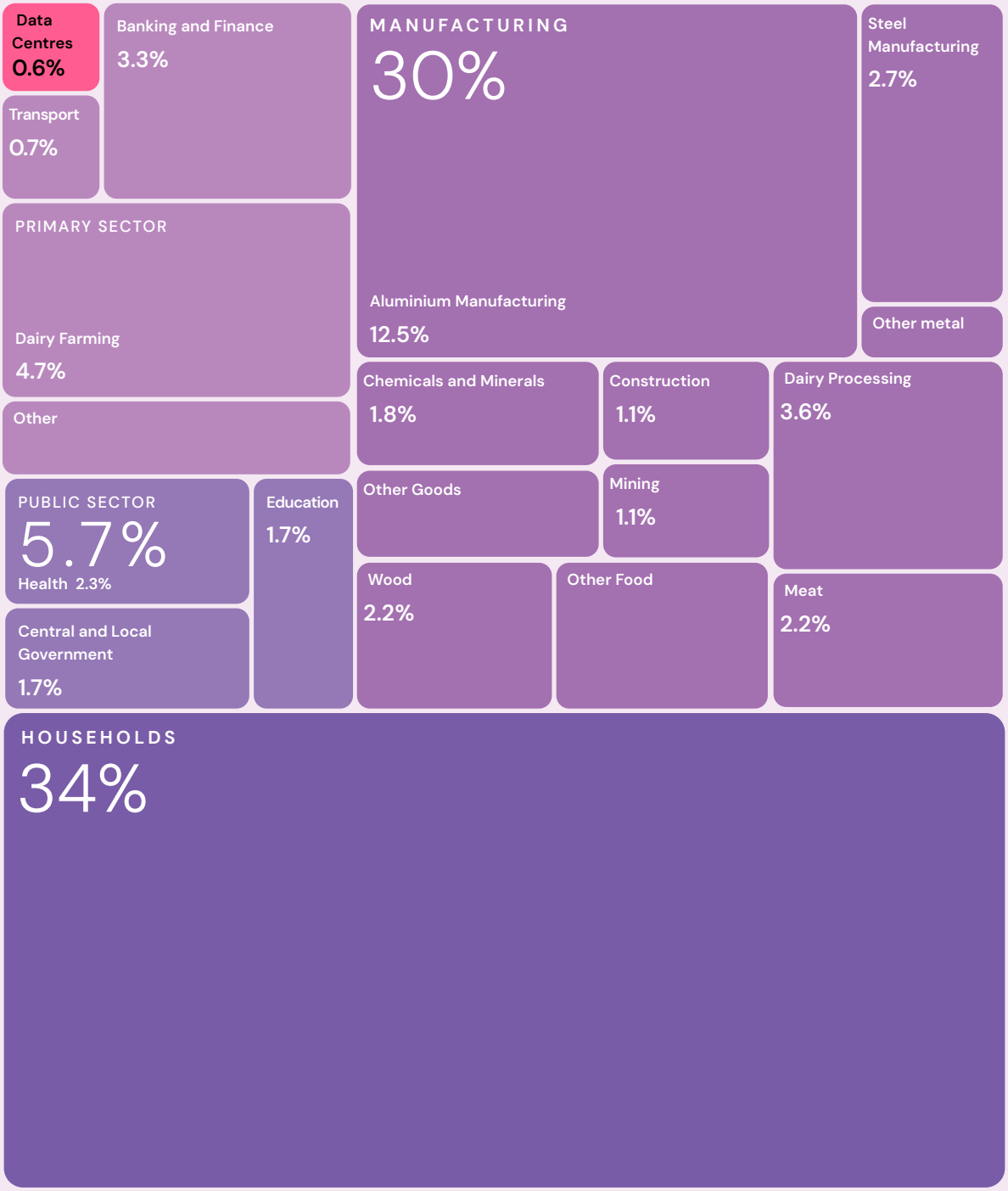
The combined electricity consumption of New Zealand's 56 data centres, approximately 238 GWh, is relatively modest in the national context. This is less than the annual electricity use of our central government. To put it further in perspective, it's only a fifth of the electricity consumed by steel manufacturing,[24] and just 5 percent of the annual electricity required for aluminium manufacturing in New Zealand.[25]

New Zealand data centres only consume

0.6%

of New Zealand's electricity

Figure 6
Electricity consumption by sector
Source: Using 2023 numbers for electricity consumption by sector, from Energy End Use Database, EECA (2024)



Forecasting future data centre demand

Data centre demand across the New Zealand economy continues to rise, and the electricity sector is actively investing in new generation to keep pace. According to the Ministry of Business, Innovation and Employment (MBIE), total national electricity demand is expected to reach around 50,503 GWh by 2035.[26] To meet this growing need, 30 new electricity generation projects are currently committed and underway, set to add 1,439 MW of generation capacity or approximately 2,928 GWh of additional annual electricity supply. A further 102 projects in the pipeline are being actively pursued that are forecast to deliver an additional 16,757 MW of capacity or approximately 48,683 GWh of additional annual electricity supply.[27] Collaboration and coordination between the electricity sector and large energy users should enable these planned investments to continue in line with demand growth.

Several factors are driving this increase in demand in electricity, including the electrification of industry and transport, population growth and the expanding use of digital technologies. Data centres are a key part of this trend, with 20 new facilities currently at various stages of planning nationwide.

Based on the detailed plans and timelines provided by data centre operators, New Zealand's total deployed data centre capacity is projected to grow to around 315 MW by 2030. This forecast is based on a bottom-up analysis of actual operator plans, but there are many variables that could influence the scale and timing of future investments. For example, if digital adoption or AI uptake grows faster than expected, demand for data centre capacity could increase. Conversely, if demand falls short, some projects may be delayed or not proceed. There's also potential for large investments if New Zealand develops as an export hub for data centre processing. To better understand the potential scale and timing of data centre capacity, three additional scenarios were developed, as shown in Figure 7. For further detail on these calculations, please refer to the appendix.

The resulting electricity consumption will also depend on a number of factors. To provide a sense of the variety of outcomes, four scenarios were developed (Figure 8) which project data centre electricity consumption to be approximately 1,024 GWh, or just over 2 percent of national electricity demand by 2030.

18,196MW

of new generation capacity committed or being actively pursued.

By 2030, data centres estimated to need

315MW

Figure 7
Future Deployed Capacity Scenarios (MW)
Source: Data centre operators, expert interviews, NZTech analysis

