



HOUSE OF FISCAL WISDOM

GLOBAL COMMISSION ON FINANCING DEVELOPMENT

PROJECT TERRA · RESEARCH REPORT

The Unmeasured Grid

Infrastructure, Environmental Impact and Taxation of Data Centres in Kenya

TECHNOLOGY GOVERNANCE WORKING GROUP

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CONTRIBUTOR ROLES

This report is a publication of the House of Fiscal Wisdom and is cited to the House as its corporate author. Individual contributions are recorded separately, in accordance with the Contributor Roles Taxonomy (CRediT), adopted as ANSI/NISO Z39.104-2022, which describes what each person contributed to a research output without treating contribution and authorship as the same thing. Steve Odhiambo, Researcher at the House of Fiscal Wisdom, was responsible for research and the writing of the draft. Lyla Latif (PhD), Director of the House of Fiscal Wisdom was responsible for conceptualisation, methodology, the design of the research outline, supervision, review, writing and editing of the manuscript.

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Abbreviations

AI

Artificial Intelligence

API

Application Programming Interface

CA

Communications Authority of Kenya

CAGR

Compounded Annual Growth Rate

CAK

Competition Authority of Kenya

CENELEC

European Committee for Electrotechnical Standardization

CET

Common External Tariff

CPE

Customer Premises Equipment

CPU

CPU

EAC

East African Community

EACCMA

East African Community Customs Management Act

EPA

Environmental Protection Agency

EU

European Union

FCC

Federal Communications Commission

FY

Financial Year

GPU

Graphics Processing Unit

HS

Harmonised System

IaaS

Infrastructure as a Service

ICT

Information and Communication Technology

IDF

Import Declaration Fee

IEA

International Energy Agency

IHD

IHD

IoT

Internet of Things

IT

Information Technology

JRC

Joint Research Centre

KDN

Kenya Data Networks

KP & TC

Kenya Posts and Telecommunications Corporation

KRA

Kenya Revenue Authority

KShs

Kenya Shillings

MIT

Massachusetts Institute of Technology

MW

Megawatt

MWh

Megawatt Hour

PaaS

Platform as a Service

PM2.5

Fine Particulate Matter

QGIS

Geographic Information System software (used for spatial mapping)

RDL

Railway Development Levy

SaaS

Software as a Service

Sep Tax

Tax Significant Economic Presence Tax

SEZ

Special Economic Zone

SEZA

Special Economic Zones Authority

TAT

Tax Appeals Tribunal

TWh

Terawatt Hour

UPS

Uninterruptible Power Supply

VAT

Value Added Tax

WHT

Withholding Tax

Table of Legislation

KENYA

Computer Misuse and Cyber Crimes Act, 2018, cap 79c

Constitution of Kenya, 2010

Data Protection Act, 2019 (Act No 24 of 2019)

East African Community Customs Management Act, (Act No. 1 of 2004)

Evidence Act, cap 80

Excise Duty Act, cap 472

Income Tax Act, cap 470

Income Tax Ordinance, 1948 (repealed)

Kenya Information and Communications Act, 1998 (Cap 411A)

Miscellaneous Fees and Levies Act, cap 46c.

Science, Technology and Innovation Act (Act No 28 of 2013)

Special Economic Zones Act, Cap 517 A

Special Economic Zones (Amendment) Act, (Act No 12 of 2026)

Stamp Duty Act, cap 480

Technopolis Act (Act No. 13 of 2026)

Value Added Tax Act, cap 476

SUBSIDIARY LEGISLATION

Communications Authority of Kenya, Telecommunications Market Structure, 2026

East African Community Gazette Notice (30 June 2026)

Environmental and Co-ordination (Noise and Excessive Vibration Pollution) Regulations, 2009

CASE LAW

*Seven Seas Technologies Limited v Commissioner of Domestic Taxes (Income Tax Appeal 8 of 2017) [2021]
KEHC 358 (KLR)*

Avery Lounge Limited v Commissioner of Domestic Taxes (Income Tax Appeal E010 of 2021)

Commissioner of Domestic Taxes v Dynasoft Business Solutions Limited (Income Tax Appeal E083 of 2023)

Mawingu Networks Limited v Commissioner of Domestic Taxes (Tax Appeal Tribunal)

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The research drew on the assistance of a number of people and institutions. Colleagues at the House of Fiscal Wisdom and within the Technology Governance Working Group commented on successive drafts and sharpened the argument in Parts C and E. Operators, industry directories and public registries supplied the disclosures on which the mapping in Part B rests. The Kenya Power and Lighting Company received the research team at Stima Plaza and considered a formal request for data on the electricity consumed by data centres in Kenya; the request was declined on grounds of confidentiality, and the exchange is recorded here because the refusal is itself part of the evidence the report presents.

The report also benefited from the parallel study of data centres in Tanzania prepared within the same programme, which allowed comparative questions to be tested across two jurisdictions before either report was finalised.

Responsibility for the analysis, and for any error that remains in it, rests with the contributors and with the House of Fiscal Wisdom alone. The views expressed do not necessarily reflect those of LUMINATE or of any institution named in these pages.

Executive Summary

A data centre is not a metaphor. It is a building that draws electricity continuously, consumes water to reject heat, is assembled from copper, cobalt, nickel and rare earth elements extracted elsewhere, and converts those inputs into computing capacity that is sold. This report takes that material fact as its starting point and asks what Kenyan law does with it.

Part A establishes what the object is. It sets out the definitions used in European regulation and in international standards, in the absence of any Kenyan statutory definition, and describes the minerals from which such facilities are built, the categories into which the industry divides them, and the emerging experiments in underwater and orbital siting. It then examines electricity demand. The International Energy Agency estimates that data centres consumed about 415 TWh in 2024, roughly 1.5 per cent of global electricity, and projects that figure to roughly double by 2030. Africa sits at the bottom of that distribution, with average per capita data centre consumption below 1 kWh in 2024, though the continental average conceals South Africa at more than fifteen times that level. Part A closes with the public health evidence, which links data centre operation to air pollution from backup generation and grid demand, to water abstraction and saline discharge, to measurable local warming, and to persistent low frequency noise.

Part B maps the Kenyan landscape. Eight facilities are identified for which sufficient public information exists, six of them operated by foreign headquartered or regionally owned groups, and nearly all of them concentrated in Nairobi. Published estimates of national installed capacity diverge from about 15 to about 40 megawatts depending on what the compiler counts, which is itself the finding. No Kenyan authority publishes an authoritative figure for how much electricity or water these facilities consume. A formal request to the Kenya Power and Lighting Company for consumption data was declined as confidential.

Part C reads the fiscal law against the physical facility. Kenyan law does not recognise a data centre as a fiscal object. It recognises servers, telecommunications equipment, machinery, buildings, software rights, imported services, instruments and utilities, each governed by a different statute and each carrying its own classification question. The report works through those components one by one and reassembles them. The result is a regime that is substantive but distributed, in which the effective burden on a project is the product of income tax, value added tax, customs duty, excise duty, stamp duty and several levies interacting across different periods, and in which no headline rate describes the outcome. Two propositions commonly made in policy discussion are shown to be wrong. A licensed Special Economic Zone enterprise does not enjoy a ten -year tax holiday but a ten -year rate of 10 per cent followed by ten years at 15 per cent. Nor is information and communications equipment uniformly duty free: in June 2026 Kenya stayed the Common External Tariff to apply 10 per cent to optical fibre while applying zero per cent to lithium-ion batteries, so two assets in a single build moved in opposite directions within one gazetted year.

Part D situates the fiscal position within a technology governance framework that is equally distributed, running across communications licensing, data protection, cybercrime, evidence, science and innovation, and the 2026 Technopolis legislation, with sandbox arrangements held by individual regulators rather than by government as a whole.

Part E draws the evaluation together. The central finding is an asymmetry. Kenya has built a reasonably complete apparatus for granting relief to data centre investment and no apparatus at all for measuring what that investment consumes or what the relief costs. Incentives are granted facility by facility on statutory conditions, while electricity use, water use, emissions and tax expenditure go unpublished. That asymmetry is not a gap in the law. It is a distributive choice, and it operates in favour of operators with the scale to navigate several tax regimes at once and against local entrants, host communities and the revenue authority itself. Eight recommendations follow, directed at consolidated tax guidance, a statutory disclosure register for electricity and water, customs predictability, conditional and reviewable incentives, anonymised sectoral statistics, environmental and social assessment for larger facilities, guidance on cross border cloud payments, and completion of the research record.

“That asymmetry is not a gap in the law. It is a distributive choice, and it operates in favour of operators with the scale to navigate several tax regimes at once and against local entrants, host communities and the revenue authority itself.”

Introduction

The governance of technology cannot be separated from the political economy of the state in which that technology is installed, or from the progress of that state towards the socio-economic rights it has undertaken to realise. Technology governance is bound up with the fiscal foundation of the social contract, and it is at that intersection that taxation becomes the central concern of the Technology, Equality and Regulatory Risk Assessment programme, Project TERRA. Technology is now embedded in the ordinary conduct of life. It shapes how healthcare is delivered, how courses are taught and how skills are acquired and practised, and it has reordered the terms on which people associate with one another. A thing of that reach deserves sustained scrutiny, not only in how it is introduced into a society but in how it is used, controlled and traded, in how it generates and reinterprets data, in how algorithms are built from that data, and in how those algorithms feed back into human conduct. These concerns are broad because the actors are not interchangeable. Those who use technology, those who produce it and those who market it occupy distinct positions and hold distinct interests, and the consequences of technological change are not evenly distributed. Technology reaches climate, politics, social life and the economy in every one of their forms, whether formal, informal, wartime, underground, illicit, care based or algorithmically mediated, and it reaches them unequally. The data centre sits at the material centre of that system. It is the building in which the cloud actually resides, and it converts land, electricity, water, minerals, fibre and capital into computing capacity that is then sold. This report accordingly takes the data centre as its object of study.

The report asks four questions. What is a data centre, materially and legally, and what does it consume in order to operate? What is the environmental and public health footprint of such a facility, and how much of that footprint is known in Kenya? How does Kenyan law tax a data centre, given that no Kenyan statute treats the facility as a fiscal object in its own right? And what does the resulting fiscal and regulatory settlement distribute, to whom, and at whose cost? The method is doctrinal and empirical in equal measure. Part A assembles the technical and scientific literature on the construction, operation, energy demand and health effects of data centres, and treats the facility first as a physical object. Part B maps the facilities operating in Kenya, using operator disclosures, industry directories and geospatial analysis in QGIS. Part C reads the Income Tax Act, the Value Added Tax Act, the Excise Duty Act, the Stamp Duty Act, the Miscellaneous Fees and Levies Act, the East African Community customs instruments and the Special Economic Zones framework against the physical components of a working facility, and tests the resulting position against the decided cases. Part D places that fiscal analysis within the wider regulatory framework. Part E evaluates the settlement and sets out recommendations. Three limitations should be stated at the outset, because each shapes what the report is able to claim. First, no Kenyan public authority publishes a statistic for the electricity or water consumed by data centres. A formal request to the Kenya Power and Lighting Company, made in the course of this research and delivered in person at Stima Plaza together with a written questionnaire, was declined on the ground that the information sought was confidential. Second, the facility level tax position of private operators is not in the public domain, so the report can establish what the law provides and what sector level receipts disclose, but not what any named operator has paid or deducted. Third, the mapping in Part B rests on public disclosure and industry directories rather than on a regulatory register, and it is therefore a reasoned reconstruction rather than a census. Each of these limitations is itself a finding, because each follows from the absence of a reporting obligation rather than from any difficulty of measurement.

PART A

Understanding Data Centres



Part A establishes the object of study before any legal question is asked. It sets out how a data centre is defined in law and in technical standards, what it is physically made from, how the industry classifies facilities, what the emerging underwater and orbital experiments involve, how much electricity such facilities draw and by what method that draw is estimated, and what the published evidence says about their effects on human health.

A1 Defining the Data Centre

This section establishes what is meant by a data centre. It begins with the absence of any Kenyan statutory definition, sets out the definitions used in European regulation and in the technical standards, and then takes up the scholarly argument that a data centre is better understood as a shifting set of relationships than as a fixed object.

There is no definition of a data centre captured under the Kenyan law. However, the EU regulations define a data centre as “a structure or a group of structures used to house, connect and operate computer systems/servers and associated equipment for data storage, processing and/or distribution, as well as related activities.”¹ A broader definition adopted by the European Committee for Electrotechnical Standardization (CENELEC) defines a data centre as “a structure, or group of structures, dedicated to the centralised accommodation, interconnection and operation of information technology and network telecommunications equipment providing data storage, processing and transport services together with all the facilities and infrastructures for power distribution and environmental control together with the necessary levels of resilience and security required to provide the desired service availability.”² Simply put, a data centre is a physical environment facility meant for housing computer systems and its related components.³ It may also be referred to as a data hall, data farm, data warehouse, computer room, server room, high-performance lab, hosting facility among other names.⁴

A1.1 The Data Centre as a Shifting Assemblage

Maloo and Iskren define a data centre as a physical facility that organisations use to house their critical applications and data. They further elucidate that the design of the data centre is based on a network of computing and storage resources which allow shared applications and data to be delivered. Major components that make up data centres include routers, switches, firewalls, storage systems, servers and application delivery controllers.⁵ Edwards et al identifies three categories that make up what the industry calls the traditional data centre. One of these are enterprise facilities which are run internally by a single company for its own staff and clients. Another category is managed services facilities which are similarly dedicated to one client but are operated by a separate company on that client’s behalf. Colocation facilities on the other hand house multiple unrelated companies, each renting server space within the same building. Cloud or hyperscale facilities sit apart from these three categories entirely, since they are off-premises operations run by a cloud services provider such as Amazon Web Services or Microsoft Azure.⁶

According to Edwards et al, a data centre should not be understood primarily as a place or an object but as a constantly shifting assemblage of relationships, objectified in particular ways, in particular places. They

¹ European Commission, ‘Proposal for a Directive of the European Parliament and of the Council on energy efficiency (recast)’ COM(2021) 558 final, 2021/0203(COD), art 2(45) <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0558> accessed 9 April 2026.

² CEN/CENELEC/ETSI Joint Coordination Group on Green Data Centres, *Standardisation Landscape for the Energy Management and Environmental Viability of Data Centres* (10th edn, 2023) 9 https://www.cenelec.eu/media/CENECENELEC/AreasOfWork/CEN%20sectors/Digital%20Society/Green%20Data%20Centres/standardizationlandscapepgdcedition10_2023.pdf accessed 9 April 2026.

³ Rihards Balodis and Inara Opmane, ‘History of Data Centre Development’ in Arthur Tatnall (ed), *Reflections on the History of Computing: Preserving Memories and Sharing Stories* (Springer 2012) 180–203 <https://inria.hal.science/hal-01526804/document> accessed 9 April 2026.

⁴ Hwaiyu Geng (ed), *Data Center Handbook* (John Wiley & Sons 2015).

⁵ Somit Maloo and Iskren Nikolov, *Cisco Data Center Fundamentals* (Cisco Press 2022) <https://www.ciscopress.com/store/cisco-data-center-fundamentals-9780137638246> accessed 11 June 2026.

⁶ Dustin Edwards, Zane Griffin Talley Cooper and Mél Hogan, ‘The making of critical data center studies’ (2025) 31(2) *Convergence* 429–446 <https://journals.sagepub.com/toc/cona/31/2> accessed 11 June 2026.

further posit that what constitutes a data centre has changed over time and continues to shift between regional, legal, political and environmental contexts.⁷ Data centres have been described as the physical facilities behind cloud computing and internet services, handling the processing, storage and distribution of data. This supporting infrastructure delivers the advanced digital services that cities and modern life have grown to depend on. In most cases the facilities are usually built away from public view, often in suburban or rural areas, and are kept under heavy security. Behind the walls of these facilities lies a rapidly growing physical infrastructure built to store and process the consistently increasing volumes of data generated by our emails, video uploads, Facebook posts and Google searches.⁸ A research conducted by Bast et al, revealed that there are trends in the location of data centres in the modern times. The research posits that hyperscale data centre owners are increasingly building their data centres near large water ways. Furthermore, the establishment of data centres strains the finances of local administrations especially for hyperscale data centres with their increasing input needs.⁹

A2 The Material Basis: Minerals and Metals in Data Centre Construction

This section describes the material inputs from which data centres are built, and identifies the minerals and metals whose extraction elsewhere underwrites the digital infrastructure installed here. Many data centre components are made using minerals and metals which may be common or critical raw materials such as gallium, germanium, metallurgical silicon, tantalum, platinum-group metals, copper, rare earth elements, silver, and gold.¹⁰ Critical minerals form the core of these technologies providing structural strength, electrical conductivity, thermal management and data processing capabilities which are requisite for high-performance capability.¹¹

Copper with its exceptional thermal capacity is one of the significant elements in the manufacture of data centre components. It is instrumental in the making of power distribution systems and server motherboards.¹² Copper is also required in chip wiring that carries both information and power.¹³ Copper is therefore an important element in the networking component of data centres. Another significant element is lithium. As already stated, data centres require stable supply of energy in order to be consistently in service. Moreover, they require backup systems of power supply. These back-up power supply systems utilise lithium-ion batteries. These types of batteries also incorporate cobalt and nickel together with other mineral components.¹⁴ Cobalt, one of the three naturally magnetic elements alongside iron and nickel is also required in lithium-ion batteries which are an important component of the power back-up systems for data centres. Cobalt is also required in the making of laptop batteries, tablet batteries and mobile phone batteries. These are equipment

⁷ Ibid.

⁸ Mél Hogan, 'Data Center' in LA Schintler and CL McNeely (eds), *Encyclopedia of Big Data* (Springer 2022) 273 (as cited in J Monstadt and K Saltzman, 'How Data Centers Have Come to Matter: Governing the Spatial and Environmental Footprint of the "Digital Gateway to Europe"' (2025) 49(4) *International Journal of Urban and Regional Research* 757, 758 <https://www.ijurr.org/article/how-data-centers-have-come-to-matter-governing-the-spatial-and-environmental-footprint-of-the-digital-gateway-to-europe/> accessed 11 June 2026.

⁹ C Carr, D Bast, K Madron and AM Syrus, 'Mapping the clouds: the matter of data centers' (2022) 18(1) *Journal of Maps* 106 <https://hdl.handle.net/10993/51846> accessed 11 June 2026.