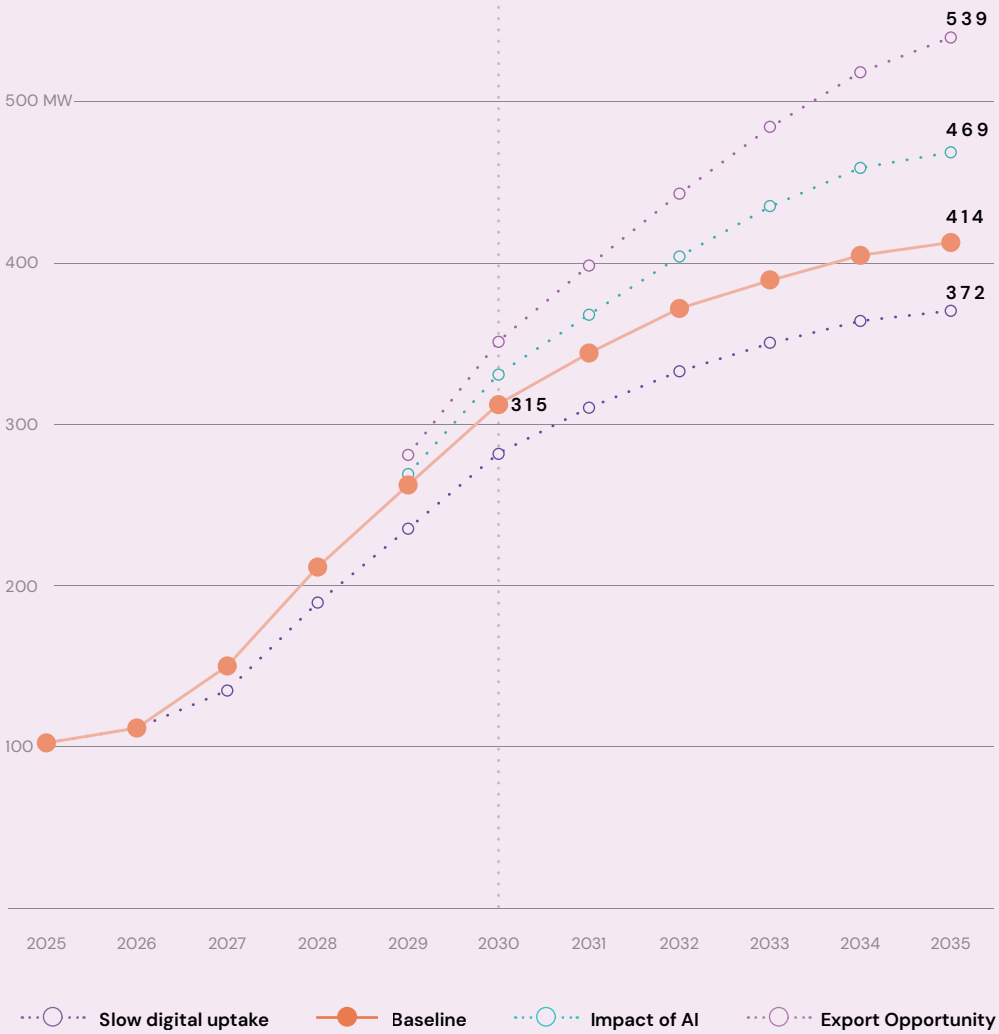
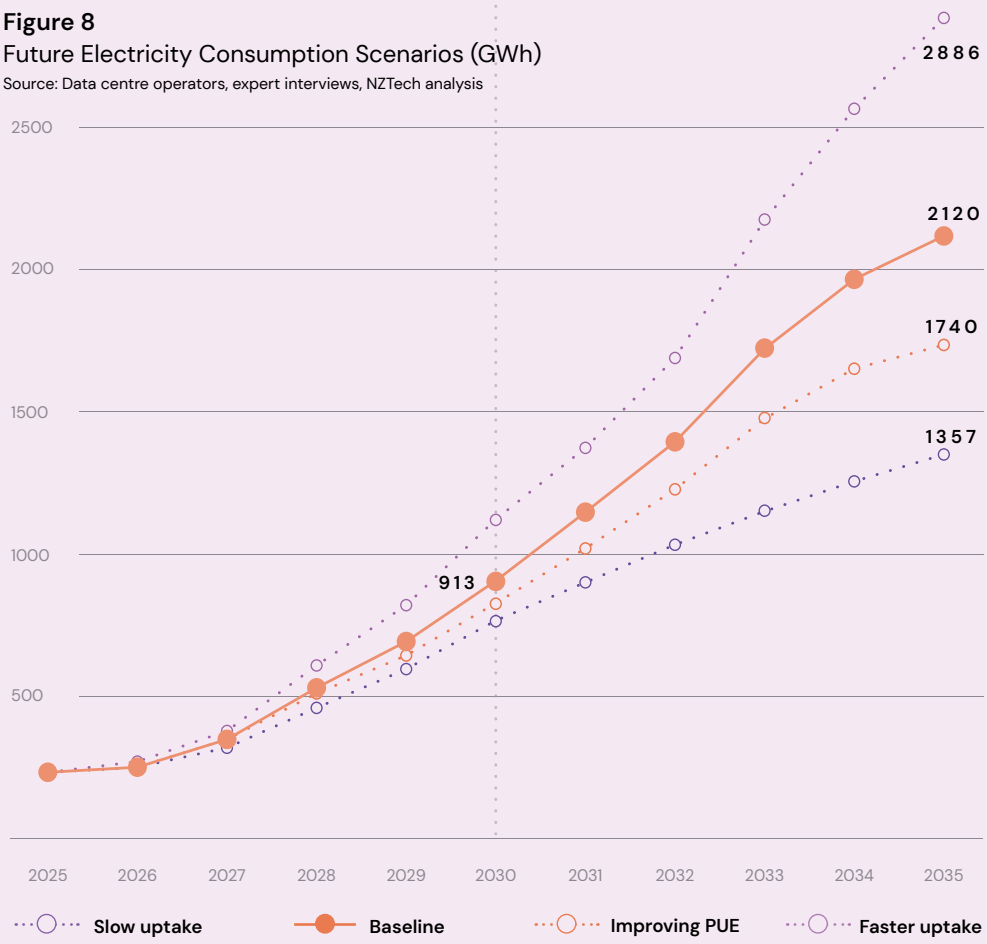


Figure 8
Future Electricity Consumption Scenarios (GWh)
Source: Data centre operators, expert interviews, NZTech analysis



Future electricity demand across the next decade will depend on factors such as the pace of digital uptake, the nature of the impact by AI and the ongoing improvements in data centre efficiency. Given the difficulty in predicting the outcome, and the potential pace of change, it will be essential for industry level collaboration and coordination across the data centre and electricity sectors.

Ultimately, data centres act as the engine rooms of our digital economy. Given the scale of the predicted growth in electricity use, we recommend where possible, rigorous analysis and ongoing understanding of future demand is undertaken. Working together, data centre operators and the electricity sector can ensure New Zealand's electricity supply keeps pace with digital growth, unlocking economic opportunities for everyone and ensuring our transition remains both sustainable and future ready.

Data centres forecast to consume between

1.6–2.2%

of New Zealand's electricity by 2030

CASESTUDY

Data centres and electricity distribution

Vector is New Zealand's largest electricity distributor, delivering power to more than 629,000 homes and businesses across the Auckland region. As Auckland emerges as a preferred location for large-scale data centre development - due to its favourable climate, seismic stability, and strong global digital connectivity - Vector finds itself at the forefront of one of the most significant shifts in electricity demand it has faced in decades.

The Demand Challenge

On a typical cold winter evening, Vector's Auckland network experiences peak demand of approximately 1800MW. Vector is forecasting significant growth in electricity demand from data centres in the next decade. These connection requests mark a dramatic increase in scale and complexity compared to just a few years ago and are shaping Vector's future network planning.

One challenge for Vector is there is significant uncertainty around the rate at which demand will grow to match the capacity request, since this depends on the adoption of data centre services by clients, the type of services run at the data centre, and how customers choose to use these new services. AI operations and services typically use much more electricity than other types of digital operations, and Vector expects to see a strong increase in demand requirements if customers embrace AI.

Data centres often start at around 4MW load and scale up to 25MW or more. Hyperscale data centres, in particular, present new technical and planning challenges.

Infrastructure Implications

These fast-growing loads place pressure on infrastructure, requiring timely investment in new connections, substations, transformers, and localised system reinforcement across Auckland. In line with global trends, Vector is already observing potential system-wide challenges associated with data centre growth. Coordinated planning between data centre operators and the electricity sector will be required to ensure:

- → data centre demand doesn't outpace the delivery of new generation.
- → the system develops with a focus on equity across users.
- → the cost of electricity infrastructure development required to support data centre growth is understood.
- → and planning is aligned taking into account data centres can scale faster than electricity infrastructure.

Strategic Importance

Despite these challenges, Vector sees the rise of data centres as a strategic opportunity for Auckland and New Zealand. These facilities enhance digital competitiveness, attract global investment, and support a high-value services economy. Vector is working closely with developers to enable this growth - ensuring that network upgrades are timely, coordinated, and benefit the wider energy system.

PART THREE

Enabling Aotearoa's Data Future

The global data centre market is expanding at a remarkable pace, driven by the rising adoption of cloud computing and artificial intelligence (AI).