¹⁰ João Henrique Santana Stacciarini and Ricardo Junior de Assis Fernandes Gonçalves, 'Data Centers, Critical Minerals, Energy, and Geopolitics: The Foundations of Artificial Intelligence' (2025) 37 *Sociedade & Natureza* e77215 <https://seer.ufu.br/index.php/sociedadennatureza/article/view/77215> accessed 11 June 2026.

¹¹ SFA (Oxford), 'Critical Minerals in Servers and Data Storage' <https://www.sfa-oxford.com/knowledge-and-insights/critical-minerals-in-low-carbon-and-future-technologies/critical-minerals-in-electronics/critical-minerals-in-servers-and-data-storage/> accessed 10 June 2026.

¹² Ibid.

¹³ Nikhil Mulani, 'An Evolving AI Supply Chain' (19 October 2025) SSRN https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5628470 accessed 10 June 2026.

¹⁴ Ibid

which are all commonly used in data centres.¹⁵ Nickel is widely used in the production of alloys together with other metals. It is also employed in the electrochemical processes and for solar batteries which has particular relevance to data centres. Moreover, nickel is also used in the manufacturing of lithium-ion batteries which have been mentioned to be important components of the non-stop operation of data centres.¹⁶

Rare earth minerals are essential in the production of semiconductor heterostructures, infrared sensors and lasers which are used in machine vision systems and neural network accelerators.¹⁷ Palladium, which is a platinum group metal rather than a rare earth, is used in the production of multilayer capacitors, contact elements and catalysts, as well as in coatings and thin films that improve the reliability of microchip interconnections.¹⁸ Neodymium is employed in the development of high-strength permanent magnets used in electric motors, drive and cooling systems and data storage devices.¹⁹ Rare metals are also required for the manufacturing of Graphics Processing Units (GPUs).²⁰ A GPU is a computer chip that can execute many calculations rapidly.²¹ It is primarily developed for image rendering but its ability to process many tasks at the same time makes it useful for high-performance computing (HPC) in cloud and server systems.²² They are therefore used widely in data centres, particularly in servers, to reduce the execution time of applications.²³

A3 Types of Data Centre

This section sets out the categories into which the industry divides data centres, and then examines the two experimental forms, underwater and orbital, that are most often invoked in discussion of the future of the sector. There are four types of data centres which include, Enterprise, Hyperscale, Colocation and Edge. An emerging type of data centre closely related to Edge is the underwater data centre.

A3.1 Enterprise Data Centres

These are data centres built, owned and operated by companies and optimized for their customers. They are based within the premises of their own corporate campus. Companies that prefer not to outsource their information technology operations run an enterprise data centre on their own platform. Thus, they may be situated in separate rooms within the company's building as the company's internal network and IT solutions.

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¹⁵ SFA (Oxford), 'The Cobalt Market and Cobalt Price' <https://www.sfa-oxford.com/battery-metals-and-materials/markets/cobalt-market-and-cobalt-price-drivers/> accessed 11 June 2026.

¹⁶ K K Mamrybayeva, A N Kuandykova, T A Chepushtanova and Y S Merkiyayev, 'Review on hydrometallurgical processing technology of lateritic nickel ore for the last 20 years in the world' (2024) 56(1) *Non-ferrous Metals* 13–21 <https://rudmet.ru/journal/2317/article/38181/?language=en> accessed 19 June 2026.

¹⁷ I Kukula, 'Critical Materials for AI: Securing Supply for the Technological Innovation' (2025) 173 *The Scientific Heritage* 88 <https://cyberleninka.ru/article/n/critical-materials-for-ai-securing-supply-for-the-technological-innovation/viewer/> accessed 18 June 2026.

¹⁸ Ibid.

¹⁹ Ibid.

²⁰ Nina-Simone Edwards, 'Unveiling the Environmental Impact of Large Language Models on Indigenous Communities: A Call for Action and Liability' (2025) 38(1) *Tulane Environmental Law Journal* 1 <https://www.jstor.org/stable/27378747> accessed 18 June 2026.

²¹ Avita Katal, Susheela Dahiya and Tanupriya Choudhury, 'Energy Efficiency in Cloud Computing Data Center: A Survey on Hardware Technologies' (2022) 25(1) *Cluster Computing* 675 <https://link.springer.com/article/10.1007/s10586-021-03431-z> accessed 18 June 2026.

²² Ibid.

²³ Ibid.

²⁴ Vincent Fogarty and Sophia Flucker, *Data Centre Essentials: Design, Construction, and Operation of Data Centres for the Non-Expert* (John Wiley & Sons 2023) 140.

A3.2 Colocation Data Centres

This is the housing of client servers and networking equipment in a third- party data centre. Rather than having servers within a room in the organisation's building, space is rented in a colocation data centre. The customers therefore share the operation cost of the facility, that is, power, communication, cooling and floor space.²⁵ This type of operation appeals to businesses that require complete control across their equipment. Organizations have the option to manage and service their own equipment, just as they would with servers kept on-site.²⁶ Instead of constructing an entirely new data centre, a company can expand its existing infrastructure by renting space within a colocation facility. Storing data hardware in such a facility offers greater bandwidth than a typical office server room and often at a significantly reduced cost.²⁷

A3.3 Edge and Urban Data Centres

Edge data centres are smaller facilities located near the communities they serve. Their smaller sizes also imply that they are more adaptable. Mobile edge data centres, for instance, can be temporarily deployed at large events such as concerts or sports competitions and can even help address connectivity challenges in remote areas. Urban data centres are a specific type of edge facility built to serve customers who require very low latency. Because of this requirement, they must be situated closer to their users. This explains why they are commonly found in cities and suburbs. They are generally smaller than hyperscale cloud data centres and consume between 438 and 3,504 MWh of electricity per year. Their lower power demands mean that they can connect to existing local electricity networks without the need of a new infrastructure. They are also frequently built as modular or container-based systems, making them practical and space-efficient.²⁸

Edge computing is regarded as a key driver of future data centre development since it processes data closer to where it is generated hence significantly reducing latency. This makes it valuable for the growth of technologies such as artificial intelligence and the Internet of Things (IoT). The rollout of 5G networks ensures support for heavy data demands by modern devices and applications. 5G and edge computing reduce delays in data transmission. In essence, 5G is designed to support the decentralization of data processing, which in turn drives the need for edge data centres.²⁹

A3.4 Hyperscale Data Centres

These are data centres which are constructed to meet the requirements of hyperscale companies such as Amazon, Alibaba, Facebook, Google, Salesforce, Microsoft, and a handful of others. The operational needs of these companies are often very technical.³⁰ These types of data centres require huge spaces and vast amounts of power to support the thousands of servers and to manage the heavy computation or storage tasks. There are two critical aspects for these data centres. First, is that the design criteria must be customized to meet the specific needs of individual users, including particular standards for power resilience and cooling redundancy. Second, is that hyperscale data centres operate on a closed-access model. Therefore, they do not allow external

²⁵ Kris Jamsa, *Cloud Computing: SaaS, PaaS, IaaS, Virtualization, Business Models, Mobile, Security and More* (Jones & Bartlett Learning 2013).

²⁶ Thomas A Limoncelli, Christina J Hogan and Strata R Chalup, *The Practice of System and Network Administration: DevOps and Other Best Practices for Enterprise IT, Volume 1* (3rd edn, Addison-Wesley 2016).

²⁷ Fogarty and Flucker (n 24) 20.

²⁸ Fogarty and Flucker (n 24) 21.

²⁹ Ibid.

³⁰ International Energy Agency, *Energy and AI* (IEA 2025) <https://www.iea.org/reports/energy-and-ai> accessed 14 May 2026.

companies to connect directly within their facilities. Instead, they establish a network extension or node within a retail facility, through which all companies housed in that retail facility can gain access to the hyperscaler's network.³¹

A3.5 Underwater Data Centres

Microsoft described underwater data centres from their news reports as sealed container located on the ocean's floor containing servers and filled with nitrogen built as a self-sustainable mechanism which is targeted to work on the basis of the green energy.³² On the other hand Dgtl infra website defines the underwater data centres as submerged facilities equipped with power and cooling infrastructure that houses computer servers and related IT equipment aiming to increase sustainability and efficiency in computing operations, while also exploring new frontiers in data storage and processing technology.³³

Underwater data centres have been pursued in recent years although the idea itself is not wholly new. The idea emerged in the early twenty-first century following an increasing awareness of the environmental drawbacks (such as high electricity consumption) associated with the normal data centres. This innovation would leverage on the natural cooling properties thus achieving cooling more efficiently and in a less costly way.³⁴ Over the years there has been a need for increased efficiency, scalability and environmental awareness in the manner of operation of data centres. The concept of underwater data centres is a representation of a response to the challenges that conventional/traditional data centres based on land face. The biggest challenge that has glared at land-based data centres is how to manage the significant amount of heat that is often generated during operations. The heat generated require substantial energy to facilitate cooling. This has incentivized many data centres to strategically set up in colder regions in an attempt to lower the overall energy used in cooling. Underwater data centres enjoy the direct benefit of cooling naturally from the deep-sea environments. This allows for an improved efficiency particularly in areas where the terrestrial power grids may be unreliable.³⁵

There are other significant advantages that come with submerging of data centres below the oceans. Submerging data centres mitigates risk such as server farms being exposed to environmental stressors such as corrosion brought about by oxygen, humidity and the fluctuations in temperature. Moreover, the deployment of data centres below the sea greatly enhances the delivery of cloud services in densely populated areas, because almost half of the global population lives within 200 kilometres of a coastline.³⁶ Besides the natural cooling, underwater data centres also provide enhanced physical security compared to terrestrial data centre facilities.³⁷ Underwater data centres also present an efficiency in terms of construction compared to data centres which are built on land. This is owing to the fact that in the modern day, the construction of each data centre is unique in the building codes, electricity supply and network connectivity which affect how long a

³¹ Fogarty and Flucker (n 24) 142.

³² Microsoft, 'Project Natick' <https://natick.research.microsoft.com/> accessed 25 June 2026.

³³ M Zhang, 'Underwater Data Centers: Servers Beneath the Surface' (Dgtl Infra, 23 January 2024) <https://dgtlinfra.com/underwater-data-centers-servers/> accessed 25 June 2026.

³⁴ Mark Abner and Sanja Bauk, 'On Underwater Data Centers: Surveillance, Monitoring, and Environmental Management in the Baltic Sea' (2024) 14(2) *JITA – Journal of Information Technology and Applications (Banja Luka)* – APEIRON 142 <https://jita-au.com/index.php/2025/01/10/on-underwater-data-centers-surveillance-monitoring-and-environmental-management-in-the-baltic-sea/> accessed 23 June 2026.

³⁵ AB Suryawanshi, S Borde, N Kale and S Rangdale, 'A Comprehensive Review of Underwater Data Centers: Challenges, Technologies, and Future Directions' (2025 2nd International Conference on Integration of Computational Intelligent System (ICICIS), 2025) 1 https://www.researchgate.net/publication/400696054_A_Comprehensive_Review_of_Underwater_Data_Centers_Challenges_Technologies_and_Future_Directions accessed 24 June 2026.

³⁶ Ibid.

³⁷ A Abdullah, D Blow, S Rampazzi and MJ Islam, 'Active Localization of Close-range Adversarial Acoustic Sources for Underwater Data Center Surveillance' (arXiv, 2025) 1 <https://arxiv.org/abs/2510.20122> accessed 24 June 2026.

data centre can be constructed.³⁸ The following section will outline some of the underwater data centres which have been explored the world over and their modes of operation.

A3.5.1 Case Study: Project Natick

Box 1. Project Natick, Microsoft, 2013 to 2020. The first sustained test of whether a sealed pod of servers can be operated on the seabed, what the two deployment phases established about failure rates and cooling, and the reasons Microsoft did not carry the experiment forward.

In the year 2013, Microsoft embarked on the development of an underwater data centre in a project known as Natick. This project sought to find out whether a sealed container filled with servers could operate under water in an efficient manner. 2015 saw the launch of the first phase of project Natick off the coast of California with a prototype being submerged 30 feet under water for several months. This demonstrated the feasibility of underwater data centres as a concept. The results of the energy efficiency and reliability were all promising.³⁹ Following the encouraging results in the first phase, Microsoft stepped up phase 2 of project Natick in 2018 by deploying a larger underwater data centre off the coast of Scotland. This was the size of a standard shipping container. It contained 864 servers and fully operated on renewable energy sourced from the nearby wind and solar farms. This data centre was submerged approximately 117 feet below the surface of the ocean and remained there for two years. The result was a lower failure rate shown in this data centre as compared to a normal/conventional data centre. This was largely attributed to the limited human interference and the cooler stable environment under the sea. It was ultimately this phase that strengthened the idea that underwater data centres were practically viable and efficient compared to the conventional Data centres.⁴⁰ The site at which this Natick data centre would be constructed would have a collection of steel cylinders which would each contain several thousand servers. All these together would make up the underwater data centre which would be situated within a few kilometres off the coast and placed between 50 and 200 metres below the surface. The cylinders could be left to rest on the ocean bed or they could be moored by cables and float at some depth. Once a cylinder was set up, it would remain in operation until such time as the servers contained in it were to be rested. The maintenance of these cylinders could also be performed remotely without requiring consistent onsite monitoring. This is a direct opposite of what is often the case for on land data centres. Moreover, the environment in the ocean provides a very uniform environment at whichever place. This eliminates the need for customization of the cylinders increasing the speed at which they could be installed.⁴¹ The architecture of project Natick sidestepped the problem of using evaporation cooling which had proven difficult especially in drought prone areas. Even in areas where there is an abundance of water, the use of evaporation to cool posed a challenge to electronic equipment as it made the equipment more prone to corrosion. In the Natick project, the interior was composed of standard computer racks which had attached heat exchangers to transfer the heat from the air to some liquid likely water. The liquid was then pumped to outside heat exchangers on the outside of the pod which would then transfer the heat to the ocean environment. Once the transfer liquid was cooled, it would return to the internal heat exchange and the whole cycle repeats itself. This system proves to be an efficient mode of cooling.⁴² Project Natick presented a number of advantages over terrestrial data centres. It

³⁸ Ibid.

³⁹ Abner and Bauk (n 34) 142.

⁴⁰ Ibid.

⁴¹ Ben Cutler, Spencer Fowers, Jeffrey Kramer and Eric Peterson, 'Dunking the Data Center' (2017) 54(3) *IEEE Spectrum* 26, 29 <https://spectrum.ieee.org/underwater-data-centers/particle-6> accessed 25 June 2026.

⁴² Ibid 30.

reportedly had the failure rate of one-eighth of its land counterparts. Moreover, it had a reduced exposure to human error, corrosion and as already averred, to temperature fluctuations. However, Microsoft quietly shelved the idea of continuing with project Natick or running underwater data centres. Some of the challenges they cited were that long-term maintenance and lifecycle planning for underwater data centres is less flexible as compared to terrestrial data centres. They further cited that the pods used in underwater data centres were not easy to upgrade or to service. Scaling would require having many units in the ocean environment which would be more complex.⁴³

A3.5.2 Case Study: The Hainan and Shanghai Facilities

Box 2. The Hainan and Shanghai facilities, Hicloud, 2023 onwards. The first commercial underwater deployments anywhere, the technologies on which they rely, and the efficiency claims made for them by their operator and by the Chinese state.

These data centres are discussed together as they are all owned and operated by Hicloud, which is a subsea infrastructure firm and a division of the marine navigation company Highlander. The Hainan underwater data centre project was commenced in the year 2023 and it is the first commercial operation in the world of its kind. The data centre is meant to support the Chinese telecommunications giant China Telecom.⁴⁴ The project is situated off the coast of the southernmost province of Hainan. The data centre is deployed on the sea bed off the Lingshui coast in Hainan. According to a report by the state council of China, this data centre facility is capable of housing more than 400 high performance servers. The data centre is designed to use seawater as a natural coolant and cut the energy consumption by a significant amount in comparison to data centres based on land. The first phase of this data centre in Shanghai is powered mostly by offshore wind. This data centre has a total capacity of 24 MW and it relies on two significant technologies that is direct offshore wind connection and seawater cooling. Renewable energy generated from offshore wind sources is transmitted directly to the facility through subsea hybrid power and fibre-optic cables, while the surrounding seawater serves as a natural cooling medium for the data centre infrastructure. Compared with conventional land-based data centres, the system reportedly achieves a 22.8% reduction in electricity consumption, completely eliminates freshwater usage, and decreases land requirements by over 90%.⁴⁵

A3.6 Orbital Data Centres: A Proposed Frontier

Box 3. Data centres in orbit. Why a proposal first made in 2011 has been revived, what would have to become cheaper for it to be feasible, and the atmospheric and resource objections it has yet to answer.

In the year 2011, a group of researchers from the Chinese Academy of Sciences conceptualized and proposed the idea of space data centres. In their proposal, they highlighted that through exploitation of near-continuous solar power and the cold space environment, data centres in space would offer a potential pathway to reducing

⁴³ Ramy Harb, 'Why Microsoft Abandoned Its Successful Underwater Data Center Project' (EmergEdge, 21 March 2025) <https://www.emergedge.com/blog/why-microsoft-abandoned-its-successful-underwater-data-center-project> accessed 25 June 2026.

⁴⁴ Jouma Ali Al-Mohamad, 'Diving into the Future: Integrated Engineering for Building AI-Powered Underwater Data Centers to Achieve "Blue Computing"' (2026) 3(1) *Asian Journal of Research and Development Studies* 304, 312 https://caarnjournals.com/ajrds/uploads/publications/DIVING_INTO_THE_FUTURE-INTEGRATED_ENGINEERING_FOR_BUILDING_AI-POWERED_UNDERWATER_DATA_CENTERS_TO_ACHIEVE_BLUE_COMPUTING_d1053895f006.pdf accessed 25 June 2026.

⁴⁵ Third Harbor Engineering, 'World's First Offshore Wind Direct-Connected Underwater Data Center Commissioned in Shanghai' (China Engineering Reports, 15 January 2026) <https://www.ccccltd.cn/en/news> accessed 25 June 2026.

the overall cost of energy computation. Without a doubt, this ambitious idea was fundamentally constrained by thermal management and industrial technology.⁴⁶ More recently in February 2026, the Centre for security and emerging technologies at Georgetown university published an article which reported plans and ideas by technology innovator Elon Musk to set up a data centre in space. Elon Musk intends to pursue this idea of orbital data centres through the space exploration company SpaceX together with xAI. This idea is motivated by the concept that space is the lowest-cost place to have AI and data centres by extension as remarked by Musk himself earlier in 2026 at the World Economic Forum. Major players in the technology and AI sectors have also been drawn to the idea including Google through its former chief executive Eric Schmidt and Amazon founder Jeff Bezos. However, this idea of orbital data centres has remained rather speculative and something to be achieved in the long-term.⁴⁷ In the recent times however, certain innovations have indicated that orbital or space data centres may indeed be closer than speculated. One of these is SpaceX's recent activities of mass-producing space vehicles at a lower cost. A vehicle such as Starship for example can be used in ferrying a lot of equipment to space. Moreover, as remarked by Thornburg, an expert who spearheaded the development of SpaceX's Raptor engine, there have been efficiency gains in launching rockets, putting spacecraft into orbit and building of solar arrays to generate power.⁴⁸ There are problems that would come with setting up data centres in space. Spacecrafts can cause problems on their way up and down. During launching, they emit a range of emissions like black carbon, nitrogen oxides, carbon monoxide, aluminium oxide, chlorine gases and sometimes mercury. Moreover, when satellites are decommissioned after five to 15 years, they release metals as they vaporize. This injects pollutants into previously pristine parts of the stratosphere and this may cause adverse effects. Donovan, a space policy expert has remarked that the idea of space data centres would demand a high amount of rare earth metals and resources that are in short supply. This would also cause adverse effects on the environment.⁴⁹ Therefore, the Federal Communications Commission requires tech companies looking to venture into this idea of space data centres to provide meaningful consideration of environmental consequences.⁵⁰

A4 The Environmental Impact of Underwater Data Centres

This section examines what an underwater facility discharges into its surroundings, addressing thermal load, the consequences of a nitrogen release, the effects of submarine cabling on marine life, and underwater noise produced by data centres.

The various types of data centres including underwater data centres have been highlighted in the previous section. Data centres have been assessed majorly based on the facilities inside the walls and infrastructure based inside the buildings and rarely based on what they release to the surrounding and their effect on the environment. It is imperative to point out that all these data centres impact the environment in different ways and these have a direct effect on human life. Underwater data centres despite being more efficient especially in

⁴⁶ Jiahao Shi, Xudong Zhang, Min Yang and Jing Liu, 'Thermal Management Technologies for Space Data Centers: Current Status and Prospects' (2026) 47(1) *Journal of Refrigeration* 1 <https://www.sciopen.com/article/10.12465/issn.0253-4339.20251030004> accessed 12 August 2026.

⁴⁷ Sharon Goldman, 'Elon Musk is pushing to build data centers in space. But they won't solve AI's power problems anytime soon' *Fortune* (19 February 2026) <https://fortune.com/2026/02/19/ai-data-centers-in-space-elon-musk-power-problems/> accessed 12 August 2026.

⁴⁸ Ibid.

⁴⁹ Tom Perkins, 'Space datacenters proposed by Musk and Bezos "catastrophic" for planet, experts warn' *The Guardian* (23 July 2026) <https://www.theguardian.com/science/2026/jul/23/space-datacenters-bezos-blue-origin> accessed 12 August 2026.

⁵⁰ Ibid.

terms of cooling still have an impact on the environment which cannot be ignored. This section examines some of these impacts, including noise pollution and heat pollution.

The first of these impacts is the heat that an underwater facility discharges into the ocean. The quantity of heat produced is much the same as for a comparable facility on land, because almost all of the electrical energy drawn by a server is ultimately converted into heat. The difference lies in the sink. The submerged facility rejects that heat directly into the surrounding water rather than into the atmosphere, so that each watt of electrical power drawn by a rack becomes approximately one watt of thermal power delivered to the sea.⁵¹ The scale can be estimated from published server figures. A low consumption server of the kind assumed for these deployments draws in the order of 200 watts, so a rack of forty two such units draws about 8.4 kilowatts.

⁵² Expressed as annual energy, a server of that class is estimated to use between 1,800 and 1,900 kilowatt hours a year, which is close to 5 kilowatt hours a day, and a forty two unit rack therefore consumes in the order of 210 kilowatt hours a day.⁵³ A single pod holding several such racks is thus a continuous thermal source of tens of kilowatts, and a commercial deployment of many pods is a source of megawatts. The significance lies not in the absolute quantity, which is small against the thermal mass of the ocean, but in its concentration. Submerged facilities are sited in cold water precisely because cold water is an efficient sink, and cold water near the seabed is also where temperature sensitive assemblages such as cold water corals are found. Warming a small volume persistently is a different proposition from warming a large volume slightly.

Underwater data centres also pose a threat of marine pollution in case of a potential wreckage. As a way of preventing the hard drives of underwater data centres from malfunctioning and to provide better conditions for the hard drives, underwater data centres are usually filled with nitrogen. Higher density of the nitrogen in the water can result in little oxygen being present in the water(hypoxia) or no oxygen at all present in the water(anoxia).⁵⁴ Leaks of nitrogen can occur in case of a potential crash of the underwater data centre. This would lead to a massive loss of animal and plant life due to lack of oxygen. Moreover, increased amounts of nitrogen in the water can result to increased growth of certain plants and algae (algal bloom) which can cause a further decrease of oxygen in the water.⁵⁵ Submarine electrical cables have also been documented to have effects on marine population. The effects occur during decommissioning, installation and maintenance. Studies on fish have documented that they are attracted to the electromagnetic fields. The studies have shown that that these electromagnetic fields affect electroreception to detect prey in sharks and rays. Moreover, experimental studies have indicated that the electromagnetic fields can interfere with neuronal activity in electrical fish. Other effects on fish that have been observed are reduced mobility and increased migration. The study also deduced that electromagnetic fields interfere with reproduction in fish. This is evidenced by delays in hatching of eggs and impaired embryonic development.⁵⁶

More categorical findings emerged from a report by Davies et al which pulled together 46 separate Scientific studies from 15 countries covering 50 different species of sea and freshwater invertebrates such as coral,

⁵¹ Raritan, 'Deploying High Power to IT Equipment Racks' (White Paper, 2012) 3 https://www.raritan.com/assets/re/resources/white_papers/RE-wp-High_Power.pdf accessed 25 June 2026.

⁵² Josh Mahan, 'Understanding Data Center Energy Consumption' (C&C Technology Group, 27 January 2023) <https://cc-techgroup.com/data-center-energy-consumption/> accessed 25 June 2026.

⁵³ Author's calculation: 1,800 kWh ÷ 365 days = 4.93 kWh/day (approximately 5 kWh/day).

⁵⁴ Anne Bernhard, 'The Nitrogen Cycle: Processes, Players, and Human Impact' (2010) 3(10) *Nature Education Knowledge* 25 <https://www.nature.com/scitable/knowledge/library/the-nitrogen-cycle-processes-players-and-human-15644632/> accessed 25 June 2026.

⁵⁵ Agnieszka Małgorzata Starczewska, 'Underwater Data Centers – A Climate Change Solution or Additional Environmental Threat – An Attempt of the Analysis of Their Status in International Public Law' (SSRN, 8 November 2025) https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5723198 accessed 25 June 2026.

crabs, mussels and sea urchins. Many separate experiments were conducted to try and establish whether noise pollution actually harm these animals. The study revealed that defence behaviours for these animals such as hiding, fighting off predators or closing up for protection were significantly affected by noise emanating from human activities.⁵⁷ This implies that animals would be more susceptible to predators and others would be inefficient in finding prey as a result of noise pollution. The study also documented that noise resulted to a significant harm on genetics of the organisms. Noise was found to contribute significantly to alteration of gene activity of the organisms through stress response.⁵⁸ Furthermore, the noise exposure was linked to a sharp decline in body condition of the organisms especially in mussels which have relatively weaker byssal threads which they use to anchor themselves to rocks and surfaces. There was also damage of hair cells in the marine invertebrates which is detrimental because the hair cells are the sensory structures that many marine animals use to detect sound and to maintain balance.⁵⁹ From these findings, it can be deduced that noise pollution is not just ordinary stimulus that aquatic animals respond to but it significantly and adversely affects these organisms.

The concern of noise pollution is also worth consideration as an environmental impact of underwater data centres. Sound waves propagate in water at a much higher velocity over long distances than in air. This is because water has a higher density which allows for efficient transmission with minimal loss of energy. The propagation of sound in water is also influenced by factors such as temperature, salinity, depth, seabed relief and currents and the surrounding temperature. The intensity of a sound wave or the loudness of sound wave is referred to as sound pressure level and is measured in decibels. This sound pressure level is higher in water than in the air by about 60 dB for the same sound source.⁶⁰ This unnatural sound can negatively affect aquatic organisms within range of the underwater data centre cylinders/pods. This is because different animals respond differently to such sounds and some may even be scared away from their breeding places. A study conducted by Duarte et al in 2021 which investigated the potential impacts of noise pollution exposure on aquatic animals found that it can cause both behavioural and physiological changes, such as movement from preferred habitats, impaired ability to detect predators or prey, modified stress levels, reduced fertility and permanent injury.⁶¹

Underwater data centres remain a significant innovation in the data centre landscape. The demonstration by Microsoft under project Natick between 2018 and 2020 and the subsequent exploration on a commercial basis by Highlander through the Hainan underwater data centre is a testament of how promising these types of data centres are looking to be. However, these developments have not been matched by independent research and publications. At present, the bulk of existing literature is dominated by technical reports from Microsoft and other engineering publications.

⁵⁶ Manuel Reategui-Inga, Alizon Cisneros, Wilfredo Alva Valdiviezo, Ronald Panduro Durand, Edgar Juan Díaz-Zúñiga, Cecilia Antony Ninahuanca Tocas, Peter Coaguila-Rodriguez, José Kalión Guerra Lu, Reiner Reategui-Inga and Alberto Franco Cerna-Cueva, 'Impact of Electromagnetic Fields from Submarine Cables on Marine Life' (2025) 20(3) *International Journal of Design & Nature and Ecodynamics* 647, 650 <https://iijeta.org/download/file/fid/163532> accessed 13 August 2026.

⁵⁷ Hailey L Davies, Kieran D Cox, Kelsie A Murchy, Hailey M Shafer, Audrey Looby and Francis Juanes, 'Marine and Freshwater Sounds Impact Invertebrate Behavior and Physiology: A Meta-Analysis' (2024) 30(11) *Global Change Biology* e17593 <https://onlinelibrary.wiley.com/doi/full/10.1111/gcb.17593> accessed 13 August 2026.

⁵⁸ Ibid.

⁵⁹ Ibid.

⁶⁰ Jennifer Sheldon, Weidong Zhu, Adnan Abdullah, Sri Hrushikesh Varma Bhupathiraju, Takeshi Sugawara, Kevin Butler, Md Jahidul Islam and Sara Rampazzi, 'AquaSonic: Acoustic Manipulation of Underwater Data Center Operations and Resource Management' (2024 IEEE Symposium on Security and Privacy (SP), 2024) 331 <https://cise.ufl.edu/~butler/pubs/oakland24-sheldon-aquasonic.pdf> accessed 25 June 2026

⁶¹ Carlos M Duarte and others, 'The Soundscape of the Anthropocene Ocean' (2021) 371(6529) *Science* eaba4658 <https://www.science.org/doi/10.1126/science.aba4658> accessed 13 August 2026.

A5 Electricity Consumption of Data Centres

This section examines how much electricity data centres consume. It first defines what is counted as data centre energy use, then explains the method by which consumption is estimated in the absence of mandatory reporting, and finally sets out the published global and regional figures.

Having examined the various types of data centres, this section will now turn to the electricity consumption of these data centres. The section will first set out what counts as data centre energy use and then examine the figures available particularly in Europe and The United States since these regions offer the most complete publicized data on this field. The aim is to give a clear picture of how much electricity this data centre infrastructure actually consume before turning to the Kenyan case.

Data centres rely on stable supply of power for smooth operations. The public grid is not effective for their operations as this grid can experience voltage shortages which would cause the data centre servers to malfunction or even experience longer outages which would crash the entire data centre. A standard data centre therefore adopts a unique system of power connectivity. The system is made such that between the public grid and the infrastructure there is first the transformer which is responsible to transform electrical energy from high/medium voltage to low voltage. After this electrical element, there is the switchgear, which is used to control, protect and isolate electrical equipment. In the framework of Data Centres, it is responsible to connect the IT equipment to the main grid or to the backup diesel generator. There is also usually a backup generator to provide power in the event of a failure in the public grid.⁶² However, data centres primarily rely on electricity from the public grid.

A5.1 What Counts as Data Centre Energy Use

The International Energy Agency documented in 2025 that the total electricity consumption of data centres, Artificial Intelligence, and Crypto combined could more than double, from 460 TWh in 2022 to more than 1,000 TWh by 2026.⁶³ In the United States for instance, data centre electricity consumption is projected to rise from about 3 per cent of total electricity use today to nearly 9 per cent by 2030. This will be more acute in Virginia which has been referred to above as the world's largest data centre hub with dense fibre networks, proximity to federal agencies, and concentration of hyper scalers.⁶⁴ From the study, the United States and China were projected to account for about 80% of the global growth in data centre electricity between 2024 and 2030. The breakdown of this is such that the United states will contribute 240 TWh and China will follow closely with 175 TWh. Europe's projection stands at 45 TWh whereas Japan's contribution is expected to be up by 15 TWh. There have also been establishment of hyperscale data centres in the Southeast Asia region including Singapore and Johor province (Malaysia) and the data centre electricity usage is also expected to double in this region.⁶⁵ The report by the IEA documented that Africa occupies the bottom of this distribution. The study further documented that in the year 2024, the African continent 's average per capita data centre electricity consumption was below 1kWh and that it was projected to rise to just under 2 kWh by 2030. The

⁶² Eduard Oró and Jaume Salom, 'Data Centre Overview' in Jaume Salom, Thorsten Urbanek and Eduard Oró (eds), *Advanced Concepts for Renewable Energy Supply of Data Centres* (River Publishers 2017).

⁶³ Rim Berahab, 'The Energy Economics of Artificial Intelligence in a Fractured Global System' (Policy Center for the New South, Policy Paper No 37/25, October 2025) 15 https://www.policycenter.ma/sites/default/files/2025-10/PP_37-25%20%28Rim%20Berhab%29.pdf accessed 19 August 2026.

⁶⁴ Ibid.

⁶⁵ Ibid.

caveat here is that this average, masks an important variation because South Africa alone is expected to hit the over 25kWh mark which is more than 15 times the continental average.⁶⁶

A report compiled by the African Energy Chamber documented that the demand for power in Africa is projected to grow at a compounded Annual Growth Rate (CAGR) of 3% from 2025 to 2050 and reach 2291 TWh.⁶⁷ The study noted that the continued expansion of the digital economy has significantly led to the rise of electricity demand for data centres. The study further documents that the global UPS power (MW) which is the power consumed by the IT equipment of data centres alone is expected to record CAGR of 11 % between 2024 and 2030.⁶⁸ The power demand for data centres in Africa is relatively small with only 1% of the global share but it is projected to attain a CAGR of 9% between 2024 and 2030.⁶⁹ In South Africa, data centres are projected to reach over 16TWh of electricity consumption by the year 2030 compared to a total power consumption of 253 TWh.⁷⁰ Kenya is commonly ranked the third largest data centre market in Africa, after South Africa and Nigeria. Published estimates of its installed information technology load diverge sharply, from about 15 megawatts to about 40 megawatts depending on whether the compiler counts colocation white space alone or includes private enterprise facilities. That divergence is itself evidence of the point made throughout this report, which is that no public authority in Kenya publishes an authoritative figure. The Government of Kenya has prioritised growth in the sector through projects such as the Konza data centre under construction.⁷¹ Nairobi is the hub of the sector and accounts for the large majority of the country's facilities. The data centre market in Nairobi is projected to grow at about 30 per cent compound annual growth between 2023 and 2028. The total supply of electricity is expected to exceed 155 MW of IT load by the conclusion of the year 2029.⁷²

A5.2 How Electricity Consumption Is Measured

A data centre's electricity bill is the sum of many smaller aspects. Every processor consumes what is called in engineering terms dynamic power and static power.⁷³ Dynamic power is spent doing actual work, switching transistors on and off billions of times a second to move and process data. Static power, by contrast, is wasted energy that leaks away even when a component is sitting idle, simply because tiny currents escape through the transistor regardless of whether it is being used.⁷⁴ This distinction matters because it explains something which is not explicitly obvious, that a server that is switched on but is doing nothing still eats into the electricity bill. If you move away from the chip and consider the whole server, the same logic still repeats itself but at a larger scale. A server's total energy use is just an addition sum including the processor's share, plus the memory's share, plus the hard disk's share, plus the network card's share, and so on. These components are what constitute the IT equipment of the data centre.⁷⁵

This component-by-component method of estimation matters for measuring a data centre's overall footprint because it lets researchers work upward from something concrete and countable.⁷⁶ From the foregoing, if you

⁶⁶ Ibid.

⁶⁷ African Energy Chamber, 'The State of African Energy 2026 Outlook Report' (2025) 77 https://energychamber.org/wp-content/uploads/The-State-of-African-Energy-2026_Digital_rev3.pdf accessed 20 August 2026.

⁶⁸ Ibid.

⁶⁹ Ibid.

⁷⁰ Ibid 78.

⁷¹ Ibid 79.

⁷² Ibid 77.

⁷³ Shashikant Ilager and Rajkumar Buyya, 'Energy and Thermal-aware Resource Management of Cloud Data Centres: A Taxonomy and Future Directions' (arXiv, 6 July 2021) 11 <https://arxiv.org/abs/2107.02342> accessed 21 August 2026.

⁷⁴ Ibid.

⁷⁵ Ibid.

know roughly how much power a CPU, a disk, and a network port draw individually, and you know how many of each a data centre contains and how hard they are being worked, you can build a reasonably accurate estimate of the whole facility's consumption without needing to measure every single machine directly. This is the logic behind bottom-up modelling, which starts from individual hardware components and adds upward, rather than starting from a national electricity grid and trying to work backward to figure out how much of it belongs to data centres.⁷⁷ The bottom up modelling combines equipment specifications such as server power and data centre infrastructure characteristics such as power usage effectiveness.