International trends show a sector growing rapidly while striving for, and achieving, new levels of efficiency, resiliency, and sustainability. As we look to the future for Aotearoa New Zealand, these global shifts offer practical lessons and insight, helping us build a robust, future-ready digital infrastructure.

Data centres enabling economic growth

The growth of New Zealand's data centre market has the potential to deliver significant opportunities for us all. Data centres are more than a response to rising digital demand, they are the backbone of our digital economy. By providing the essential infrastructure needed for cloud computing, AI and modern digital services, data centres support innovation and attract further investment.

This sector is also a powerful engine for job creation, generating high-value roles and building a strong pipeline for the construction industry, with large scale projects driving employment across the country. Data centre investment is closely linked to investment in renewable energy, helping to reduce climate impact.

As global demand for sustainable data centres grows, New Zealand is uniquely positioned to develop an entirely new export sector, leveraging our renewable energy supply, stable political environment and quality infrastructure. With more businesses and government agencies shifting to digital services, the presence of local data centres is becoming as essential as other utilities, underpinning our economic resilience and future growth.

Generating new employment opportunities

The rapid growth of New Zealand's data centre sector is unlocking a diverse range of career opportunities, both within data centres themselves and throughout the wider economy. As the demand for cloud computing, AI and digital services accelerates, there is a rising need for a highly skilled workforce to design, build, operate, and maintain these critical facilities.

Modern data centres draw on a wide mix of expertise. Highly technical roles including network engineers, systems administrators, cloud architects and cybersecurity specialists are in strong demand. At the same time, skilled trades including electricians, technicians and facilities managers play a vital part in keeping these sites running smoothly. The construction and ongoing operation of data centres also fuels opportunities for project managers, construction workers, equipment suppliers and support staff across Aotearoa.

The sector's impact extends far beyond direct employment. Data centres create indirect jobs across energy supply, logistics, security, professional services and business support. International research shows that for every direct job in a data centre, up to six additional jobs are created elsewhere in the economy.[28]

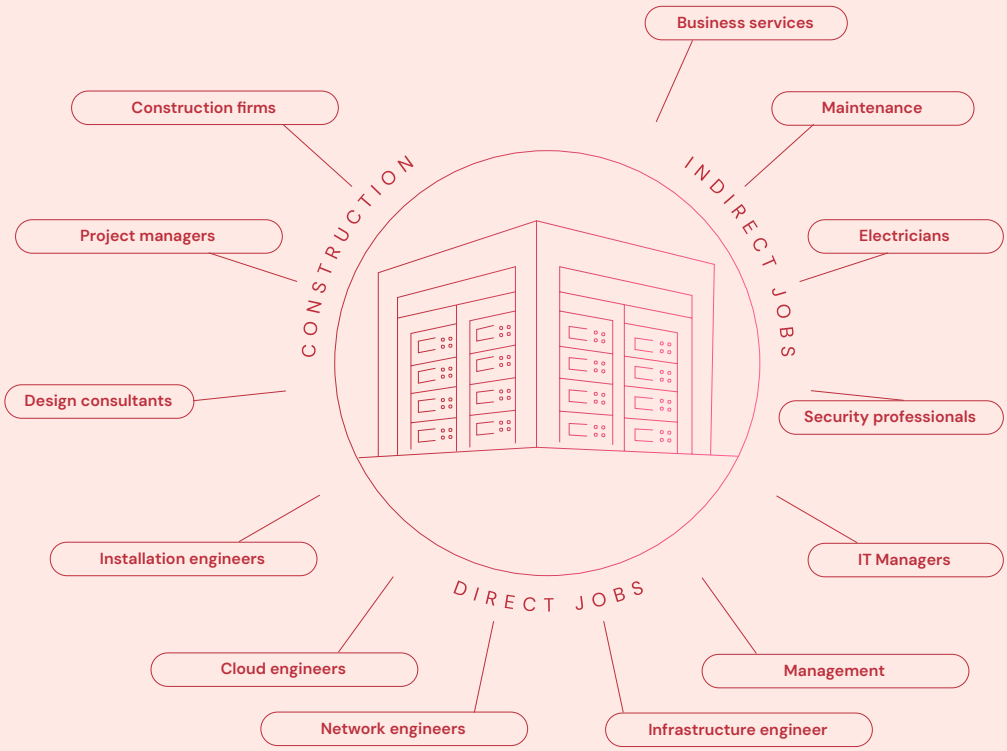
For those entering the workforce or looking to change careers, the data centre sector offers long-term, high-value prospects, often with above-average wages and clear pathways for advancement. Many roles involve working with advanced technologies including AI, machine learning and cloud infrastructure, providing opportunities to build future-ready skills.

Data centres provide a

6x

multiplier of indirect jobs for every direct job they provide

Figure 9
Data centre jobs



As our local sector expands, investing in people will be just as important as investing in infrastructure. By nurturing a skilled, adaptable, and diverse workforce, we can ensure New Zealand has the talent needed to drive innovation, support economic growth and strengthen our digital resilience.

Generating tax revenues

Data centres represent significant capital investment, often involving hundreds of millions, or even billions, of dollars to build, equip and operate. This large-scale infrastructure directly contributes substantial tax revenue to government budgets through taxes on property, equipment and ongoing operations.

For Aotearoa, a thriving data centre sector presents a valuable opportunity to grow a new industry and help lift the tax base, supporting essential public services and infrastructure across the country.

Contributing to GDP growth

The tech sector continues to be a powerful engine for New Zealand's economy. In 2024, it contributed $23.8 billion to New Zealand's GDP, with $16.5 billion generated by the information and communications (ICT) sector, activity directly supported by our growing data centre infrastructure. A further $76.5 billion of GDP was generated by knowledge intensive services, largely enabled by reliable, high-performance data centres.[29]

Internationally, the economic impact of data centres is just as compelling. In the United States, investment in data centre construction alone contributed an estimated 0.1-0.3 percent to GDP growth in 2024.[30] In the United Kingdom, data centres are projected to add a further £44 billion to the economy by 2035, serving as a springboard for digital exports and global competitiveness.[31]

CASESTUDY

Built-to-suit data centres accelerate growth in Aotearoa

For organisations expanding into Aotearoa New Zealand, establishing high-performance digital infrastructure can be a daunting and lengthy process. Securing land, navigating compliance, and managing construction can take years, creating real challenges for businesses striving to keep pace in today's fast-moving digital landscape.

Alongside its four colocation data centres - already home to hundreds of customer - Datacom offers a smart, agile alternative for organisations with specialised requirements considering building their own data centre: the build-to-suit data centre model. By partnering with Datacom, businesses gain access to custom-built facilities that deliver global standards and technical precision, backed by deep local expertise. This tailored approach enables rapid deployment and scalable growth, without the burden of building from scratch.

A recent example highlights this advantage. An international customer needed high-density colocation space in New Zealand to deliver services to local consumers. They required hyperscale-grade reliability, flexibility to adapt to changing technical and capacity needs, and strict compliance with both international and local standards.

Datacom's team worked closely with the customer, holding regular workshops to fully understand and respond to evolving requirements. The solution included bespoke data floors, upgraded electrical boards to support additional loads, enhanced airflow for efficient cooling, and sophisticated power monitoring for operational assurance.

The result was a collaborative experience that exceeded expectations. The new data centre infrastructure was ready to support immediate operations and future growth. Through this flexible, partnership-driven model, Datacom empowers organisations to enter the New Zealand market quickly and confidently, knowing their digital infrastructure will scale as their ambitions grow.

> "Our built-to-suit expertise delivers hyperscale-grade infrastructure tailored to each customer's requirements, in a fraction of the time it takes to build alone. With over 30 years of local experience, we ensure every project is a success—enabling organisations to scale securely and confidently in New Zealand."

Matt Neil, Datacom's Director of Data Centres

Data centre growth is enabling regional opportunity and data localisation

Whether it is hyperscale data centre development in Auckland or one of the many smaller data centres currently in operation, construction or planning across the country, the localisation of data centres within New Zealand provides increasing opportunities to enable regional businesses, government and iwi to manage their data locally and onshore. It is broadly recognised that Māori data is a taonga, a valued possession with cultural significance. It is protected under Te Tiriti o Waitangi and the United Nations' Declaration on the rights of Indigenous Peoples.[56] There is increasing interest by Māori organisations in the collection, ownership, and application of their data, and the need in many cases for the data to be maintained locally.

The regional growth of data centres will also generate regional opportunities for jobs and new opportunities such as exports (discussed further in the Data centres as export opportunity section).

These insights highlight the vital role data centres play in driving economic and social value, powering innovation and positioning Aotearoa for long-term prosperity in the digital age.

Data centres' role in sustainable growth

Hyperscale data centres (large facilities designed to process large volumes of data) are appearing in more locations around the world, enabling digital services to be delivered efficiently and at scale. Regions such as North America, Europe and Asia-Pacific, are experiencing rapid growth in data centre capacity to meet soaring demand, though some markets are beginning to face constraints including, land availability and access to reliable power.

Sustainability and energy efficiency

Sustainability is a top priority in global data centre development. As the sector's energy use grows, environmental performance is under greater scrutiny. Today's data centres are built for high efficiency, targeting lower Power Usage Effectiveness (PUE) and Water Usage Effectiveness (WUE), so more energy goes directly to computing, rather than cooling or support systems. New Zealand benefits naturally from its cool climate, giving us a head start in efficient operations. Leading operators are investing in renewable energy, energy-efficient processors, modular construction to minimise waste, and battery storage to support grid stability and maximise renewable integration.

A notable trend is the reuse of waste heat from data centres, such as heating nearby buildings, particularly valuable in colder climates. Increasingly strict regulations and a strong focus on ESG (environmental, social and governance) standards in regions like Europe and North America are driving continuous improvements, with many operators working towards carbon neutrality. Countries with abundant renewable energy, including New Zealand and the Nordics, are emerging as preferred destinations for data centre investment thanks to their reliable, low-carbon energy and sustainable digital infrastructure.

To meet cooling demands sustainably, operators are adopting advanced cooling approaches, including liquid cooling, free-air cooling and closed-loop systems, reducing both energy and water consumption. The sector is also moving rapidly towards 100 percent renewable power, with many data centres supported by power purchase agreements (PPAs) for new wind and solar projects. These combined efforts are ensuring that data centres can continue to scale while minimising their environmental footprint and supporting the transition to a low-carbon economy.

Investing in renewable energy

Spark has recently announced its new data centre campus on Auckland's North Shore, which is part of a plan to integrate a data centre, solar farm and surf park. The campus will utilise a heat exchange system to repurpose excess heat from the data centre to warm the neighbouring surf lagoon, benefiting both customers and the wider community. The campus also features on-site renewable energy generation through the solar farm, with the ability to deliver 5-7MW of cost-effective renewable electricity.

CASESTUDY

Supporting Aotearoa's transition to a low-carbon future through investments in technology and innovation

In 2024, Spark and Genesis Energy announced a 10-year Energy Supply Partnership, where the equivalent volume of electricity generated by Genesis' first solar farm in Lauriston Canterbury will be purchased by Spark – making a significant contribution towards Spark's Science Based Target of a 56 percent reduction in Scope 1 and 2 emissions by 2030 (from a FY20 baseline).

> This kind of long-term commitment shown by Spark will enable new renewable generation to come online faster, by providing projects with commercial backing and increasing confidence to invest in further developments.
>
> **Malcolm Johns, Chief Executive, Genesis**

The energy provided to Spark at equivalent volumes to the solar farm's generation will account for approximately 60 percent of Spark's annual electricity requirements, with the remaining 40 percent continuing to be sourced by Genesis from the grid as occurs today. The energy will be provided alongside Renewable Energy Certificates, enabling transparent tracking and reporting of the energy supplied to Spark.

> It is important to us that we deliver on our science-based target by supporting the generation of new renewable energy. In doing so I believe we are demonstrating how NZ Inc can work together to support Aotearoa's climate goals – with Spark's procurement supporting Genesis's renewable energy investments.
>
> **Jolie Hodson, Chief Executive, Spark**

As part of the partnership Spark and Genesis also intend to explore additional renewable energy opportunities, to enable Spark to transition to 100% renewable energy procurement in the future, and to support Genesis' target to have 95% renewable generation by 2035. The 63MW Lauriston solar farm was opened in April 2025.

Data centres are becoming more efficient

Over the past decade, data centres have made remarkable improvements in energy efficiency. Globally, the average PUE ratio for data centres has dropped to 1.54, a 38 percent improvement since 2006.[32] The most advanced hyperscale data centres are now achieving PUE levels as low as 1.1.[33] These gains have been driven by the development of highly efficient chips, purpose-built infrastructure and the adoption of innovative technologies, including advanced liquid cooling and AI-powered energy management.

Replacing on-premise with data centres saves electricity

Shifting from on-premise services to centralised data centres delivers significant energy savings. Traditional server rooms, often retrofitted into existing buildings, simply can't match the efficiency of modern data centres designed specifically for optimal energy use. A typical on-premise server room uses 54 percent more energy than a 10MW data centre per unit of processing.[34] In Australia, it's estimated that supporting digital services and cloud applications with on-premise servers would require at least 2 TWh more electricity each year. As technology continues to improve data centre efficiency, these savings will only grow, even as our digital demands increase.[35]

Centralising computing, storage and cooling systems in hyperscale colocation and cloud data centres eliminates the need for duplicate equipment across multiple smaller sites, resulting in substantial power savings. It also helps organisations reduce both their costs and emissions. By embracing next-generation data centre solutions, Aotearoa can continue to enhance energy efficiency and support a more sustainable digital future.

CASESTUDY

Leveraging AI to decarbonise New Zealand

Simply Energy and Google have partnered to transform how New Zealand businesses manage energy costs and emissions. By consolidating, automating and streamlining data management with Google Cloud, Simply Energy now delivers more powerful insights and advice to its customers.

Based in Wellington, Simply Energy empowers organisations with detailed analysis of their energy consumption and carbon footprint. Drawing on data from the national electricity grid, regulators, smart meters, billing systems and IoT devices (often updated in real time) Simply Energy faced a complex data challenge. With Google Cloud's platform, this diverse information is now effortlessly processed, enabling rapid, accurate insights.

> With the data we collect, we can help our customers quantify the carbon emissions generated from the energy they use. We build on that with advisory services that include modelling, generating insights and helping with efficiency measures that reduce emissions.
>
> **Hema Pericherla, Chief Technology Officer, Simply Energy**

Migrating to Google Cloud has delivered tangible results. Scenario-based modelling is now three times faster, and the automation powered by Google's machine learning tools has freed up valuable time and resources. Storage costs have fallen by 50 percent and maintenance burdens on the technology team have dropped significantly, enabling faster project delivery and more responsive service. Improved cost monitoring has also reduced coding time by 40 percent.

This partnership enables Simply Energy to help clients set and achieve ambitious carbon reduction targets, supporting New Zealand's journey towards net zero and long-term environmental sustainability. The collaboration is a powerful example of how digital infrastructure and AI tools can deliver both operational efficiency and climate action.