The challenge that comes with data centre energy estimations is that many governments the world over do not mandate reporting and publication of comprehensive statistics on data centre electricity consumption. Therefore, all information on historical consumption are estimated using a variety of sources. These pose various gaps coupled with unclear common definitions and often results in varying figures/estimates. Moreover, institutions tracking data centre capacities also do not all follow consistent scope or definitions.⁷⁸ This absence of mandatory reporting is not just a neutral gap, it leaves data centre operators in Kenya without any independent scrutiny by default. In the course of this research, we lodged a formal request to Kenya Power and Lighting Company which is the major provider of electricity in Kenya in an attempt to obtain information on electricity consumption of data centres in Kenya. We visited the Kenya Power and Lighting Company at Stima Plaza and submitted our formal request and questionnaires. The request was declined on the grounds that the data we were asking to access was confidential information.⁷⁹

A5.3 Existing Global Estimates

The International Energy Agency has postulated that the electricity consumption of data centres has grown more than four times faster than total electricity consumption. The IEA estimates that in 2024 data centres accounted for about 415 TWh, or roughly 1.5 per cent of global electricity consumption. The research by IEA posits that electricity consumption of data centres accelerated sharply from 2017. This was largely influenced by growth in cloud computing, a spike in social media usage and the rise of artificial intelligence.⁸⁰ Throughout the world, the electricity consumption is unevenly spread. Statistics from the IEA reveals that in the United States data centres accounted for about 180 TWh in 2024, some 45 per cent of the global total. The research further posits that in China, data centres accounted for 100 TWh of electricity consumption although substantial data gaps make it challenging to accurately estimate China's data centre electricity consumption. Europe accounted for about 15 per cent of global data centre electricity consumption in the same year, which on the IEA figures is in the order of 60 TWh.

A study by the joint Research Centre (JRC) of the European Commission's Science and knowledge service documents that data centres in the EU-27 used an estimated 45-65 TWh of electricity in the year 2022.⁸¹ This represents 1.8- 2.6 % of the total electricity consumption of electricity. In the same period, the study revealed that large data centres including colocation accounted for around 65% of the total, while enterprise data centres consumed about 35%.⁸² It is significant to note that most of the regions data centre energy use is

⁷⁶ Yong-Zhen Wang, Te Han and Yi-Ming Wei, 'Building Accurate Energy-Use Statistics for Data Centers' (2026) 60 *Engineering* 336, 337 <https://www.sciencedirect.com/science/article/pii/S2095809925007994> accessed 24 August 2026.

⁷⁷ Ibid.

⁷⁸ International Energy Agency, *Energy and AI* (IEA 2025) 54–55 <https://www.iea.org/reports/energy-and-ai> accessed 6 July 2026, 87.

⁷⁹ Kenya Power and Lighting Company, formal request and questionnaires submitted during visit to Stima Plaza on 11 May 2026; request declined on 22 May 2026.

⁸⁰ International Energy Agency (n 79).

⁸¹ G Kamiya and P Bertoldi, *Energy Consumption in Data Centres and Broadband Communication Networks in the EU* (Publications Office of the European Union 2024) 21 <https://publications.jrc.ec.europa.eu/repository/handle/JRC135926> accessed 24 August 2026.

within the largest markets with Germany, France, Netherlands and Ireland accounting for close to two-thirds of the region's data centre electricity consumption. More specifically, Germany used an estimate of 15TWh in 2022 which represents 3% of its national electricity use.⁸³ In the same period, France used an estimate of 10 TWh, which represents 2.2% of its national electricity use.⁸⁴ In Ireland, data centres use 18% of the electricity, in the Netherlands they use 5.2%, they use 4.8% in Luxembourg, 4.5% in Denmark and 2.3% in Sweden. In all other EU-27 countries, data centres consume less than the EU average of 2.2% of national electricity.⁸⁵

A6 Emerging Health Implications of Data Centres

This section sets out the present and emerging evidence on the public health consequences of data centre operation, covering air pollution from generation, water abstraction and discharge, waste heat, noise, and the indirect effects of land conversion and rising energy prices.

Data centres pose significant health risks to the population around them. This section will examine the present and emerging evidence on the environmental and public health implication of data centres. The section will largely rely on estimates from previous scholars to document health implications that data centres pose to human health. Existing research in this area has largely built on mathematical modelling, which involves estimation of pollution levels or emissions rather than measuring actual exposure or health outcomes in the surrounding population. A research conducted by Gour et al posits that data centres can come with various health issues including air pollution, extensive water usage, noise pollution and emission of heat.⁸⁶ A study by Han et al (2025) 'Health-Informed Computing: Estimating and Addressing the Public Health Impact of Data Centers', have posited that the consistent use of fuel-based electricity and usage of on-site generators (which mostly use diesel) to operate data centres lead to air quality concerns and public health through emission of criteria air pollutants such as sulfur dioxide and nitrogen dioxide. Another pollutant that also risks health is particulate matter. Particulate matter has been specifically identified to be a cause of premature mortality, asthma and cardiovascular disease. According to Han et al, these criteria air pollutants are more hazardous because they are not only confined to their immediate air vicinity but they are capable of travelling hundreds of miles through atmospheric dispersion thus harming communities who could be miles away from the data centres. This is even more harming considering that statistics from the World Health Organization documented that ambient air pollution caused 4.2 million premature deaths in the year 2019 and it has remained one of the major risk factors for disease burden across all socio-demographic groups.⁸⁷

Data centres depend on electricity to be in operation. They therefore demand consistent supply of power to stay in operation and avoid any downtime. This is achieved by having back-up generators in addition to lithium-ion batteries in case of an electricity outage. These back-up generators release emissions which pollute the air. Short term exposure to these emissions may lead to acute respiratory and cardiovascular effects. Furthermore, long term exposure to these gases may lead to chronic diseases, adverse reproductive outcomes and long -term health risks. In Virginia, which hosts one of the largest concentrations of data centres in the

⁸² Ibid.

⁸³ Ibid.

⁸⁴ Ibid.

⁸⁵ Ibid.

⁸⁶ Neha Gour, Luis Ortiz and Edward Maibach, 'Health Implications of the Rapid Rise of Data Centers in Virginia: An Exploratory Assessment' (2026) 8 *Frontiers in Climate* 1648912 <https://www.frontiersin.org/journals/climate/articles/10.3389/fclim.2026.1648912/full> accessed 17 July 2026.

⁸⁷ World Health Organization, 'Ambient (outdoor) air pollution' (Fact sheet, 24 October 2024) <https://www.who.int/news-room/fact-sheets/detail/ambient-%28outdoor%29-air-quality-and-health> accessed 24 August 2026.

world, these facilities were reported to draw some 5,050 megawatts of power, accounting for about 21 per cent of the sales of the state's principal electricity utility in 2022. The electricity consumption figure is also projected to double by the year 2040.⁸⁸ The production of this quantity of electricity drives higher greenhouse gas emissions and air pollution to a large extent. These gases increase chronic health risks. Moreover, in Virginia, electricity generation is hugely reliant on fossil fuels. 54% of electricity is derived from natural gas and 4% is derived from coal. Natural gas which is the most relied upon in production is made up of 70 to 90 percent methane. Burning this gas releases greenhouse gases and harmful air pollutants like sulfur dioxide, nitrogen oxide, particulate matter and carbon dioxide. These emissions make climate change worse and increase health risks linked to poor air quality.⁸⁹ Some diseases that can be caused due to exposure to these gases include respiratory and cardiovascular diseases, various cancers, neurological disorders, stroke, dementia, diabetes and childhood asthma. ⁹⁰Air pollution has also been attributed to low fertility rates and risks of miscarriage and stillbirths posing serious concerns for female reproductive health.⁹¹

A preprint study conducted by Chen et al (2026) at MIT, using electricity dispatch modelling combined with atmospheric chemistry simulations documented that Powering data centres means burning fuel at power plants, and that releases harmful gases into the air.⁹² Two of the worst are nitrogen oxide and sulfur dioxide as already averred hereabove. The study adds that once these gases get to the atmosphere, they turn into fine soot particles known as PM2.5, and they also help form ground level ozone, which is the same gas that causes smog. Scientists have attributed both of these to early deaths and other serious health problems.⁹³ Further estimates from the study documented that data centre electricity use indirectly causes about 650 early deaths every year in the United States, split between deaths tied to soot particles and deaths tied to ozone. This study was conducted in the US, and it is even more striking that these deaths are not limited to the states where the data centres are actually located. Because power grids move electricity across state lines, and because wind carries pollution far from where it was created, places like the Northeast and the Midwest end up bearing much of the health burden even when they host few or no large data centre facilities themselves.⁹⁴

Water is also a key resource to data centres operations as it is used within the cooling systems. When water is used in cooling systems, there is often wastewater that is released. This wastewater strains the local supply of water and degrades its quality. The effect is that consistent supply of water to local communities is interfered with. In the US Data centres have been ranked in the top 10 among the industries that consume the largest amounts of water with a reported usage close to 513 million cubic metres in the year 2018.⁹⁵ The Virginia region in the US which has been described as the data centre alley has suffered the consequences of the huge consumption of water by data centres. The region is already experiencing droughts due to the effects of climate change and the large usage of water by data centres has exacerbated the situation. The reduced

⁸⁸ Joint Legislative Audit and Review Commission, *Data Centers in Virginia* (Commonwealth of Virginia 2024) <https://jlarc.virginia.gov/pdfs/reports/Rpt598.pdf> accessed 17 July 2026.

⁸⁹ Aaron J Cohen and others, 'Estimates and 25-year Trends of the Global Burden of Disease Attributable to Ambient Air Pollution: An Analysis of Data from the Global Burden of Diseases Study 2015' (2017) 389(10082) *The Lancet* 1907 <https://pmc.ncbi.nlm.nih.gov/articles/5439030/> accessed 17 July 2026.

⁹⁰ Gour, Ortiz and Maibach (n 88).

⁹¹ Alessandro Conforti, Marika Mascia, Giuseppina Cioffi, Cristina De Angelis, Giuseppe Coppola, Pasquale De Rosa, Rosario Pivonello, Carlo Alviggi and Giuseppe De Placido, 'Air Pollution and Female Fertility: A Systematic Review of Literature' (2018) 16 *Reproductive Biology and Endocrinology* 117 <https://link.springer.com/article/10.1186/s12958-018-0433-z/> accessed 17 July 2026.

⁹² Yuang Chen, Shen Wang, Juan Ramon L Senga, Andrew Scott White, Anthony YH Wong, Lyssa M Freese, Michelle L Bell and Noelle E Selin, 'Air quality and health impacts of Data Center electricity demand in the United States' (2026) *EarthArXiv*, Preprint <https://eartharxiv.org/repository/view/13648/> accessed 17 July 2026.

⁹³ Ibid.

⁹⁴ Ibid.

⁹⁵ Md Abu Bakar Siddik, Arman Shehabi and Landon Marston, 'The Environmental Footprint of Data Centers in the United States' (2021) 16(6) *Environmental Research Letters* 064017 <https://vtechworks.lib.vt.edu/items/1f4a5b2a-4f5f-4f9a-9a5a-5d0a8c4b8f2a/> accessed 17 July 2026

availability of water has resulted in stagnant warm environments which promote the growth of pathogens making people more susceptible to waterborne diseases, eye and ear infections and *E. coli*.⁹⁶ Prolonged droughts causes a lot of suffering for communities both in efforts to find water and the stress of having to deal with little or no water. This may contribute to mental health risks characterised by anxiety and psychological distress among the members of the surrounding community.

Another case in point is documented in a blog by Verma and Tern which revealed that Microsoft's data centre used 700,000 litres of water to train GPT-3. More striking from the findings is that it takes approximately 519 millilitres of water to generate just one 100-word email using GPT-4.⁹⁷ The estimate figures illustrate how data centres contribute to water scarcity to the detriment of surrounding communities. As mentioned above, data centres also discharge saline wastewater and blowdown from evaporative cooling towers. This blowdown water is contaminated with sodium, magnesium and potassium which can all contaminate ground water making it unfit for human consumption. Use of such water either through intake or for bathing can result in serious health hazards. Sulfates in ground water for instance are likely to cause skin infections and diarrhea, more particularly in infants.⁹⁸ Moreover, drinking this contaminated water by pregnant women has been linked with low birth weight and preeclampsia in the fetal outcomes.⁹⁹ A study conducted by George et al (2023) documents that Open AI's Chat GPT consumes approximately 500ml of fresh water for every twenty to fifty questions.¹⁰⁰ The fact that Chat GPT is estimated to have more than 100 million users and is also consistently answering to questions makes this figure for water usage even more significant.¹⁰¹ The research further highlights that the training of that model is estimated to have consumed in the order of 700,000 litres of water.¹⁰² In this regard, open AI and by extension other AI systems are seen to be competing for water with communities and this can lead to scarcity of water for communities which would have serious impacts.

Heat released by data centres has substantive effects on the communities around the data centre facilities. A study conducted by Sailor et al (2026) based on first field measurements of air temperature near operating data centres, outlined that the waste heat released by data centres warm nearby neighbourhoods enough to pose a real risk to public health.¹⁰³ In the study, the researchers measured air temperature in areas near data centres for the first time and posited that the heat these facilities release actually raises the temperature in the surrounding area. The study also found that this warming can reach as high as 2.2 degrees Celsius, with an average increase of 0.7 to 0.9 degrees, and that the effect can be felt more than 250 metres away from the facility. Third, they compared this heat output to other sources of heat found in cities and showed that data

⁹⁶ Jesse E Bell, Claudia Langford Brown, Kathryn Conlon, Stephanie Herring, Kenneth E Kunkel, Jay Lawrimore and others, 'Changes in Extreme Events and the Potential Impacts on Human Health' (2018) 68(4) *Journal of the Air & Waste Management Association* 265, 273 <https://repository.library.noaa.gov/view/noaa/20955> accessed 17 July 2026.

⁹⁷ Pranshu Verma and Shelly Tan, 'A Bottle of Water per Email: The Hidden Environmental Costs of Using AI Chatbots' *The Washington Post* (Washington, DC, 18 September 2024) <https://www.washingtonpost.com/technology/2024/09/18/energy-ai-use-electricity-water-datacenters/> accessed 17 July 2026.

⁹⁸ Zhenzhen Miao, Mark L Brusseau, Karen C Carroll, Carlos Carreón-Díazconti and Britt Johnson, 'Sulfate Reduction in Groundwater: Characterization and Applications for Remediation' (2012) 34(4) *Environmental Geochemistry and Health* 539, 544 <https://pmc.ncbi.nlm.nih.gov/articles/PMC3575751/> accessed 17 July 2026.

⁹⁹ Janet Currie, Joshua Graff Zivin, Katherine Meckel, Matthew Neidell and Wolfram Schlenker, 'Something in the Water: Contaminated Drinking Water and Infant Health' (2013) 46(3) *Canadian Journal of Economics* 791 <https://pmc.ncbi.nlm.nih.gov/articles/PMC4849482/> accessed 17 July 2026.

¹⁰⁰ A Shaji George, A S Hovan George and A S Gabrio Martin, 'The Environmental Impact of AI: A Case Study of Water Consumption by Chat GPT' (2023) 1(2) *Partners Universal International Innovation Journal* 97 <https://www.puiij.com/index.php/research/article/view/39> accessed 25 August 2026.

¹⁰¹ Ibid.

¹⁰² Ibid.

¹⁰³ David J Sailor, Soroush Samareh Abolhassani and Eli P Martin, 'Data Center Waste Heat as an Emerging Urban Thermal Hazard: First Field Measurements of Neighborhood-Scale Air Temperature Impacts' (2026) 7(2) *Journal of Engineering for Sustainable Buildings and Cities* 024501 <https://asu.elsevierpure.com/en/publications/data-center-waste-heat-as-an-emerging-urban-thermal-hazard-first-/> accessed 17 July 2026.

centres create a problem that has not been properly recognized before. This matters not just for how buildings use energy, but also for how comfortable and safe people feel outdoors, and ultimately for public health.¹⁰⁴ The study points out that the measured air temperatures represent a non-trivial warming effect, especially in a region where extreme heat already poses serious public health risks.¹⁰⁵

Data centres rely on generators for back-up power in case of power outage. Data centres also have to cool their systems regularly. The operation of generators and cooling of machines produces some persistent humming noise which is comparable to amplified house conditioning with the sound ranging between 40 and 59 decibels. This is against the United States Environmental Protection Agency, which recommends an average of 55dBA day-night average) or 45 dBA indoors to protect public health.¹⁰⁶ In Kenya The Environmental and Co-ordination (Noise and Excessive Vibration Pollution) Regulations 2009 sets 60 dBA during the day and 35 dBA during the night as the maximum permissible level for noise in commercial areas.¹⁰⁷ Noise pollution affects health in various ways. Long term exposure to high levels of noise is likely to lead to permanent hearing impairment and can also increase risk for chronic effects such as hypertension and endocrine disruption. There are also acute effects such as poor quality sleep and temporary hearing changes as well as mental health concerns.¹⁰⁸ Moreover, systemic reviews carried out for the World Health Organization's Environmental Noise Guidelines for the European Region demonstrated that prolonged exposure to transportation and other environmental noise increases risk of ischemic heart disease (IHD), hypertension and other cardiometabolic outcomes.¹⁰⁹

Data centres also have some indirect effects on human health. These facilities take up vast amount of spaces on land. These have sometimes involved local green spaces being converted to data centre campuses. This often leads to locals being deprived of their farmland and green spaces. Data centres built on such spaces or adjacent to such spaces degrade the ecosystem by removing all the greenery replacing with concrete floors and constructions which are often impervious. Surfaces like these fragment habitats and disrupt hydrology and reduce the capacity of filtering air and regulating temperature which are critical for the sustenance of biodiversity. Moreover, if trees are cut, urban pollution is likely to increase as there are fewer trees to absorb the polluted air. This may increase the risk for respiratory illnesses.¹¹⁰ As already mentioned above, data centres are huge consumers of electricity to be consistently running. The ripple effect of this is that wholesale prices of energy in areas near data centres are sharply increasing. This increased energy prices greatly disadvantages low income households which may not be able to afford. This may indirectly lead to various health issues such as respiratory illnesses. Moreover, this has an adverse effect on mental health as such households would be under anxiety and stress. At the same time, on hotter days such households may not be able to afford the cost of cooling and will bear the effects of heat. This is also likely to lead to heat related issues of health such as heat stroke in severe cases, and heat exhaustion in mild cases.¹¹¹

¹⁰⁴ Ibid.