Data centres as an export opportunity

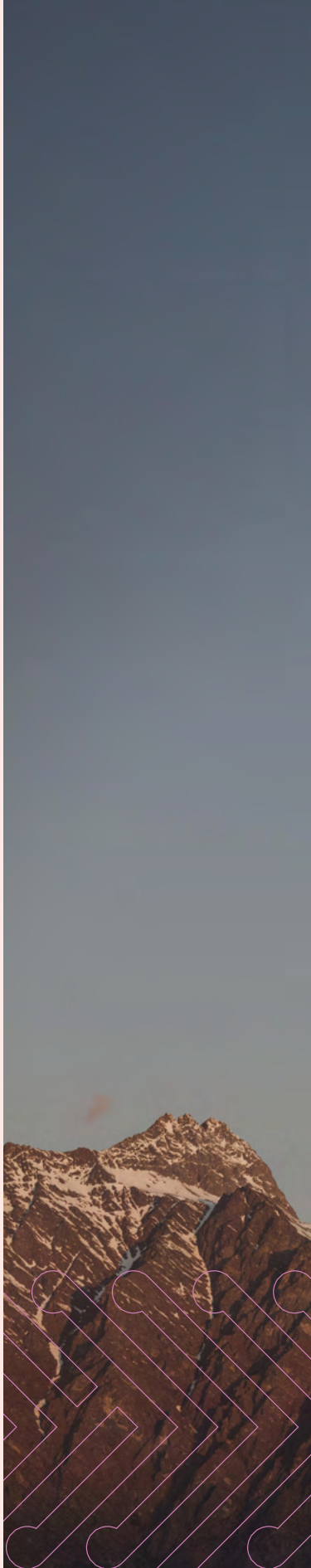
As digital transformation accelerates worldwide, the demand for secure, reliable and sustainable data centre capacity is outpacing supply, especially in the fast-growing Asia-Pacific region.[36] At a global level, 70 percent of the projected demand for data center capacity will come from AI-based workloads by 2030. This demand, particularly in Europe and the United States is creating challenges including limited sources of reliable power, sustainability concerns, insufficient power infrastructure, land availability issues, shortages of power equipment, and a lack of skilled electrical tradespeople.[37]

McKinsey analysis indicates USD$6.7 trillion of worldwide investment will be going into data centres across the next five years alone to keep pace with the demand for compute power.[38] This demand for and investment in sustainable data centres is expected to continue increasing. New Zealand is well-placed to capture a share of this growth and establish itself as a regional data centre hub, effectively creating a new export opportunity.

While proximity is important for supporting local digital activity, some AI driven workloads are less dependent on location. This opens the door for New Zealand as a potential regional data centre hub, however it faces strong competition from Australia and other regional players.

New Zealand offers several compelling advantages for future data centre development. Unlike densely populated Asian cities, we have abundant land and a cool climate, which helps with energy efficiency. Our stable political environment and robust regulatory framework offering security and certainty for long-term infrastructure investments. Most importantly, New Zealand's electricity grid is already 87 percent renewable and it is projected to rise to over 96 percent by 2050. This strong sustainability profile makes Aotearoa an attractive destination for international operators seeking low-carbon, future-proof digital infrastructure.

With the right strategy and continued investment, New Zealand can position itself as a leading regional hub, supporting both local innovation and the export of digital services to the world.



CASESTUDY

Powering Aotearoa's AI future from Southland

Datagrid's $5 billion hyperscale data centre park in Makarewa, Southland, marks a transformative step for New Zealand's digital future. Designed to meet the soaring global demand for AI and high-performance computing, this world-class facility will more than double New Zealand's data centre capacity, cementing our place as a strategic hub for innovation in the Asia-Pacific region.

What sets Datagrid apart is its alignment with New Zealand's natural advantages. Over 87% of New Zealand's electricity comes from renewables, and Southland's abundant hydropower makes this project a trailblazer for sustainable technology. The region's cool climate enhances energy efficiency, while New Zealand's geopolitical stability provides a secure home for critical data infrastructure.

The economic benefits are substantial. During construction, Datagrid is expected to inject $2.5 billion into national GDP and create around 5,750 jobs, from engineering to manufacturing. Once operational, the centre will support about 10,000 jobs from direct, indirect and induced effects (with 30% based in the South Island) and deliver annual GDP gains of up to $3.7 billion. It will also anchor further investment in renewable energy across Southland.

The project's impact goes beyond economics. By introducing the Tasman Ring Network, a new 6,000km submarine cable, Datagrid will dramatically improve South Island connectivity and provide critical resilience for New Zealand's international data links.

Datagrid's vision is about more than digital infrastructure, it's building a brighter, more connected, and more innovative future for Southland and all of New Zealand.

Figure 10

New Zealand advantages for AI data centre operations

Sources: Worldbank; GlobalData Lab; Enerdata; GlobalPetrolPrices.

Note: These countries are the largest in the Asia pacific region by GDP and data centre offer, excluding China.

Conclusion

Aotearoa New Zealand stands at a pivotal moment in our digital journey. Data centres are no longer just hidden back-end infrastructure, they are the foundation of our digital economy, enabling innovation, driving productivity, and serving as a strategic lever for both economic growth and sustainability.

Additionally, with global demand for cloud computing, AI and data-driven services rising rapidly, New Zealand's abundant renewable energy, stable political and regulatory environment and strong digital connectivity give us a unique advantage. We have the opportunity to position ourselves as a leading destination for sustainable data centre investment in the Asia-Pacific region.

Seizing this opportunity will require decisive action and close partnership between communities, government and industry. Streamlining planning processes, investing in renewable energy generation and digital skills and embedding sustainability at every level will be vital. By working together now, we can create high-value jobs, strengthen our technology sector and ensure the benefits of digital transformation are shared widely across Aotearoa.

This report marks an important first step. There's more work ahead as we collaborate and define a practical path forward, one that unlocks our potential as a leader in next-generation digital infrastructure. By working together and acting with vision, we can build an inclusive, climate-positive digital future where all New Zealanders thrive. Together, we can enhance Aotearoa's global reputation for innovation, trust, and sustainable progress.

Now is our time to shape a sustainable, resilient, and thriving digital economy for our communities today and for generations to come.

Opportunities for New Zealand

Sustainability

New Zealand data centres offer a genuine low-carbon solution for digital operations.

Economic development

The sector brings investment, high-value jobs, and digital skills — provided energy supply remains reliable and sustainable.

Tech export growth

With proactive energy management, New Zealand can develop its standing as a trusted regional hub for sustainable digital services and exports.

Policy and planning

Strategic planning is essential to align data centre growth with renewable energy expansion and grid stability.

Recommendations

Through strategic industry partnerships and well-designed policy frameworks, Aotearoa New Zealand can establish itself as a leading digital economy, drive investment in renewable energy and foster long-term, sustainable economic growth.

To ensure coordinated, sustainable growth, we recommend forming a Data Centre Industry Ministerial Advisory Group. This group can bring together data centre operators, electricity providers and government policymakers to improve information sharing, support long-term power planning, streamline approval processes and prioritise workforce development. This collaboration will help future-proof our digital infrastructure and enable New Zealand's to fully capture its digital opportunity.

01—
Streamline planning, consenting and grid access

Complex and prolonged consent and grid access processes can slow down vital investment. Collaborative industry and Government planning should aim to streamline approvals for new generation capacity, data centre builds and energy connections, without compromising environmental or community standards.

02—
Accelerate growth in renewable energy supply

To meet rising demand for digital services and take advantage of export opportunities, we must ensure our renewable energy capacity keeps pace. With collaboration, large private investment into data centre growth can help accelerate New Zealand's renewable energy supply.

03—
Identify opportunities to lift demand

A deeper understanding of the demand drivers for digital technologies and uptake of cloud and AI solutions underpinning data centre growth will help create economic growth. Likewise, a plan for how New Zealand can take advantage of global demand growth will unlock new export opportunities.

APPENDIX

Methodology

This research used a bottom-up approach to aggregate data from multiple sources to estimate the deployable capacity and electricity consumption for data centres in New Zealand.

In October 2024, Mandala Partners in Australia completed an analysis of the Australian data centre market's energy consumption. This project uses the same approach and methodology.

Calculating Current Deployable Capacity (megawatts)

Methodology

- → Bottom-up data/guidance was provided by project partners including all hyperscale colocation and cloud data centre operators in the New Zealand market.
- → Data was cross-checked using Electricity Authority Your Meter[39] information for contracted capacity to site where available; Datacentermap.com analysis[40]; the *New Zealand Existing & Upcoming Data Center Portfolio* report[41]; and public information available on data centre projects.
- → Where hyperscale cloud providers leased fitted space versus operating their own data centres was identified and cross-checked. To avoid double counting this leased capacity was not included as this was already included in the colocation provider's numbers.
- → For hyperscale colocation and cloud data centres that were unable to provide actual deployed capacity the methodology in the Mandala report - *Empowering Australia's Digital Future*[42] was used. This uses agreed industry proxies to convert from maximum design capacity to realistic deployable capacity.
- → For the smaller data centres where contracted supply capacity was available, this was used as the proxy for current deployable capacity. Where contracted supply capacity was not available the supply data of similar sized data centres was used as a proxy.

Key Inputs

INPUT	SOURCE
Average fitted % of design capacity for hyperscale data centres = 89%	Empowering Australia's Digital Future, Mandala (2024) Estimated and tested with industry experts
Supply contracts as proxy for fitted % of design capacity for non-hyperscale data centres	Electricity Authority Your Meter Tested with industry experts

Calculating Current Electricity Consumption (gigawatt hours)

Methodology

- → Current and forecast electricity consumption was calculated based on deployable capacity based on the same formula and approach used in the Australian research.
- → Starting with deployable capacity there is an assumption that there is some vacant space so the amount of committed capacity (non-vacant space) is taken into account to calculate the active IT load.
- → Based on the PUE of the active IT load you can calculate the electricity consumption. The average New Zealand PUE established via this research was used.
- → The total power drawn was converted into annual electricity usage in terms of gigawatt hours. To calculate the data centre market's share of electricity, the electricity consumption was divided by total New Zealand annual electricity consumption.

Model Formulae

- → Active IT load in MW = Deployable capacity (D) x Committed capacity (C) x Power drawn load (P)
- → Annual Electricity Consumption in GWh = [(D x C x P) x PUE x 8760]/1000

Key Inputs

INPUT	SOURCE
Committed capacity (non-vacant space) C = 80%	Empowering Australia's Digital Future, Mandala (2024) Data Centre Handbook, Morgan Stanley (2024)
Medium New Zealand PUE PUE = 1.3	Sourced from research participants. Checked with expert interviews and compared with Australian research.
Power drawn load P = 25%	Empowering Australia's Digital Future, Mandala (2024) Desktop research & expert interviews.
Forecast electricity demand = 41,655 GWh (2025)	Electricity Demand and Generation Scenarios (EDGS), Ministry of Business, Innovation and Employment. 2025 reference scenario, EDGS, 2024. https://www.mbie.govt.nz/assets/Data-Files/Energy/electricity-demand-generation-scenarios-2024-results.xlsx

Forecasting Future Deployable Capacity (megawatts)

Methodology

- → The data centre operators actual plans/forecasts were used to calculate future deployed capacity. This was collected via direct interviews and cross checked by media statements and annual reports.
- → The Ministry of Business, Innovation and Employment's Electricity Demand and Generation Scenarios (EDGS) model was used to establish forecast national electric demand.[43]
- → Mandala's projected demand for data centres s-curve cloud adoption model was used to project the potential impact of AI on increasing demand.[44]

Four deployed capacity scenarios were developed:

- → **Baseline** - based on operators current stated plans, cross referenced with the s-curve cloud adoption model. This projection excludes major export oriented projects within the time period examined. Care was taken to ensure no double counting of any hyperscale data centres which are currently being built out within colocation facilities.
- → **Slow digital uptake** - referencing operators plans, with delayed builds due to slower than expected cloud adoption. This projection excludes major export oriented projects within the time period examined.
- → **AI boosted adoption** - referencing operators plans, with accelerated builds due to AI boosted demand. This projection excludes major export oriented projects within the time period examined. The impact of AI accelerating the adoption curve is calculated using the formula from the Australian research and makes an assumption of similarity to the Australian market.
- → **Export opportunity** - referencing operator plans, including the addition of major export oriented projects coming online from 2030, over and above the AI boosted scenario.

Model Formulae

Mandala's s-curve model estimates cloud technology adoption with and without an AI boost. This follows the approach of fitting an s-curve to historical cloud adoption, creating a new s-curve scenario with increased slope to reflect AI impact, establishing a linear relationship between deployable capacity and cloud adoption with a five year lag, and using the AI-boosted s-curve to project future cloud adoption.

Adoption in years after technology introduced $A(t) = 1 / 1 + e^{-k(t-t0)}$

Where k is the logistic growth rate of the curve, t0 is the inflection point where the curve is steepest. We estimate the parameters k and t0 then apply a shock parameter k to represent the AI boost. We use 30% as the AI cloud technology boost parameter, based on McKinsey (2023).[45]

Key assumptions

This model is based on assumptions that there is a linear relationship between cloud adoption and data centre deployable capacity, that there is a 5 year lag between cloud adoption and reflection in data centre capacity, and that AI impact can be modeled as an increase in the S-curve adoption slope.

For the purposes of this study, it is assumed that the New Zealand cloud adoption rate is the same as Australia's cloud adoption rate, using the available Australian baseline data from the Mandala report.

Forecasting Future Electricity Consumption (gigawatt hours)

Methodology

- → The same methodology used for forecasting the current electricity consumption was used for future electricity consumption (see above).
- → The total forecast electricity consumption in New Zealand for 2025 to 2035 was based on the Ministry of Business, Innovation and Employment's forecast.

Four electricity consumption scenarios were developed:

- → **Baseline** - based on the baseline (planned) deployed capacity, assuming that as builds occur and customers are onboarded, on average, non-vacant space remains the same across the forecast period. The average PUE remains the same across the forecast period. However, assumptions on increasing power drawn load as more customers come onboard are applied.
- → **Slow uptake** - uses the slow digital uptake scenarios impact on deployed capacity as the new baseline and assumes committed capacity and PUE remain steady, and power drawn load increases as customers come on board, but at a slower rate.
- → **High uptake** - uses the AI boosted digital uptake scenarios impact on deployed capacity as the new baseline, assumes committed capacity is filled faster and power drawn load increases faster, while assuming PUE remains consistent.
- → **Improving efficiency scenario** - uses the baseline (planned) deployed capacity scenario while assuming the efficiency of data centres continue to improve over time at a similar rate, reducing the annual PUE across the forecast period.

Key Inputs

SCENARIO	COMMITTED CAPACITY	POWER DRAWN LOAD	PUE	SOURCE
Baseline	Building from 80% current, reaching 85% in 2030 and 90% in 2035	Building from 25% current, reaching 30% in 2030 and 50% in 2035	1.3 across forecast period	Empowering Australia's Digital Future, Mandala (2024) Desktop research & expert interviews.
Slow Uptake Scenario	80% across the forecast period	Building from 25% current, reaching 30% in 2030 and 40% in 2035	1.3 across forecast period	
High Uptake Scenario	Building from 80% current, reaching 85% in 2030 and 90% in 2035	Building from 25% current, reaching 35% in 2030 and 60% in 2035	1.3 across forecast period	
Improving efficiency	80% across forecast period	Building from 25% current, reaching 30% in 2030 and 50% in 2035	Average PUE reducing across forecast period from 1.3 current to 1.26 by 2030 and 1.2 by 2035.	

Glossary

Active IT Load
The real-time power drawn by operational IT equipment (such as servers, storage, and networking devices) within a data centre. It represents the actual electricity usage for computing tasks.

Battery Monitoring System (BMS)
A specialized system designed to monitor, manage, and ensure the health and performance of backup battery systems that support critical infrastructure in the event of a power failure.

Capacity
The maximum amount of power (usually in megawatts, MW) that a data centre can deliver to IT equipment. Often used as a key measure of the size of a data centre.

Co-location
A service model where customers rent space, power, cooling, and connectivity in a third-party data centre to house their own servers and IT hardware, rather than building or operating their own facility.

Committed Capacity
The amount of data centre power (in MW) that has been contractually reserved or purchased by customers, which may or may not be fully utilised yet.

Compute Power
The total processing capability of the servers in a data centre, enabling workloads such as cloud computing, AI, and storage.