¹⁰⁵ Ibid.

¹⁰⁶ Gour, Ortiz and Maibach (n 88).

¹⁰⁷ Environmental Management and Co-ordination (Noise and Excessive Vibration Pollution) (Control) Regulations 2009, LN No 61 of 2009, First Sch

¹⁰⁸ Wolfgang Babisch, Göran Pershagen, Jenny Selander, Danny Houthuijs, Oscar Breugelmans, Ennio Cadum and others, 'Noise Annoyance: A Modifier of the Association Between Noise Level and Cardiovascular Health?' (2013) 452–453 *Science of the Total Environment* 50 <https://ora.ox.ac.uk/objects/uuid:364f08a5-e04f-408f-97bf-98cef6bd6bee> accessed 17 July 2026.

¹⁰⁹ Babu George, 'Health Consequences of Large Data Centers: Air Pollution, Noise, Water Use, and Environmental Justice' (SocArXiv 2026) https://osf.io/cnwyb_v1/ accessed 17 July 2026.

¹¹⁰ Gour, Ortiz and Maibach (n 88).

¹¹¹ Ibid.

PART B

Mapping Data Centres in Kenya

B

Part B shifts from the general perspective to the Kenyan perspective. It traces the sector from the state telecommunications monopoly of the 1990s to the present, identifies the licensing framework under which facilities now operate, lists the facilities for which public information exists, and maps them nationally and within Nairobi, setting out in full the method by which those maps were produced.

B1 The History and Landscape of Data Centres in Kenya

This section traces the development of the data centre sector in Kenya from the state telecommunications monopoly to the present, and identifies the licensing framework under which data centres operate in the absence of any dedicated statutory instrument.

The digital infrastructure in Kenya began under the state monopoly of the Kenya Posts and Telecommunications Corporation which provided the data services underlying the country's first internet activity from 1994. This included packet switched data offered through the Kenpac x25 and later Kenstream together with a national internet backbone in the form of the East African Internet Exchange.¹¹² The KP & TC closely regulated this infrastructure through the 1990s retaining exclusive control over international connectivity and leased lines. This limited the capacity that independent internet service providers could build for themselves.

¹¹³

Conditions for infrastructure close to a data centre began to emerge in the following decade between 2000 and 2010. This was marked by the end of the monopoly by Telkom Kenya over the international gateway in 2007 and was followed by the arrival of submarine fibre optic cables in the year 2009 which opened up the connectivity landscape. Mureithi (2016), in his chapter 'The Internet Journey for Kenya: The Interplay of Disruptive Innovation and Entrepreneurship in Fueling Rapid Growth', notes that in this same decade, the government of Kenya invested in international and national fibre infrastructure and made broader efforts to entrench the internet and prioritized the development of data centres. However, Mureithi does not identify a specific data centre facility that was constructed in this period.¹¹⁴ Kenya Data Networks (KDN) began to develop a data centre facility at Sameer Park, Nairobi, Kenya, in 2009. This facility was completed and unveiled in 2011 and became the first Tier III-certified data centre in East Africa. Kenya's commercial data-centre sector is largely traced back to this development.¹¹⁵ Since then there have been a proliferation of data centres in Kenya.

Data centres are subject to registration in Kenya. The Kenya Information and Communications Act 1998, Cap 411A, regulates the general telecommunications licensing regime in Kenya. Data centres have been classified under this regime and no separate statutory instrument has been created to regulate them. Section 24 of the Kenya Information and Communications Act outlines that no person may operate a telecommunication system or provide telecommunications services except under a valid license.¹¹⁶ The KICA further outlines under section 34 contravention of this would result in an offence.¹¹⁷ Section 25 of the Act vests the Communications Authority of Kenya with power to offer such licenses subject to specific conditions. From section 24 and section 25 of the KICA, it is emerging that data centres are not named directly. The Act instead has a general scope on telecommunications systems and services. In light of this, the Communications Authority of Kenya updated the Telecommunications market structure in March 2026 in a bid to remedy this lacuna in law by locating data centres within the existing framework instead of creating a new separate license for them. Under

¹¹² Muriuki Mureithi, 'The Internet Journey for Kenya: The Interplay of Disruptive Innovation and Entrepreneurship in Fueling Rapid Growth' in Bitange Ndemo and Tim Weiss (eds), *Digital Kenya: An Entrepreneurial Revolution in the Making* (Palgrave Macmillan 2017) 36.

¹¹³ Ibid.

¹¹⁴ Ibid.

¹¹⁵ TechCentral, 'Altech ups KDN stake in \$39,5m deal' *TechCentral* (22 September 2009) <https://techcentral.co.za/altech-ups-kdn-stake-in-395m-deal/181061/> accessed 25 August 2026.

¹¹⁶ Kenya Information and Communications Act (Cap 411A) s 24.

¹¹⁷ Kenya Information and Communications Act (Cap 411A) s 34.

the Network Facilities provider tier one license holders are allowed to establish commercial data centres without requiring additional license. The tier 2 license also provides that data centres will be licensed under this category. It states that existing holders of this license will also be allowed to establish commercial data centres without requiring further licenses. This market structure clearly provides for a regulatory placement for data centres specifically.¹¹⁸

This section of the study maps the landscape of data centres in Kenya, identifying their locations, ownership structures and operational capacities, and drawing on operator disclosures, company websites and industry directories. It lists eight facilities. The list is not an exhaustive account of every facility in the country. It is a record of those facilities for which sufficient public information exists to support analysis, and the gap between the two is a direct consequence of the absence of any public register.

B2 Mapping the Facilities

B2.1 Facilities Identified

Table 1: Data centre facilities identified in Kenya

TABLE 1

Data centre facilities identified in Kenya, September 2026

Facility	Operator	Location	Type	Installed Capacity
Africa Data Centres NBO1CX	Africa Data Centres	Sameer Business Park, Mombasa Road Nairobi	Carrier-neutral colocation, Tier III	37.5 MW utility capacity; 3.6 MW IT load ¹¹⁹
iXAfrica NBOX1	iXAfrica Data Centres Ltd	Cabanas area, Mombasa Road, Nairobi	Colocation, hyperscale, AI-ready	Not published ¹²⁰
Digital Realty NBO1	icolo (Digital Realty)	Langata South Road, Karen, Nairobi	Carrier-neutral colocation	2.0 MW (directory figure) ¹²¹
Digital Realty NBO2	icolo (Digital Realty)	LRC Road, Karen, Nairobi	Carrier-neutral colocation	Not published ¹²²
PAIX Nairobi NBO-1	Pan African Internet Exchange	Britam Tower, Upper Hill, Nairobi	Carrier-neutral colocation	Not published ¹²³

¹¹⁸ Communications Authority of Kenya, *Telecommunications Market Structure – 2026* (2026) A.2 <https://www.ca.go.ke/sites/default/files/2026-07/Revised%20Telecommunications%20Market%20Structure-June%202026.pdf> accessed 26 August 2026.

¹¹⁹ Nairobi - Africa Data Centres' (31 October 2020) <https://www.africadatacentres.com/nairobi/> accessed 9 April 2026.

¹²⁰ iXAfrica, 'East Africa's First & Largest Hyperscale, Carrier-Neutral, AI-Ready Data Centre' <https://ixafrika.co.ke/> accessed 9 April 2026.

¹²¹ Digital Realty, 'Nairobi Data Center & Colocation | Digital Realty' <https://www.digitalrealty.com/data-centers/emea/nairobi> accessed 10 April 2026.

¹²² Digital Realty, 'Nairobi Data Center & Colocation | Digital Realty' <https://www.digitalrealty.com/data-centers/emea/nairobi> accessed 10 April 2026.

¹²³ PAIX Data Centres, 'PAIX Data Centres | Always-On Carrier-Neutral Colocation in Africa' <https://www.paix.io/> accessed 11 April 2026.

Facility	Operator	Location	Type	Installed Capacity
Telkom Kenya Data Centre	Telkom Kenya	Milimani Exchange, Nairobi	State-owned colocation and hosting	Not published ¹²⁴
Digital Realty MBA1	icolo (Digital Realty)	Miritini, Mombasa	Carrier-neutral colocation	Not published ¹²⁵
Safaricom Limuru Data Centre	Safaricom PLC	Red Hill, Limuru	Private, internal (M-Pesa and network infrastructure)	Not published ¹²⁶

Of the eight facilities listed, six are operated by foreign headquartered or regionally owned groups. Africa Data Centres, iXAfrica and icolo, the last being a Digital Realty company headquartered in the United States, account for five of them, and PAIX, headquartered in Amsterdam, accounts for the sixth. The Telkom Kenya facility and the Safaricom facility are the two under Kenyan ownership, although Telkom Kenya combines state and private shareholding. Ownership matters fiscally and not merely descriptively. A facility operated by a non-resident group raises questions about transfer pricing, about the characterisation of intra-group software and management payments, and about where the profit attributable to Kenyan computing capacity is ultimately recognised. None of those questions arises in the same form for a domestically held operator, and none of them can be answered from the public record as it currently stands.

¹²⁴ Telkom Kenya, 'Data Centre – Telkom' <https://telkom.co.ke/business/wholesale-content/data-centre/> accessed 12 April 2026.

¹²⁵ DigitalRealty, 'DS_Digital_Realt2401_MBA12_Property_Factsheet_EN' https://go2.digitalrealty.com/rs/087-YZJ-646/images/DS_Digital_Realty-2401_MBA1-2_Property_Factsheet_EN.pdf accessed 14 April 2026.

¹²⁶ Safaricom, 'At Limuru, a New Data Centre Promises Speed' (2025) <https://newsroom.safaricom.co.ke/innovation/at-limuru-a-new-data-centre-promises-speed/> accessed 14 April 2026.

B2.2 The National Distribution of Facilities

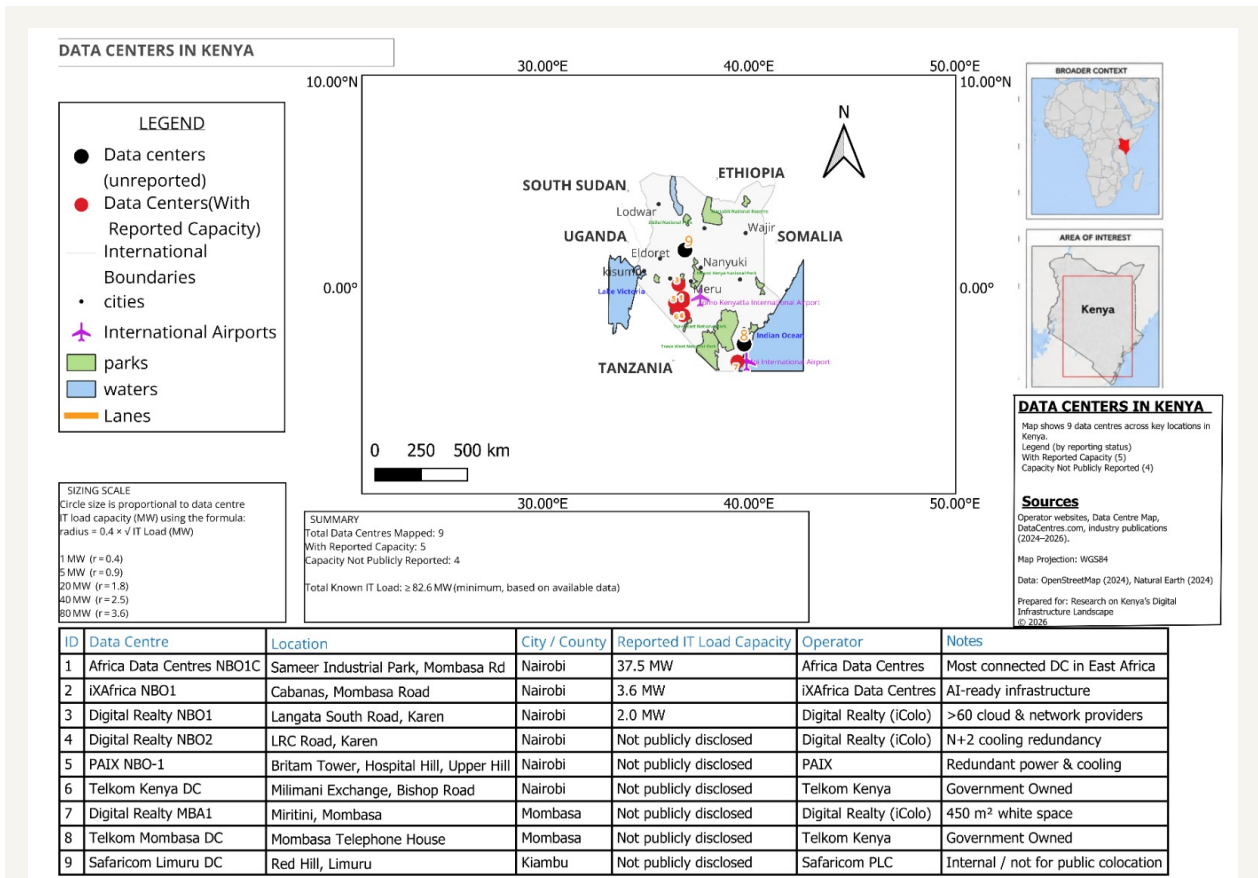


FIGURE 1 The distribution of identified data centre facilities across Kenya. Symbol size is proportional to the relative scale of the facility. Source: Authors compilation using QGIS based on data from operator websites, Data centre Map, Data centre.com and Industry publications. See the detailed methodological note following figure 2 below

B2.3 The Distribution of Facilities within Nairobi

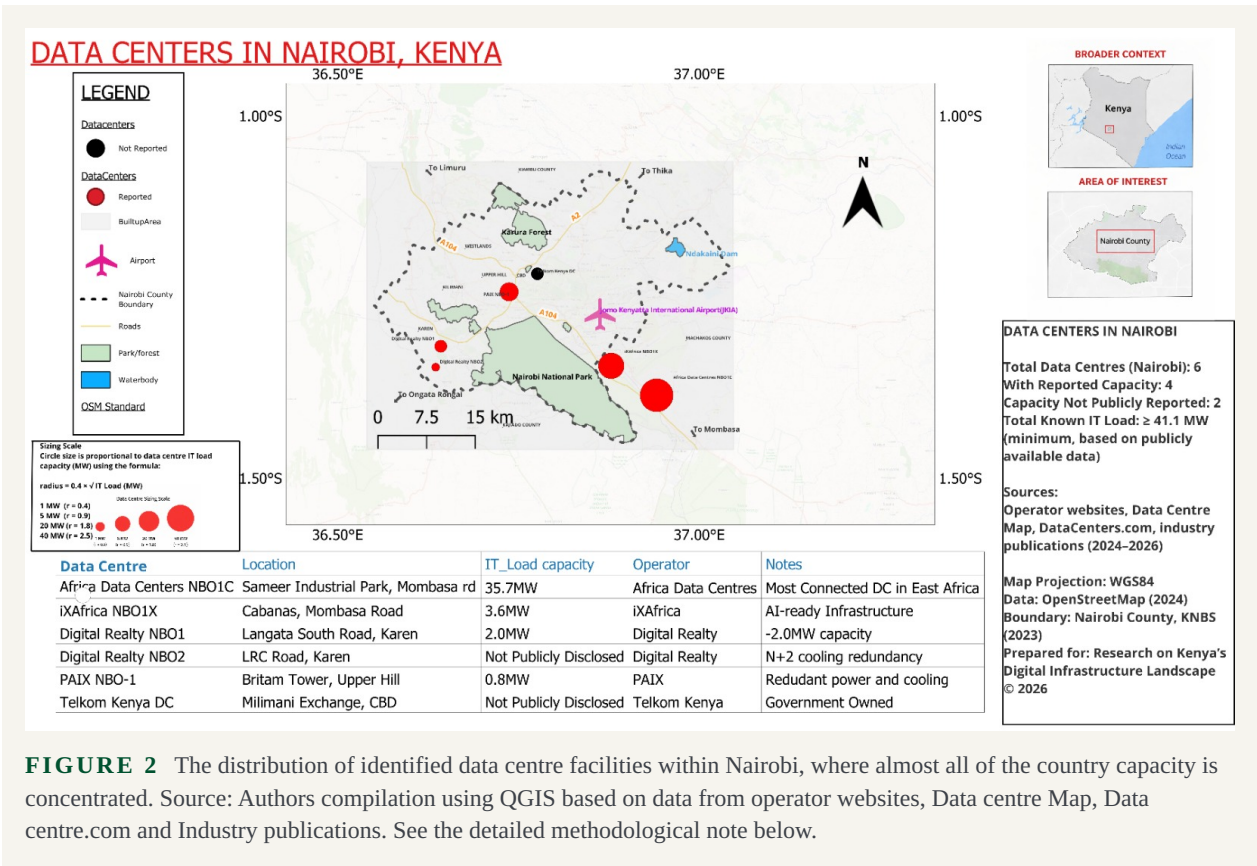


FIGURE 2 The distribution of identified data centre facilities within Nairobi, where almost all of the country capacity is concentrated. Source: Authors compilation using QGIS based on data from operator websites, Data centre Map, Data centre.com and Industry publications. See the detailed methodological note below.

B2.4 Methodological Note for Figures 1 and 2

Figures 1 and 2 are geographic information system maps produced for this report. Figure 1 shows the distribution of data centres across Kenya and Figure 2 shows their distribution within Nairobi. The evidential basis for both is the set of facilities identified in Table 1, each of which was established from operator disclosures, company websites and the industry directories cited in that table. Coordinates for each facility were then fixed against an OpenStreetMap base layer in QGIS, using ground control points so that the plotted position corresponds as closely as possible to the actual location.

At the outset of the exercise a large language model was used to produce two indicative sketch maps of where data centres might be found in Kenya and in Nairobi. Those sketches were treated as a prompt for enquiry and not as evidence. Every location they suggested was tested against the sources described above, locations that could not be verified were discarded, and where a sketch conflicted with a verified source the verified source prevailed. No location appears in Figure 1 or Figure 2 on the authority of the model, and the sketches form no part of the evidence base for this report. The disclosure is made because the provenance of spatial data ought to be traceable, and because a reader is entitled to know which steps in a method carry evidential weight and which do not.

Vector layers for the facilities, buildings and boundaries were digitised manually, while supporting layers such as roads were taken from OpenStreetMap. Facilities are shown with proportional symbology so that relative

size can be read from the map. The layouts were completed in the QGIS print composer with title, legend, scale bar, north arrow, coordinate grid and labels, and exported at high resolution.

PART C

The Fiscal Treatment of Data Centres

C

Part C asks how Kenyan law taxes a facility that no Kenyan statute recognises as a fiscal object. It sets out the jurisdictional basis of the charge, tests each physical and functional component of a data centre against the operative statutes, reassembles those components into the fiscal position of the facility as a whole, examines the Special Economic Zones overlay, and states what the public evidence can and cannot establish.

Kenya's growing digital economy requires substantial investment in infrastructure, including data centres, fibre networks, cooling systems, Uninterruptible Power Supply (UPS) equipment, storage facilities, servers and the various software layers through which computing services are delivered to consumers as commercially usable computing capacity. Currently, Kenyan tax law does not identify a data centre as a stand-alone fiscal object, but uses a number of fiscal categories. The structure of its effective tax position is based on the provisions of business income, capital deductions, value added tax, customs classification, excise duty, withholding tax and if applicable the Special Economic Zones regime. The analysis that follows suggests that the resulting system is enabling but coordination intensive. It can offer significant relief for qualifying investment amount, especially when the investment is made in a licensed Special Economic Zone,¹²⁷ but at the same time introducing classification risks to investors together with uncertain formalities on one hand and uncertainty regarding the nature of software and cloud-based payments on the other. This analysis explores the tax status of the main physical and functional components of data centres, differences between the default regime and the SEZ regime, the limited available evidence on actual tax and operating-cost figures, and sets the tax discussion in the context of the broader governance of technology in Kenya.

C1 The Taxation of Data Centres in Kenya

This section frames the fiscal question. It explains why a facility that presents commercially as a single investment is treated by Kenyan law as a series of distinct assets, supplies, payments and instruments, and it sets out the order in which the analysis proceeds.

Technology infrastructure is no longer ancillary to economic activity. It is itself a productive asset. A data centre converts land, buildings, electricity, water, fibre, servers, cooling capacity, power resilience and software into computing, storage and connectivity services. That combination creates a difficult tax question. A commercial facility may look like one investment project, but Kenyan tax law sees a series of distinct assets, supplies, payments and instruments. Under the Constitution of Kenya promulgated in 2010, the national government is responsible for the collection of income tax, value added tax, customs duties and excise duty.¹²⁸ The Income Tax Act applies to income that accrues in or is derived from Kenya, including income earned from business conducted through the internet or an electronic network.¹²⁹ It is therefore necessary to consider the different activities carried out through the facility that may give rise to taxable income.

That distinction matters in 2026 because data-centre and cloud investment has become an express policy concern. On 29 May 2026, the Ministry of Information, Communications and the Digital Economy reported discussions with the Special Economic Zones Authority on the policies and regulatory measures needed to encourage investment in data centres and cloud services.¹³⁰ The statement confirms that the data centre sector is receiving specific policy attention, while the enacted tax position continues to arise from the generally applicable tax statutes, the customs framework and the SEZ legislation.¹³¹ The policy debate is not meant to be a replacement but rather an indication of a developing investment climate.

¹²⁷ Special Economic Zones Act (No 16 of 2015), s 29(1); Kenya Revenue Authority, 'Guidelines to taxpayers on the operationalization of the Special Economic Zone Programme' (June 2026) 1–2.

¹²⁸ Constitution of Kenya 2010, art 209(1).

¹²⁹ Income Tax Act (Cap 470), s 3(1) and (2).

¹³⁰ Ministry of Information, Communications and the Digital Economy, 'Government Committed to Growing the Digital Economy through Data Centres and Cloud Services' (29 May 2026) <https://www.ict.go.ke/index.php/government-committed-growing-digital-economy-through-data-centres-and-cloud-services/> accessed 31 August 2026.

¹³¹ East African Community Customs Management Act (No 1 of 2004).

The analysis proceeds component by component. It first sets out the scope of the charge and the jurisdictional basis of taxation. It then tests the treatment of servers, networking equipment, fibre, cooling systems, back-up power, software, cloud arrangements, buildings, electricity and water against the Income Tax Act,¹³² the Value Added Tax Act,¹³³ the Excise Duty Act,¹³⁴ the Stamp Duty Act,¹³⁵ the East African Community customs framework¹³⁶ and the Miscellaneous Fees and Levies Act.¹³⁷ Those components are then recombined into the fiscal position of the facility as a whole. That order is necessary because the tax consequence follows the legal characterisation and not the commercial description. Cloud usage may be a recurring revenue cost while purchased servers are capitalised.¹³⁸ Fibre supplied as infrastructure may or may not be severable from an excisable internet data service.¹³⁹ A software payment may or may not be a royalty, depending on the rights actually acquired.¹⁴⁰

The central claim of this part is that Kenya's regime is substantive but distributed, in that the fiscal treatment of a single facility is dispersed across several tax heads that were never designed to be read together. It includes important investment allowances, input tax facilities and SEZ benefits. The coordination problem is the absence of consolidated guidance that would show an investor how those rules interact across one project. That distribution across regimes also impacts empirical research. Public revenues figures can only provide a summary of receipts from Significant Economic Presence Tax and its predecessor but would not reveal what is deducted from the private cost of a specific data centre operator for electricity, water or maintenance.¹⁴¹ The analysis therefore keeps four things apart: the enacted legal regime, administrative guidance, fiscal data at sector level, and facility level facts that do not appear in any public record.

C2 The Legal Basis of the Charge

This section sets out the legal foundation of the charge. It covers the territorial and digital scope of income tax, the boundary between revenue and capital expenditure together with the burden of proof that falls on the taxpayer, the capital allowance categories relevant to technology infrastructure, and the separate operation of value added tax, excise duty, customs duty and stamp duty.

C2.1 Income from Kenya, Including Digitally Supplied Services

The point of departure is section 3 of the Income Tax Act,¹⁴² which is the replacement of the income tax ordinance, 1948, which taxes income accruing in or derived from Kenya, whether earned by a person who is resident in Kenya or by a non-resident.¹⁴³ The statutory charge also covers income from a business carried on through the internet or an electronic network, including through a digital marketplace.¹⁴⁴ This formulation prevents the physical location of servers from becoming the sole test of tax exposure. A Kenyan company

¹³² Income Tax Act (Cap 470).

¹³³ Value Added Tax Act (No 35 of 2013).

¹³⁴ Excise Duty Act (No 23 of 2015).

¹³⁵ Stamp Duty Act (Cap 480).

¹³⁶ East African Community Customs Management Act (No 1 of 2004).

¹³⁷ Miscellaneous Fees and Levies Act (No 29 of 2016).

¹³⁸ Income Tax Act (Cap 470), ss 15(1), 16(1)(a) and 15(2)(a), sch 2.

¹³⁹ Excise Duty Act (No 23 of 2015), sch 1 pt II.

¹⁴⁰ Income Tax Act (Cap 470), s 2.

¹⁴¹ Income Tax Act (Cap 470), s 12E and sch 3.

¹⁴² Income Tax Act (Cap 470), s 3(1) and (2) (ca).

¹⁴³ Income Tax Act (Cap 470), s 3(1) and (2) (ca).

¹⁴⁴ Income Tax Act (Cap 470), s 3(1) and (2) (ca).

operating a data centre is ordinarily within the corporate income-tax regime on its taxable profits. Where a non-resident has a permanent establishment in Kenya, it is taxed under the rules applicable to that presence. A non-resident supplying services remotely into Kenya may instead engage the Significant Economic Presence Tax rules, subject to their statutory exclusions and any applicable treaty.¹⁴⁵

Section 12E is particularly relevant to non-resident suppliers of digitally delivered services, including certain Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS) and Software-as-a-Service (SaaS) arrangements, where the statutory conditions for significant economic presence tax are satisfied.¹⁴⁶ This rule covers non-resident persons who earn income from services provided in Kenya through a business conducted over the internet or an electronic network, subject to the exclusions and conditions set out in the Act.¹⁴⁷ The broader charging framework under section 3(1) and section 3(2)(ca) also brings within the scope of income tax income earned from a business carried out over the internet or an electronic network, including through a digital marketplace.¹⁴⁸ The analysis should distinguish the supplier's Significant Economic Presence Tax exposure from the customer's treatment of cloud expenditure. The tax is imposed on the non-resident supplier in the circumstances defined by section 12E. The Kenyan customer's separate questions concern deductibility, VAT on imported services and withholding tax where the legal character of the payment brings it within the withholding provisions.¹⁴⁹

C2.2 Revenue Expenditure, Capital Expenditure and Proof

Section 15(1) of the Income Tax Act provides for allowance of deductions that are for expenditure incurred wholly and exclusively in the production of income.¹⁵⁰ Section 16, on the other hand, allows no deduction except in specific cases as provided in the Act for capital expenditure.¹⁵¹ The difference is a key concern in a data centre, as the project includes very high capital expenditures and also continues recurring operational expenditures. Running servers, using water to keep the servers cool, routine maintenance and regular service agreements are examples of revenue expenditures if used in the operations of the business.¹⁵² Capital outlay, such as the purchase of servers, generators, substantial cooling plant or a building, is not deducted immediately under section 15 but is relieved instead through the Second Schedule.¹⁵³

The legal entitlement is just a part of the analysis. It is the taxpayers' responsibility to substantiate the expenditure.¹⁵⁴ The High Court in *Avery Lounge Limited v Commissioner of Domestic Taxes*¹⁵⁵ highlighted the need of support and showing the expenses claimed under section 15 to have been incurred for the purposes of producing income and to have been wholly and exclusively so incurred.¹⁵⁶ Invoices and other papers were material to that burden, as they formed part of the evidence in court. It is especially relevant for the operators of infrastructure. The point is that the deductibility of electricity can be asserted as a matter of law, while the amount actually deductible is established only by proof.¹⁵⁷ Where premises are shared, metered bills; suppli-

¹⁴⁵ Income Tax Act (Cap 470), s 12E and sch 3.

¹⁴⁶ Income Tax Act (Cap 470), s 12E and sch 3.

¹⁴⁷ Ibid s 12E (1).

¹⁴⁸ Ibid s 3(1) and (2) (ca).

¹⁴⁹ Value Added Tax Act (No 35 of 2013), s 5.

¹⁵⁰ Income Tax Act (Cap 470), s 15(1).

¹⁵¹ Income Tax Act (Cap 470), s 16(1).

¹⁵² Income Tax Act (Cap 470), s 15(1).

¹⁵³ Income Tax Act (Cap 470), ss 15(2)(b) and 16(1)(b), sch 2.

¹⁵⁴ *Avery Lounge Limited v Commissioner of Domestic Taxes* (Income Tax Appeal E213 of 2024) [2026] KEHC 769 (KLR) [45], [49].

¹⁵⁵ Ibid [45],[49].

¹⁵⁶ Income Tax Act (Cap 470), s 15(1).

¹⁵⁷ Income Tax Act (Cap 470), s 15(1).

er's invoices; allocation records; maintenance contracts and accounting records that allow the cost to be correlated to taxable operations. This evidential distinction explains why public statements about the legal deductibility of utilities cannot be converted into claims about the amounts actually deducted by Kenyan operators.

C2.3 Capital Allowances Relevant to Technology Infrastructure

The Second Schedule provides the bridge between the prohibition on deducting capital expenditure and the economic reality that productive assets lose value or are consumed over time.¹⁵⁸ Current classifications include a 25 per cent annual deduction, in equal instalments, for computer and peripheral computer hardware and software, and a 10 per cent annual deduction, in equal instalments, for telecommunications equipment.¹⁵⁹ Commercial buildings and qualifying expenditure on an indefeasible right to use fibre-optic cable or a spectrum licence may also qualify for capital allowances under the Second Schedule.¹⁶⁰ These labels are useful but they cannot be applied mechanically. A server is easier to classify than an integrated mechanical and electrical system. Racks may be fixtures, fittings or part of a larger installed system. Cooling plant may be machinery. The correct answer depends on the asset actually acquired and the statutory category into which it falls.

This makes asset registers an important tax instrument. Data-centre projects should maintain tax-sensitive asset classes rather than capitalising the entire facility under a single accounting heading and carrying that accounting label into tax. Tax depreciation is statutory. A project-level asset register should identify each major class of equipment, acquisition cost, installation cost, date first used, function, serial or model information and the tax category claimed. That record is also useful in customs because the tariff classification used at importation may provide contemporaneous evidence of what was acquired since section 51 of the East African Community Customs Management Act (EACCMA), 2004 governs operations involving warehoused goods, including their permissible handling, treatment and manipulation within a warehouse, in order with conditions imposed by the Commissioner.¹⁶¹ The accounting, customs and income-tax characterisations are not legally identical, but unexplained inconsistency between them can create avoidable audit risk.

C2.4 VAT, Excise, Customs and Stamp Duty as Separate Layers

VAT asks whether there is a taxable supply or import and, separately, whether input tax may be deducted.¹⁶² The general rate is 16 per cent.¹⁶³ Zero-rating applies where the statute places a supply in the Second Schedule.¹⁶⁴ Input tax is recoverable subject to section 17, including the documentary and taxable-use requirements.¹⁶⁵ An exemption is materially different from zero-rating in the sense that, where a supply is exempt, the seller does not charge VAT to the customer. In contrast, a zero-rated supply is still subject to VAT, but the rate charged is zero per cent.¹⁶⁶ That difference is significant when measured in the context of a capital-intensive operator since input recovery has an impact on the cash cost associated with the investment.

The breadth of excise is narrower. Only goods and services in the First Schedule to the Excise Duty Act are chargeable to it. At present, telephone and internet data services are excisable at 15 per cent of their excisable

¹⁵⁸ Income Tax Act (Cap 470), ss 15(2)(b) and 16(1)(b), sch 2.

¹⁵⁹ Income Tax Act (Cap 470), sch 2 para 1(1)(b)(vi) and (viii).

¹⁶⁰ Income Tax Act (Cap 470), sch 2 para 1(1)(a)(vii) and para 1(1)(c).

¹⁶¹ East African Community Customs Management Act (No 1 of 2004), s 51.

¹⁶² Value Added Tax Act (No 35 of 2013), ss 5 and 17.

¹⁶³ Value Added Tax Act (No 35 of 2013), s 5(2)(b).

¹⁶⁴ Value Added Tax Act (No 35 of 2013), sch 2 para 7(2).

value.¹⁶⁷ Where the service is excisable but the physical infrastructure that delivers it is not, the two must be kept analytically apart.¹⁶⁸ That was the reasoning of the Tax Appeals Tribunal in *Mawingu Networks Limited v Commissioner of Domestic Taxes*¹⁶⁹ separated internet data service from separately-chargeable infrastructure like fibre and customers' premises equipment (CPE), ruling that, on the facts before it, the infrastructure charge was not part of the excisable internet service.¹⁷⁰ That decision is highly relevant to bundled data-centre connectivity contracts, although the contractual and pricing substance must still be examined in each case.

Customs duty adds another classification exercise.¹⁷¹ Kenya applies the East African Community Customs Management Act and the Common External Tariff, together with annual Gazette measures that can stay the common tariff for specified Kenyan imports.¹⁷² The applicable rate therefore follows the tariff classification and current legal instrument rather than the commercial label "ICT equipment".¹⁷³ The correct Harmonised System code, product specifications, origin and the current Gazette all matter. Stamp duty is different again because it is principally a tax on instruments. Stamp duty attaches through chargeable instruments connected with the acquisition, lease, financing or security of the facility, rather than through the value of the equipment as such.¹⁷⁴ Leases, transfers, charges and other instruments connected with acquiring or financing the facility may, however, attract duty unless an exemption applies.

C3 Component by Component Tax Treatment

This section tests each component of a working facility in turn, from servers and networking equipment through cooling, backup power, software and cloud services to buildings and utilities, and closes with a consolidated matrix of the default position.

C3.1 Servers, Racks and Computer Hardware

Servers are the clearest example of capital technology equipment. Their acquisition cost is not an ordinary section 15 operating expense.¹⁷⁵ Computer and peripheral hardware is expressly accommodated within the Second Schedule capital-allowance regime, which currently provides a 25 per cent annual deduction in equal instalments for that category.¹⁷⁶ The classification of racks, cabinets, structured mounting systems and integrated containment requires the same functional discipline. Those items should be classified by their actual function and permanence. A movable rack may resemble equipment or a fitting. A purpose-built containment installation may form part of the mechanical infrastructure of the facility. The tax analysis should therefore maintain the old invoice and specification instead of categorising "server room" as an asset class.

Domestic acquisitions of servers and racks are ordinarily subject to VAT at the standard rate.¹⁷⁷ Generally, a VAT-registered operator making taxable supplies can claim qualifying input VAT under section 17.¹⁷⁸ Tariff

¹⁶⁵ Value Added Tax Act (No 35 of 2013), s 17.

¹⁶⁶ Value Added Tax Act (No 35 of 2013), sch 1, ss 5, 7(1) and 17.

¹⁶⁷ Excise Duty Act (No 23 of 2015), sch 1 pt II para 1.

¹⁶⁸ Excise Duty Act (No 23 of 2015), sch 1 pt II.

¹⁶⁹ *Mawingu Networks Limited v Commissioner of Domestic Taxes* (Tax Appeal 1179 of 2022) [2024] KETAT 99 (KLR) [55], [62].

¹⁷⁰ Excise Duty Act (No 23 of 2015), sch 1 pt II para 1.

¹⁷¹ East African Community Customs Management Act (No 1 of 2004).

¹⁷² East African Community Customs Management Act (No 1 of 2004).

¹⁷³ East African Community Customs Management Act (No 1 of 2004).

¹⁷⁴ Stamp Duty Act (Cap 480), ss 5, 55–57 and 68, read with the Schedule.

¹⁷⁵ Income Tax Act (Cap 470), s 15(1).

¹⁷⁶ Income Tax Act (Cap 470), sch 2 para 1(1)(b)(vi).