CPU (Central Processing Unit)
The 'brain' of a server or computer, responsible for executing instructions, running applications, and processing data. In data centres, CPU performance is a key driver of compute power and energy use.

Data Centre
A specialised, secure facility designed to house servers, storage, networking equipment, and supporting infrastructure (for example, power, cooling, fire suppression), enabling the delivery of digital services, cloud computing, and data storage.

Data Centre Operator (operators)
The company or organisation responsible for managing, maintaining, and operating a data centre. This can range from local New Zealand providers to global hyperscale operators.

Deployable Capacity
The amount of data centre capacity (in MW) that is built, fully equipped, and immediately available for IT loads (i.e., ready for customer use), as opposed to space or power that is planned but not yet delivered.

Edge Data Centre
A smaller facility located closer to end-users or devices, reducing latency and supporting local processing of data.

Green Data Centre
A facility designed or operated to minimise environmental impact, often using renewable energy, efficient cooling, and sustainable materials.

Hyperscale Data Centre
A very large data centre (typically >10 MW capacity) built to efficiently support massive, scalable computing workloads for cloud, AI, and global internet services.

Infrastructure Load
The power consumed by non-IT systems in a data centre, such as cooling, lighting, power distribution, security, and other facility support systems.

Maximum Design Capacity
The total, theoretical maximum IT load (in MW) that a data centre is engineered to support, based on its design and infrastructure.

Megawatt (MW)
A unit of power equivalent to 1,000,000 watts. Data centre size is commonly measured in MW, indicating how much power can be delivered to IT equipment.

PPA (Power Purchase Agreement) A long-term contract between an electricity generator and a customer.

PUE (Power Usage Effectiveness)
A key metric for data centre energy efficiency, calculated as the ratio of total facility energy use to the energy used by IT equipment. Lower PUE means greater efficiency (for example, PUE 1.2 is more efficient than PUE 1.5).

Rack
A standardised enclosure or frame within a data centre where servers and networking hardware are mounted.

Renewable Energy
Electricity generated from sources that are naturally replenished (hydro, wind, solar, geothermal). Critical for sustainable data centre operation in New Zealand.

Server
A powerful computer that provides data, services, or resources to other computers over a network. Servers are the core of data centre operations.

Submarine cable
An undersea fibre optic cable connecting New Zealand to international destinations, essential for fast, reliable global digital connectivity.

UPS
Uninterruptible Power Supply, a device that provides backup power to connected equipment when the primary power source fails.

Uptime
The proportion of time a data centre or service remains operational and accessible, usually measured as a percentage (for example, 99.999%).

Water Usage Effectiveness (WUE)
A data centre metric that measures the volume of water used per kWh of IT load, used to assess sustainability.

Planned Investments

While it is difficult to identify the direct investments in data centre development there have been several media releases containing estimates of levels of investment. This information was used as a proxy for estimated investment and cross referenced with international industry benchmark costs (with an additional loading for seismic requirements).

Based on the operators plans, including the export opportunity investments, over the next decade they will be spending in excess of $10 billion building their planned data centres.

Key input

INPUT	SOURCE
Estimated construction cost per MW in New Zealand = $15m	Expert interviews. Cross referenced with various online sources.

Media Announcements

- → Hyperscale cloud providers (AWS, Microsoft, Google) account for ~90 percent of all announced dollars, however these announcements often also include additional investments such as skills development and energy investments.
- → Domestic and Australian colocation providers (CDC, DCI, Spark, Datacom) are adding another ~$2–3 billion. Regional investments will add a further ~1 billion.
- → These announcements cover a broad range of realities from projects that have resource consent and builds underway, to projects still looking to attract investment or approvals.

COMPANY	ANNOUNCEMENT	INVESTMENTS
Amazon Web Services (AWS)	Sep 2021 - AWS is planning to invest up to 7.5 billion NZD over the next 15 years on capital and operating expenditures in establishing and running an AWS Region in Auckland.[46]	$7.5 billion over 15 years
Microsoft	May 2020 - Microsoft to establish its first datacenter region in New Zealand.[47] May 2023 - Microsoft buys the renewable attributes (Renewable Energy Certificates) of 51MW of geothermal.[48]	~$1.06 billion Microsoft never releases this data, but was reported in NZHerald.[49] +$300 million REC
Google	Aug 2022 - Bringing our first cloud region to Aotearoa New Zealand.[50]	~$500 million+ Google never releases region cap-ex, but comparable Australian builds give a mid-hundreds-of-millions range.
Datagrid	Dec 2020 - Meridian gets in behind $700m plan for 'hyperscale' data centre near Invercargill.[51]	~$700 million Includes new subsea cables.
CDC	Aug 2022 - Canberra Data Centres launches two facilities in Auckland, New Zealand.[52]	~$500 million
DCI	Jan 2022 - DCI purchases site for Auckland's largest data centre.[53] Required OIO approval.	$600 million+ For two sites.
Spark	May 2025 - Spark auctioning half its data centre business to fund $1b expansion push.[54]	$1 billion Planned expansion.
Datacom	Jun 2023 - Datacom marks Kapua's decade of data in Hamilton.[55]	$80 million Expansion of Hamilton data centre.

References

1 Empowering Australia's Digital Future, Mandala October 2024.
https://mandalapartners.com/uploads/Empowering-Australia's-Digital-Future---Report_October-2024.pdf

2 Global Data Center Survey Results 2024. Uptime Institute, July 2024.
https://uptimeinstitute.com/resources/research-and-reports/uptime-institute-global-data-center-survey-results-2024

3 AWS Launches New Zealand Data Centre & Infrastructure Region, DataCentreMagazine, August 2025.
https://datacentremagazine.com/news/aws-launches-new-zealand-data-centre-infrastructure-region

4 Supplied by CDC, based on ITU Research. Assessing environmentally efficient data centre and cloud computing in the framework of the UN sustainable development goals. International Telecommunications Union, October 2021.
https://www.itu.int/en/ITU-T/focusgroups/ai4ee/Documents/T-FG-AI4EE-2021-D.WG2.06-PDF-E.pdf

5 Global Data Center Survey Results 2024. Uptime Institute, July 2024.
https://uptimeinstitute.com/resources/research-and-reports/uptime-institute-global-data-center-survey-results-2024

6 Empowering Australia's Digital Future, Mandala October 2024.
https://mandalapartners.com/uploads/Empowering-Australia's-Digital-Future---Report_October-2024.pdf

7 How moving onto the AWS cloud reduces carbon emissions.
Accenture and AWS, June 2024.
https://sustainability.aboutamazon.com/carbon-reduction-aws.pdf

8 Dynamic Operations: Safeguard Your Data Center With CFD Simulation Software. Data Centre Knowledge, August 2024. https://www.datacenterknowledge.com/data-center-software/dynamic-operations-safeguard-your-data-center-with-cfd-simulation

9 AWS Cloud website. Accessed July 2025.
https://sustainability.aboutamazon.com/products-services/aws-cloud

10 The AI Factory Heats Up: Liquid Cooling Options Explained. Inside AI News, April 2025.
https://insideainews.com/2025/04/24/the-ai-factory-heats-up-liquid-cooling-options-explained

11 CDC Independent Valuation – 31 March 2025.
https://infratil.com/news/cdc-independent-valuation-31-march-2025/cdc-independent-valuation-31-march-2025

12 Spark Annual Report FY24. Spark, August 2024.
https://www.spark.co.nz/content/dam/spark/documents/pdfs/governance/Annual_Report_(2024)_.pdf

13 Growth of data centres expected to match that of Sydney. RNZ, January 2025.
https://www.rnz.co.nz/news/business/538417/growth-of-data-centres-expected-to-match-that-of-sydney

14 Accelerating Aotearoa businesses one technology generation forward.
Spark NZ & NZIER, February 2024.
https://www.spark.co.nz/content/dam/spark/documents/pdfs/accelerate-aotearoa/accelerating-businesses-one-tech-gen-report.pdf