¹⁷⁷ Value Added Tax Act (No 35 of 2013), ss 5(2)(b) and 7(2).

classification is the determining factor for the import duty.¹⁷⁹ Many of the main automatic data-processing lines have traditionally been subject to low or zero rates of CET. The current treatment should be stated by reference to the applicable tariff line rather than as a general exemption for computers. Model-level classification and any Kenya-specific annual stay must be checked at importation. Excise duty follows the statutory schedule of excisable goods and services, while the equipment retains the tax treatment applicable to the physical asset.¹⁸⁰ The statutory schedule and the Mawingu Networks case support keeping the physical infrastructure separate from the excisable service where the facts and contracts genuinely support that separation.

C3.2 Networking Equipment and Fibre Connectivity

Routers, switches and comparable networking equipment are ordinarily capital assets used to transmit data within and beyond the facility. The Second Schedule recognises telecommunications equipment at a 10 per cent annual deduction in equal instalments.¹⁸¹ Where a telecommunications operator acquires an indefeasible right to use fibre-optic cable, the tax legislation separately recognises that form of capital expenditure. A data-centre operator that merely buys bandwidth or leases connectivity may acquire bandwidth without acquiring such a capital right. Recurring connectivity fees are more naturally tested under section 15 as operating expenditure, while an enduring fibre right requires capital treatment.¹⁸² The contractual distinction between acquiring capacity and acquiring a proprietary or indefeasible right is therefore important.

The customs treatment of fibre also illustrates why a 2026 paper requires current tariff verification.¹⁸³ In the East African Community Gazette of 30 June 2026, Kenya stayed application of the CET rate for optical fiber cables under tariff line 8544.70.00 and applied a 10 per cent duty for one year.¹⁸⁴ The example is analytically important even beyond fibre. It shows that the effective capital cost of technology infrastructure may change through annual regional tariff measures without any amendment to Kenya's core tax statutes. Investors planning multi-year builds should therefore distinguish a statutory investment allowance, which operates in income tax, from the customs rate actually payable when equipment crosses the border.

Connectivity supplied as a service raises excise duty.¹⁸⁵ The 15 per cent rate on telephone and internet data services applies to the excisable service,¹⁸⁶ but the Mawingu Networks case demonstrates that a separately identifiable infrastructure element is not automatically absorbed into that service.¹⁸⁷ The separation holds where the contractual and commercial reality discloses two supplies. Where a contract describes the whole as an internet service and then labels part of the price as infrastructure without any genuine separate supply behind the label, the Kenya Revenue Authority can be expected to contest the characterisation. The safer approach is for contracts, invoices and technical scope to reflect the commercial reality. Dedicated fibre installation, equipment ownership and managed connectivity should be described accurately rather than engineered around a preferred tax result.

¹⁷⁸ Value Added Tax Act (No 35 of 2013), s 17.

¹⁷⁹ East African Community Customs Management Act (No 1 of 2004), ss 4(1)(a) and 236; East African Community, Common External Tariff, General Interpretative Rules.

¹⁸⁰ Excise Duty Act (No 23 of 2015), s 5(1)–(2), sch 1.

¹⁸¹ *Income Tax Act (Cap 470)*, sch 2 para 1(1)(b)(viii).

¹⁸² *Income Tax Act (Cap 470)*, s 15(1).

¹⁸³ East African Community Customs Management Act (No 1 of 2004); East African Community, Common External Tariff; East African Community Gazette, vol AT 1 no 16 (30 June 2026).

¹⁸⁴ East African Community Gazette, vol AT 1 no 16 (30 June 2026) 38, item 312.

¹⁸⁵ *Excise Duty Act (No 23 of 2015)*, sch 1 pt II para 1.

¹⁸⁶ *Excise Duty Act (No 23 of 2015)*, sch 1 pt II.

¹⁸⁷ *Mawingu Networks* (n 172) [62].

C3.3 Cooling Systems

Cooling is indispensable in a high-density data centre, but tax legislation uses general machinery and capital-allowance categories for computer-room air-conditioning units, chillers, cooling towers or liquid-cooling systems.¹⁸⁸ The acquisition and installation of substantial cooling plant is capital expenditure. The applicable allowance depends on the machinery category into which the particular plant falls. Routine maintenance, refrigerant servicing, filter replacement and comparable costs preserve the asset without materially improving it, and are deductible under section 15 where they are incurred wholly and exclusively for the business.¹⁸⁹ Major replacement or enhancement expenditure retains its capital character and does not become revenue expenditure merely because it is incurred after commissioning.

Domestic purchases and installation services are ordinarily standard rated, with input recovery under section 17.¹⁹⁰ Customs treatment is particularly sensitive here, because cooling equipment may present as an air conditioning system, a refrigeration plant, a heat exchanger or parts of any of these, and each falls under a different tariff heading.¹⁹¹ Customs liability therefore depends on tariff classification, which should be established against the technical characteristics of the imported item before the project is priced.¹⁹² For a facility inside a qualifying SEZ, customs and VAT treatment must then be reconsidered under the zone regime rather than simply applying the home-use result.

C3.4 Backup Power, UPS Systems and Batteries

Generators, uninterruptible power supply systems and batteries are also capital assets, but they require separate classification for customs or income-tax purposes. A generator is mechanically different from a static converter, and a lithium-ion battery has its own tariff treatment.¹⁹³ From an income-tax perspective, the acquisition is capital and the operator must identify the correct Second Schedule category.¹⁹⁴ Fuel, testing, servicing and ordinary maintenance are recurrent costs capable of deduction under section 15 when properly evidenced and incurred for business operations.¹⁹⁵ Where backup generation is also used for non-business premises, an allocation may be required.

The 2026 treatment of lithium-ion batteries provides a useful example of incentive interaction. Just recently, KRA in its released schedule identified these items as subject to VAT at zero per cent.¹⁹⁶ Separately, the East African Community Gazette of 30 June 2026 records a Kenya stay under tariff line 8507.60.00 under which lithium-ion batteries are imported at zero per cent duty for one year instead of the stated CET rate.¹⁹⁷ A project importing qualifying batteries can therefore face a materially different acquisition cost from a project

¹⁸⁸ Income Tax Act (Cap 470), sch 2 para 1(1)(b).

¹⁸⁹ Income Tax Act (Cap 470), s 15(1).

¹⁹⁰ Value Added Tax Act (No 35 of 2013), s 17.

¹⁹¹ East African Community Customs Management Act (No 1 of 2004); East African Community, Common External Tariff 2022, General Interpretative Rules 1–6.

¹⁹² East African Community Customs Management Act (No 1 of 2004); East African Community, Common External Tariff 2022, General Interpretative Rules 1–6.

¹⁹³ East African Community, Common External Tariff 2022, headings 8502, 8504 and 8507.60.00, General Interpretative Rules.

¹⁹⁴ Income Tax Act (Cap 470), s 16(1)(b), sch 2 para 1(1).

¹⁹⁵ Income Tax Act (Cap 470), s 15(1).

¹⁹⁶ Kenya Revenue Authority, ‘List of goods and services listed in the First and Second Schedule of the VAT Act (for TIMS devices)’ (July 2026) item 282 <<https://www.kenyans.co.ke/news/125329-kra-releases-updated-list-vat-exempt-zero-rated-goods>> accessed 13 August 2026.

¹⁹⁷ East African Community Gazette, vol AT 1 no 16 (30 June 2026) 10, item 50 <<https://eabc-online.com/download/eac-gazette-volume-at-1-no-16-30-june-2026/?wpdmdl=12936&refresh=6a7d2d5d8c3911786588509>> accessed 13 August 2026.

importing a different battery technology. The relief is item-specific, so each category of backup-power equipment retains its own VAT and tariff analysis.

C3.5 Software Licences, Custom Software and Cloud Subscriptions

Software creates the most difficult boundary between capital, revenue and source taxation. Purchased software or a right to use software that is capital in character can fall within the Second Schedule category for computer software.¹⁹⁸ A recurring SaaS subscription, by contrast, may be revenue expenditure where the customer acquires only time-limited access to a service and no enduring asset or exploitable intellectual-property right.¹⁹⁹ Custom development can fall on either side depending on what is created, who owns it and whether the expenditure creates an enduring business asset. Labels such as “licence”, “subscription” and “implementation fee” are not conclusive. The contract and rights transferred must be examined.

Withholding tax depends on the same contractual substance. In *Seven Seas Technologies Limited v Commissioner of Domestic Taxes*, the High Court rejected the proposition that payments for software acquired for resale necessarily constituted royalties where the transaction did not confer rights to exploit copyright in the relevant sense.²⁰⁰ The reasoning has since remained important in software-tax disputes. In *Commissioner of Domestic Taxes v Dynasoft Business Solutions Limited*, the High Court similarly considered the distinction between distribution of software copies and exploitation of copyright.²⁰¹ Together, the cases support the more careful proposition that the tax character of a software payment depends on the rights and obligations created by the transaction. A data-centre or cloud customer should therefore review licence terms before applying a withholding rate.

Imported cloud and software services also require a VAT analysis. The VAT Act contains rules for imported services, while the supplier may separately face Significant Economic Presence Tax under section 12E where its statutory conditions are met.²⁰² These are different taxes imposed on different legal bases. The Kenyan customer should separately account for the relevant VAT and income-tax obligations rather than treating payment of reverse VAT or another VAT mechanism as satisfying the non-resident supplier’s income-tax obligation. Equally, the presence of SEP Tax operates alongside withholding tax where a payment independently falls within a withholding category, subject to the exclusions in section 12E, the Income Tax Act and any applicable double-tax agreement.²⁰³ Contract review must therefore precede tax coding in the accounts-payable system.

C3.6 IaaS, PaaS and SaaS as Functional Layers

The following three services should be considered separately because they differ in the level of control they give to the user which are, Infrastructure as a Service, Platform as a Service and Software as a Service. IaaS commonly gives the customer access to virtualised compute, storage and networking capacity. PaaS adds a managed environment on which applications can be built or deployed. SaaS delivers a finished application. A Kenyan data-centre operator may provide one or all of these layers, and the Konza National Data Centre publicly advertises cloud services to government and enterprise users.²⁰⁴ For the local provider, receipts are

¹⁹⁸ Income Tax Act (Cap 470), sch 2 para 1(1)(b)(vi).

¹⁹⁹ Income Tax Act (Cap 470), ss 15(1) and 16(1)(b).

²⁰⁰ *Seven Seas Technologies Limited v Commissioner of Domestic Taxes* (Income Tax Appeal 8 of 2017) [2021] KEHC 358 (KLR) [59].

²⁰¹ *Commissioner of Domestic Taxes v Dynasoft Business Solutions Limited* (Income Tax Appeal E083 of 2023) [2024] KEHC 13980 (KLR) [28]–[29].

²⁰² Income Tax Act (Cap 470), s 12E and sch 3.

²⁰³ Income Tax Act (Cap 470), s 12E and sch 3.

business income. For the customer, recurring service charges can be deductible where section 15 is satisfied.²⁰⁵ The difficult questions arise when services cross the border or contain separately licensed intellectual property.

The tax analysis should therefore follow the legal supply chain rather than the marketing stack. A customer may purchase IaaS from a non-resident hyperscaler, managed services from a Kenyan integrator and connectivity from a licensed telecommunications operator. The first payment may give rise to VAT on imported services and, where the statutory conditions are satisfied, significant economic presence tax (SEP Tax); the second is ordinarily a domestic taxable service; and the third may comprise excisable telephone or internet data services.²⁰⁶ The Kenyan integrator may be acting as principal or as agent when it passes through foreign cloud charges, and which of the two it is affects both the invoice and the tax treatment. A single ledger line described as cloud cost is therefore insufficient for compliance purposes.

C3.7 Real Estate and Buildings

The land and the purpose built envelope are elements of a data centre, but their tax consequences are separate from those of the equipment housed within them. For capital expenditure on a qualifying commercial building, the application is not made under section 15, but through the Second Schedule.²⁰⁷ The presence of technology inside a building does not convert the building into computer hardware for capital allowance purposes. Where the operator occupies the premises as a lessee, rent is ordinarily recurrent business expenditure under section 15.²⁰⁸ A commercial lease must be distinguished from the exempt supplies of land and of residential premises.²⁰⁹ A purpose built data centre lease remains a commercial lease even where the building also contains offices or staff facilities.

Stamp duty enters through the legal instruments used to acquire, lease, finance or secure the property.²¹⁰ The rate and liability depend on the instrument, not the technological use of the building. This becomes especially important in the SEZ context because section 117 of the Stamp Duty Act contains an exemption for instruments relating to the business activities of licensed SEZ enterprises, developers and operators.²¹¹ The exemption is therefore status- and activity-dependent. Accordingly, qualification should be established by reference to the SEZ licence and the relationship of the instrument to the licensed business, rather than geography alone.²¹²

C3.8 Electricity and Water as Operating Inputs

Electricity is commonly one of the largest operating costs of a data centre. The tax treatment is conceptually simpler than its commercial significance. Electricity consumed in the production of taxable business income is capable of deduction under section 15, subject to proof and any necessary apportionment.²¹³ Under the current VAT framework, ordinary electricity supply is not generally listed as an exempt or zero-rated supply, so the

²⁰⁴ Konza Technopolis Development Authority, 'Konza national data centre' <<https://konza.go.ke/>> accessed 13 August 2026.

²⁰⁵ Income Tax Act (Cap 470), s 15(1).

²⁰⁶ Income Tax Act (Cap 470), s 12E; Value Added Tax Act (No 35 of 2013), s 10; Excise Duty Act (No 23 of 2015), s 5(1)–(2), sch 1 pt II para 1.

²⁰⁷ Income Tax Act (Cap 470), s 15(1).

²⁰⁸ Income Tax Act (Cap 470), s 15(1).

²⁰⁹ Value Added Tax Act (No 35 of 2013), sch 1 para 8.

²¹⁰ Stamp Duty Act (Cap 480), s 5, read with the Schedule.

²¹¹ Stamp Duty Act (Cap 480), s 117(1)(n).

²¹² Special Economic Zones Act (No 16 of 2015), s 29(1); Stamp Duty Act (Cap 480), s 117(1)(n).

²¹³ Income Tax Act (Cap 470), s 15(1); *Avery Lounge* (n 157) [45]–[49].

general VAT treatment applies unless a specific provision or transaction changes the result.²¹⁴ A VAT-registered operator making taxable supplies may claim qualifying input tax under section 17.²¹⁵ The deduction for income-tax purposes is the business expense determined under the Income Tax Act; VAT recovery is a separate computation.

Water needs greater care because the VAT schedules contain a specific exemption. The schedule issued by KRA in July 2026 schedule identifies qualifying supplies of natural water, excluding bottled water, by the national government, county government, a political subdivision or an approved person for domestic or industrial use as exempt.²¹⁶ A qualifying supply of natural water to a data centre is therefore exempt rather than zero rated, notwithstanding that the operator is a commercial consumer. The distinction is not academic. An exempt supply carries no input tax for the operator to recover, so exemption relieves the immediate charge without conferring the recovery position that zero rating would give.²¹⁷ This cost of underlying water can still be a business expense (section 15).²¹⁸ The statutory conditions will have to be verified if a different water product or water service is purchased. A theme running through this part is that the tax outcome follows the legal character of the input rather than the economic function it performs within the facility.

C3.9 Consolidated Component Matrix

The following matrix summarizes the default position. It is deliberately framed as a legal classification matrix rather than a quotation tool. Customs entries in particular must be verified against the product's actual Harmonised System code, origin and the Gazette in force on the date of importation.²¹⁹

Table 2: The default tax treatment of the principal components of a data centre

The matrix below is read across the row. The first column names the component, the second states its treatment for income tax and capital allowance purposes, the third its value added tax position, and the fourth the customs, excise and other consequences that attach to it. It is a legal classification aid and not a pricing tool, and every customs entry must be checked against the Harmonised System code, the origin of the goods and the Gazette in force on the date of importation.

TABLE 2

Consolidated component matrix: the tax treatment of data centre components

Component	Income tax / capital treatment	VAT	Customs, excise and other issues
Servers/ computer hardware	Capital. Computer and peripheral hardware generally 25% p.a. in equal instalments under Second Schedule.	Normally 16%; qualifying input VAT recoverable.	HS classification required; many ICT lines may be low/0, but verify current CET/stays. Hardware not excisable merely because used for internet. ²²⁰

²¹⁴ Value Added Tax Act (No 35 of 2013), ss 5(1)(a), 5(2)(b) and 7, schs 1 and 2.

²¹⁵ Value Added Tax Act (No 35 of 2013), s 17.

²¹⁶ Kenya Revenue Authority, 'List of goods and services' (n 199) item 135.

²¹⁷ Kenya Revenue Authority, 'List of goods and services' (n 199) item 135; Value Added Tax Act (No 35 of 2013), sch 2 pt A para 8.

²¹⁸ Income Tax Act (Cap 470), s 15(1).

²¹⁹ East African Community Customs Management Act (No 1 of 2004).

²²⁰ Value Added Tax Act (No 35 of 2013), s 17; East African Community Customs Management Act (No 1 of 2004).

Component	Income tax / capital treatment	VAT	Customs, excise and other issues
Racks / cabinets	Capital; classify by function as machinery/fittings/other asset.	Normally 16%; input recovery subject to s 17.	Classification-specific. No general excise. ²²¹
Routers/ switches	Capital; telecommunications equipment generally 10% p.a. in equal instalments.	Normally 16%; input recovery subject to s 17.	Tariff classification required. Separate from excisable internet service where substantively distinct. ²²²
Optical fibre	Capital if installed/acquired right; recurring connectivity may be revenue.	Normally 16% unless SEZ/other relief.	Kenya applies a 10% one-year stay for HS 8544.70.00 from 30 June 2026. ²²³
Cooling plant	Capital machinery; repairs/ maintenance may be revenue.	Normally 16%; input recovery subject to s 17.	Rate depends on equipment heading/ specification. ²²⁴
Generators / UPS	Capital machinery/equipment; fuel and ordinary service are operating costs.	Normally 16% subject to specific items/reliefs.	Classification-specific; no blanket data-centre exemption. ²²⁵
Lithium-ion batteries	Capital equipment; allowance depends on asset category.	Zero-rated on current July 2026 schedule.	HS 8507.60.00: Kenya applies a 0% one-year stay from 30 June 2026. ²²⁶
Software licence	Capital if enduring software/right; otherwise facts control.	Domestic/imported-service rules apply.	Potential WHT issue if payment is legally a royalty; Seven Seas and Dynasoft require rights-based analysis. ²²⁷
IaaS / PaaS / SaaS	Recurring customer charge ordinarily tested under s 15; provider income taxable.	Taxable service / imported-service rules.	Non-resident supplier may engage SEP Tax; WHT depends on character and statutory exclusions. ²²⁸
Commercial building / lease	Building capital allowance if owned; rent may be revenue expense.	Commercial supply normally taxable; land/residential exemptions are distinct.	Stamp duty on relevant instruments unless exempt, including qualifying SEZ instruments. ²²⁹

²²¹ Income Tax Act (Cap 470), sch 2; East African Community Customs Management Act (No 1 of 2004).