15 Breakdown of announcements in Appendix.

16 Ultra-Fast Broadband roll-out now complete. Ministry of Business, Innovation and Employment, December 2022.
https://www.mbie.govt.nz/about/news/ultra-fast-broadband-roll-out-now-complete

17 Public Cloud Services Opportunities and Dividend to the New Zealand Economy.
Microsoft and IDC, April 2021.
https://www.nzherald.co.nz/sponsored-stories/how-the-cloud-could-create-thousands-more-jobs/6VATQETZBL2UKYNRZ5ADZZ3OUE/

18 Based on expert interviews information provided by data centre operators during the research and on similar trends in Australia as noted in Empowering Australia's Digital Future, Mandala October 2024.
https://mandalapartners.com/uploads/Empowering-Australia's-Digital-Future---Report_October-2024.pdf

19 Te Wao Toi Whanui - Digital Technology Workforce Development Plan. Toi Mai Workforce Development Council, May 2024.
https://toimai.nz/wp-content/uploads/2024/10/Te-Wao-Toi-Whanui-ToiWhanui-WDP-screen.pdf

20 New Zealanders spending more time online than ever. Aotearoa Internet Insights 2024, InternetNZ, March 2025.
https://internetnz.nz/news-and-articles/new-zealanders-spending-more-time-online-than-ever/

21 Cloud spend to hit $9.6B by 2028 – but just a third of NZ businesses are cloud-ready. State of Cloud Report 2025, Spark NZ, June 2025.
https://www.spark.co.nz/online/about/our-company/news/Cloud_spend_to_hit_9B_by_2028

22 Empowering Australia's Digital Future, Mandala October 2024.
https://mandalapartners.com/uploads/Empowering-Australia's-Digital-Future---Report_October-2024.pdf

23 Electricity statistics, Data tables for electricity [XLSX, 313 KB]. Ministry of Business, Innovation and Employment website accessed July 2025.
https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-statistics-and-modelling/energy-statistics/electricity-statistics

24 NZ Steel: Auckland Council EIA for Glenbrook indicates 1 060 GWh/yr grid draw.

25 The Tiwai Point smelter demand response in winter 2024.
Electricity Authority, November 2024.
https://www.ea.govt.nz/news/eye-on-electricity/the-tiwai-point-smelter-demand-response-in-winter-2024

26 Electricity Demand and Generation Scenarios (EDGS).
Ministry of Business, Innovation and Employment.
https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-statistics-and-modelling/energy-modelling/electricity-demand-and-generation-scenarios

27 Generation investment pipeline. Electricity Authority website accessed July 2025.
https://www.emi.ea.govt.nz/Wholesale/Datasets/Generation/GenerationFleet/Proposed

28 A new era of load growth: How data centers are becoming part of our communities and energy system. PWC, April 2025.
https://www.pwc.com/us/en/industries/energy-utilities-resources/library/data-centers.html

29 GDP numbers for 2024 for the Tech sector and Knowledge Intensive services sectors provided by the Ministry of Business, Innovation and Employment, July 2025.

30 J.P.Morgan forecasts spending on data centers could boost US GDP by 20 basis points in 2025-26. Reuters, January 2025.
https://www.reuters.com/markets/us/jpmorgan-forecasts-spending-data-centers-could-boost-us-gdp-by-20-basis-points-2025-01-16/

31 Foundations For The Future: How Data Centres Can Supercharge UK Economic Growth. TechUK, November 2024.
https://www.techuk.org/resource/techuk-report-foundations-for-the-future-how-data-centres-can-supercharge-uk-economic-growth.html

32 Global Data Center Survey Results 2024. Uptime Institute, July 2024.
https://uptimeinstitute.com/resources/research-and-reports/uptime-institute-global-data-center-survey-results-2024

33 Sourced from Google, AWS and Microsoft websites. Accessed July 2025.
https://datacenters.google/efficiency; https://datacenters.microsoft.com/sustainability/efficiency; https://aws.amazon.com/sustainability/data-centers

34 Calculation: 10MW data centre with PUE 1.3 = 13MW total energy versus 1000 x 10kW server rooms with PUE 2.0 = 20MW total energy.

35 Empowering Australia's Digital Future, Mandala October 2024.
https://mandalapartners.com/uploads/Empowering-Australia's-Digital-Future---Report_October-2024.pdf

36 Asia Pacific Data Centre Trends & Opportunities. CBRE, May 2025.
https://www.cbre.com/insights/reports/asia-pacific-data-centre-trends-opportunities

37 What is a data center? McKinsey & Company, July 2025.
https://www.mckinsey.com/featured-insights/mckinsey-explainers/what-is-a-data-center

38 ibid.

39 Electricity Authority website. Where an address is known you can source publicly available connection information including the contracted chargeable capacity to the site.
https://www.ea.govt.nz/your-power/your-meter/address

40 Data Centre Map website. Global research site for data centres.
https://www.datacentermap.com/new-zealand

41 New Zealand Existing & Upcoming Data Center Portfolio,
Arizton Advisory & Intelligence, June 2025.

42 Empowering Australia's Digital Future, Mandala October 2024.
https://mandalapartners.com/uploads/Empowering-Australia's-Digital-Future---Report_October-2024.pdf

43 Electricity Demand and Generation Scenarios (EDGS).
Ministry of Business, Innovation and Employment.
https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-statistics-and-modelling/energy-modelling/electricity-demand-and-generation-scenarios

44 Empowering Australia's Digital Future, Mandala October 2024.
https://mandalapartners.com/uploads/Empowering-Australia's-Digital-Future---Report_October-2024.pdf

45 In search of cloud value. McKinsey, November 2023.
https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/in-search-of-cloud-value-can-generative-ai-transform-cloud-roi#/

46 AWS Region in New Zealand. AWS, September 2021.
https://aws.amazon.com/blogs/aws/in-the-works-aws-region-in-new-zealand/

47 Microsoft to establish its first datacenter region in New Zealand. Microsoft, May 2020.
https://news.microsoft.com/en-nz/2020/05/06/aotearoa-disclosure/

48 Microsoft signs 51MW geothermal PPA in New Zealand. Data Center Dynamics, May 2023.
https://www.datacenterdynamics.com/en/news/microsoft-signs-51mw-geothermal-ppa-in-new-zealand/

49 Spark auctioning half its data centre business to fund $1b expansion push. NZHerald, May 2025.
https://www.nzherald.co.nz/business/spark-auctioning-half-its-data-centre-business-to-fund-1b-expansion-push-report/M6HP5DF3HVHFHBOCHBDSFGBYLU/

50 Bringing our first cloud region to Aotearoa New Zealand. Google, August 2022.
https://newzealand.googleblog.com/2022/08/bringing-our-first-cloud-region-to-nz.html

51 Meridian gets in behind $700m plan for 'hyperscale' data centre near Invercargill.
Stuff, December 2020.
https://www.stuff.co.nz/business/123680844/meridian-gets-in-behind-700m-plan-for-hyperscale-data-centre-near-invercargill

52 Canberra Data Centres launches two facilities in Auckland, New Zealand.
Data Center Dynamics, August 2022.
https://www.datacenterdynamics.com/en/news/canberra-data-centres-launches-two-facilities-in-auckland-new-zealand/

53 DCI purchases site for Auckland's largest data centre. DCI Data Centres, January 2022.
https://dcidatacenters.com/news/second-site-auckland/

54 Spark auctioning half its data centre business to fund $1b expansion push.
NZHerald, May 2025.
https://www.nzherald.co.nz/business/spark-auctioning-half-its-data-centre-business-to-fund-1b-expansion-push-report/M6HP5DF3HVHFHBOCHBDSFGBYLU/

55 Datacom marks Kapua's decade of data in Hamilton. Datacom, June 2023.
https://datacom.com/nz/en/discover/articles/datacom-marks-kapua-s-decade-of-data-in-hamilton

56 Māori data is a taonga. E-Tangata, May 2023.
https://e-tangata.co.nz/comment-and-analysis/maori-data-is-a-taonga/

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