²²² *Mawingu Networks* (n 172) [55],[62].

²²³ Value Added Tax Act (No 35 of 2013), s 5; East African Community Gazette, vol AT 1 no 16 (30 June 2026) 38, item 312.

²²⁴ Income Tax Act (Cap 470), s 15(1).

²²⁵ Income Tax Act (Cap 470), sch 2; Income Tax Act (Cap 470), s 15(1); Value Added Tax Act (No 35 of 2013), s 17; East African Community Customs Management Act (No 1 of 2004).

²²⁶ Kenya Revenue Authority, 'List of goods and services' (n 199) item 282; East African Community Gazette, vol AT 1 no 16 (30 June 2026) 10, item 50.

²²⁷ *Seven Seas Technologies Limited v Commissioner of Domestic Taxes* (Income Tax Appeal 8 of 2017) [2021] KEHC 358 (KLR) [59].

²²⁸ Income Tax Act (Cap 470), s 15(1); Income Tax Act (Cap 470), s 12E and sch 3.

²²⁹ Stamp Duty Act (Cap 480), s 117(1)(n).

Component	Income tax / capital treatment	VAT	Customs, excise and other issues
Electricity	Revenue expense where wholly/exclusively incurred.	Ordinary supply generally standard-rated; input recovery subject to s 17.	No general excise on electricity in this context. ²³⁰
Qualifying natural water	Revenue expense where business-related.	Exempt under First Schedule where statutory supplier/use conditions met.	No import issue for ordinary utility supply. ²³¹

C4 Does Kenya Have a Dedicated Data Centre Tax Regime?

This section asks whether Kenya has a data centre tax regime as such. It concludes that it does not, the treatment being supplied instead by general regimes whose interaction is nowhere consolidated, and it identifies the form that a remedy would take.

The component analysis shows that Kenya's data centre tax treatment is supplied by a set of general tax regimes that were not designed to operate together on a single project. The core taxes remain sector-neutral, while data centres sit at the intersection of income tax, VAT, customs, excise, land and stamp rules, telecommunications regulation, data protection, cybersecurity, energy and environmental controls. The Special Economic Zones framework can then create a preferential overlay where the facility and operator meet the statutory conditions.²³² The principal issue is therefore coordination across these intersecting regimes.

This distinction shapes the reform choice. Authoritative administrative guidance can map the existing rules to common data-centre transactions while preserving the concepts already supplied by the general tax laws.²³³ KRA could, for example, issue a sector note addressing capital-allowance classes for common mechanical and electrical equipment, imported cloud services, treatment of connectivity bundles, SEZ documentation and representative customs classifications.²³⁴ Such guidance would operate within the statute while reducing uncertainty at the point where a taxpayer must translate technical architecture into tax codes.²³⁵

The same conclusion emerges from the Government's current policy direction. In 2026, the Ministry issued an engagement with SEZA which expressly referred to policy and regulatory measures to encourage data-centre and cloud investment. Further, Kenya issued a Cloud Policy and implementation guidelines which demonstrate that cloud infrastructure is now treated as a strategic layer of public and private digital infrastructure.²³⁶ These policy instruments can guide procurement, localisation, security and cloud adoption, but they do not themselves determine income-tax deductions or customs duty. The analysis should therefore keep normative technology policy and enacted tax rules analytically separate.

²³⁰ Value Added Tax Act (No 35 of 2013), s 5; Value Added Tax Act (No 35 of 2013), s 17.

²³¹ Kenya Revenue Authority, 'List of goods and services listed in the First and Second Schedule of the VAT Act (for TIMS devices)' (July 2026) item 135 <https://www.kenyans.co.ke/news/125329-kra-releases-updated-list-vat-exempt-zero-rated-goods> accessed 13 August 2026.

²³² Special Economic Zones Act (No 16 of 2015), s 29(1).

²³³ Income Tax Act (Cap 470), sch 2 paras 1–4.

²³⁴ Income Tax Act (Cap 470), sch 2 paras 5–7.

²³⁵ Kenya Revenue Authority, 'Guidelines to taxpayers on the operationalization of the Special Economic Zone Programme' (June 2026) 3–5.

²³⁶ Ministry of Information, Communications and the Digital Economy, 'Kenya cloud policy 2025 implementation guidelines' (July 2026).

C5 The Data Centre as an Aggregated Bundle of Taxed Components

This section reassembles the components into the fiscal position of the facility as a whole, and shows why no single headline rate describes the burden that a project actually bears.

Once the components are reassembled, the default non-SEZ data centre can be described as a bundle of tax bases. The operator's taxable profit is calculated after allowable revenue deductions and statutory capital allowances. Domestic taxable acquisitions ordinarily bear VAT, subject to input recovery. Imported equipment bears customs duty according to tariff classification and may also engage import declaration fees, railway development levy and VAT at importation.²³⁷ Connectivity services can carry excise duty. Leases, transfers and financing instruments can attract stamp duty.²³⁸ Cross-border software and cloud payments can raise withholding, imported-services VAT and Significant Economic Presence Tax questions.²³⁹ The effective burden is therefore the product of several interacting taxes rather than one headline rate.

This aggregation has two consequences. First, the statutory corporate income-tax rate does not measure the tax cost of constructing or operating the facility. A project can enjoy capital allowances while still facing cash-flow costs at importation.²⁴⁰ Conversely, a zero customs rate does not remove VAT or the cost of non-creditable taxes and levies. Second, tax benefits can operate at different times. Capital allowances reduce taxable income after an asset is brought into use, while customs and import VAT affect cash outlay before commissioning.²⁴¹ Electricity deductions arise over the operating life of the facility. A sound investment model must therefore place each tax in the period in which it legally arises.

The annual tariff changes for fibre and lithium-ion batteries make the point concrete.²⁴² In June 2026 Kenya applied a 10 per cent import duty to a specified optical-fibre line while applying zero per cent to lithium-ion batteries under separate one-year stays.²⁴³ Two assets in the same data-centre build therefore moved in opposite directions relative to the underlying CET.²⁴⁴ A generic statement that "ICT equipment is duty-free" would materially misstate the 2026 position. The lesson is methodological: customs assumptions should be version-controlled by date and HS code, just as the income-tax analysis should be version-controlled by the operative statute.²⁴⁵

C6 Facility Location, SEZ Status and Incentive Stacking

This section examines the Special Economic Zones overlay. It distinguishes legal status from physical location, and then sets out the corporate rate, the investment deduction, the 2026 withholding tax amendment, the indirect tax position and a worked example.

²³⁷ Value Added Tax Act (No 35 of 2013), s 5.

²³⁸ Stamp Duty Act (Cap 480), ss 6, 55–57 and 68.

²³⁹ Income Tax Act (Cap 470), s 12E and sch 3.

²⁴⁰ Income Tax Act (Cap 470), sch 2 paras 1–4.

²⁴¹ Income Tax Act (Cap 470), sch 2 paras 5–7.

²⁴² East African Community Gazette, vol AT 1 no 23 (5 August 2026) 11, Legal Notice No EAC/302/2026.

²⁴³ Ibid item (j).

²⁴⁴ Ibid.

²⁴⁵ East African Community Customs Management Act (No 1 of 2004), s 51.

C6.1 Status before Incentive

Special Economic Zone treatment provides the most significant overlay on the default regime and requires precise description. The Special Economic Zones Act ties the statutory benefits to a valid licence issued by the Authority.²⁴⁶ Accordingly, legal status under the licensing framework, rather than marketing or physical location alone, determines access to those benefits. The entity, activity and zone must satisfy the licensing framework. The draft operational guidelines issued by KRA's on June 2026 reinforce the point by requiring an SEZ entity to hold a valid SEZA licence, operate within a gazetted zone recognised as a customs-controlled zone, obtain the relevant customs facility code and update its tax registration.²⁴⁷ The tax preference is tied to regulated status and compliance.

That condition is particularly important when discussing data centres because a campus can contain different entities. A land developer, an SEZ operator, a licensed enterprise, a telecom carrier, a cloud provider and tenants may each occupy the same physical area. Each entity therefore carries the tax treatment attached to its own legal status, activity and transactions. The KRA guidelines also indicate that preferential treatment is linked to SEZ-derived operations and that supplies moving between the zone and the customs territory require the prescribed customs and tax documentation.²⁴⁸ A precise analysis identifies the licensed person, the relevant transaction and the statutory incentive instead of reducing the SEZ position to a general label of exemption.²⁴⁹

C6.2 Corporate Income Tax and the Investment Deduction

For a licensed SEZ enterprise, developer or operator, corporate income tax is charged at 10 per cent during the first ten years of operation and at 15 per cent for the next ten years, after which the ordinary corporate tax rate applies.²⁵⁰ The provision operates as a preferential corporate income-tax rate during that period, which is analytically distinct from a corporate income-tax exemption. That qualification also disposes of the common description of the regime as a tax holiday. For modelling purposes, a profitable SEZ operator therefore carries a current income-tax liability during the first decade at the applicable preferential rate.

The investment deduction is separately important for capital-intensive facilities.²⁵¹ Where capital expenditure is incurred on buildings and machinery used in an SEZ, the expenditure qualifies for an investment deduction of 100 per cent, according to current KRA guidance.²⁵² The claim is subject to the Income Tax Act and the requirement that the assets be used in the licensed business. The advantage is one of timing, in that it accelerates tax recognition of substantial capital expenditure. It operates as a deduction against taxable income rather than as a cash reimbursement of the investment cost. Its value therefore depends on taxable profits, loss utilisation and the interaction with the preferential corporate rate.

C6.3 The 2026 Withholding Tax Amendment

The Special Economic Zones (Amendment) Act, 2026 materially changed the withholding-tax architecture.²⁵³ It amended paragraph 73 of the First Schedule to the Income Tax Act by deleting the words “in the first 10

²⁴⁶ Kenya Revenue Authority, ‘Guidelines to taxpayers on the operationalization of the Special Economic Zone Programme’ (June 2026) 3–5.

²⁴⁷ Special Economic Zones Act (No 16 of 2015), s 29(1).

²⁴⁸ Kenya Revenue Authority, ‘Guidelines to taxpayers on the operationalization of the Special Economic Zone Programme’ (June 2026) 3–5.

²⁴⁹ Special Economic Zones Act (No 16 of 2015), s 29(1).

²⁵⁰ Income Tax Act (Cap 470), sch 3 para 2.

²⁵¹ Income Tax Act (Cap 470), sch 2 paras 10–13.

²⁵² Income Tax Act (Cap 470), sch 2 para 13.

²⁵³ Special Economic Zones (Amendment) Act (No 12 of 2026), s 7.

years of its establishment”.²⁵⁴ The significance is narrow but important. The amendment removes the former 10-year temporal wording from the exemption for specified payments by an SEZ developer, operator or enterprise to a non-resident person. The amendment concerns the specified withholding-tax exemption, while the separate SEZ corporate-rate schedule continues to govern corporate income tax. The two provisions therefore require separate analysis.

For a data-centre project, this can affect cross-border financing, royalties and professional or technical payments that fall within the paragraph. The exact payment must still fall within the statutory categories and the payer must qualify as an SEZ developer, operator or enterprise. A software payment also remains subject to legal characterisation. The royalty analysis follows the rights actually acquired under the software arrangement, consistently with *Seven Seas Technologies*, before any exemption is tested.²⁵⁵ The correct sequence is classification first, exemption second.

C6.4 VAT, Customs, IDF, RDL and Stamp Duty

The 2026 SEZ amendments also strengthened VAT treatment by extending the relevant zero-rating language to supplies to a special economic zone developer, operator or enterprise.²⁵⁶ KRA’s operational guidelines explain the corresponding documentation architecture: supplies to an SEZ are treated as exports for the regime, movement from the zone into the customs territory is treated as an import, and zero-rating depends on prescribed evidence and tax invoicing.²⁵⁷ This keeps the statutory evidential test central to the VAT analysis. A supplier’s entitlement to zero-rating therefore turns on the prescribed transaction and supporting evidence.

Customs relief should be analysed just as carefully. Goods admitted into a customs-controlled SEZ for authorised activity are governed by the SEZ and customs-controlled regime, while movement into the customs territory is treated as an import and may trigger duty and tax.²⁵⁸ Import Declaration Fee relief is expressly provided for qualifying goods destined for approved SEZ enterprises under the Miscellaneous Fees and Levies Act.²⁵⁹ Railway Development Levy is charged under section 8 on goods imported for home use, subject to the exemptions specified in Part B of the Second Schedule.²⁶⁰ The conclusion is therefore transaction-specific: an investor should confirm, levy by levy, the statutory basis for any relief associated with an SEZ import.

Stamp duty is more straightforward at the level of principle.²⁶¹ Section 117 of the Stamp Duty Act exempts an instrument relating to the business activities of an SEZ enterprise, developer or operator licensed under the SEZ Act.²⁶² The exemption can reduce friction in property and financing arrangements, but again the licence and business nexus are central. The statutory nexus therefore remains the licensed SEZ business activity of the enterprise, developer or operator.²⁶³ Taken together, these rules show that “incentive stacking” is legally possible, but only after each tax is separately tested.

C6.5 Konza as a Worked Example

Clearly, Konza Technopolis provides a useful example in that Konza National Data Centre is a working Tier III design and construction facility which is servicing government and enterprise users; and, that the Konza’s

²⁵⁴ Special Economic Zones (Amendment) Act (No 12 of 2026), sch 1.

²⁵⁵ *Seven Seas Technologies* (n 203) [59].

²⁵⁶ Value Added Tax Act (No 35 of 2013), sch 2.

²⁵⁷ Kenya Revenue Authority, ‘Guidelines to taxpayers’ (n 1) 3–5.

²⁵⁸ *Ibid.*

²⁵⁹ Miscellaneous Fees and Levies Act (No 29 of 2016), s 7 and sch 2 pt A.

²⁶⁰ Miscellaneous Fees and Levies Act (No 29 of 2016), s 8 and sch 2 pt B.

²⁶¹ Stamp Duty Act (Cap 480).

investment materials explicitly market the Special Economic Zone benefits.²⁶⁴ The example must be used within its evidential boundary. Public sources record the existence and character of the facility and the incentives held out to investors in the zone. They do not record what the operator has returned to the Kenya Revenue Authority, which reliefs it has claimed or on what conditions any relief was granted. Inference at facility level must stop where the public record stops.

This applies to other private premises in Kenya. A facility outside a gazetted and licensed SEZ remains under the default tax regime even if it has comparable technical specifications.²⁶⁵ This creates a meaningful location-and-status comparator. The SEZ facility can potentially combine preferential corporate rates, accelerated investment deduction, specified withholding relief, zero-rated qualifying supplies and instrument relief.²⁶⁶ The non-SEZ facility instead relies on ordinary capital allowances, ordinary VAT input recovery and the general customs regime.²⁶⁷ The policy question is whether this difference appropriately rewards investment or creates a distortion based more on zone status than on the infrastructure's national digital value.

C7 What the Public Evidence Establishes

This section states what the public record establishes and where it stops, and identifies the disclosure that would allow the effect of the incentives to be tested.

An important empirical question is what technology operators actually pay in tax and what they deduct for electricity, water, maintenance and depreciation. For Kenyan private data centres, the public domain supports conclusions at sector level far better than at facility level. The statutes establish the categories of deductible expenditure, but tax returns and detailed operating cost schedules are not public documents.²⁶⁸ Utility and depreciation costs may be consolidated within a company in published accounts and in published accounts for multinational groups it's possible that the costs will be consolidated rather than allowing the cost to be isolated for a facility in Kenya. Any figure derived from consolidated group accounts would require careful reconciliation before it could properly be described as a Kenyan data centre deduction.

In the 2025/26 FY, KRA's performance data illustrates both the availability and the limitation of public tax data.²⁶⁹ KRA reported Kshs 1.609 billion in Significant Economic Presence Tax and Digital Service Tax collections, up from Kshs 0.807 billion in the previous financial year.²⁷⁰ This establishes material public collections from the digital-services tax base, but it remains sector-level evidence rather than a measure of corporate income tax or utility deductions by data-centre operators. It should therefore be used within that evidential boundary.

The empirical conclusion is correspondingly bounded by the available evidence. Section 15 permits deductions for electricity, water, routine maintenance and other similar operating expenses where they are incurred wholly and exclusively in the production of income, while capital expenditure is governed by the

²⁶² Stamp Duty Act (Cap 480), s 117(1)(n).

²⁶³ Special Economic Zones Act (No 16 of 2015), s 29(1).

²⁶⁴ Konza Technopolis Development Authority, 'Konza national data centre' <<https://konza.go.ke/>> accessed 13 August 2026.

²⁶⁵ Kenya Revenue Authority, 'Guidelines to taxpayers on the operationalization of the Special Economic Zone Programme' (June 2026) 3–5.

²⁶⁶ Kenya Revenue Authority, 'What incentives do investors get?' <<https://www.kra.go.ke/32-about-investors/60-tax-incentives>> accessed 13 August 2026.

²⁶⁷ Value Added Tax Act (No 35 of 2013), s 17.

²⁶⁸ Income Tax Act (Cap 470), s 15(1).

²⁶⁹ Kenya Revenue Authority, 'Annual revenue performance-FY 2025/2026' (30 June 2026).

²⁷⁰ Ibid.

Second Schedule.²⁷¹ *Avery Lounge* shows that the taxpayer must substantiate the claim.²⁷² Public sources leave undisclosed the underlying invoices and allocation schedules of private operators. That evidential boundary should therefore be stated expressly. The limited public data is itself a material finding because it constrains evaluation of whether statutory incentives produce the intended effective tax burden.

This evidential gap can be addressed while preserving taxpayer confidentiality. KRA and SEZA could publish anonymised sectoral statistics showing aggregate capital investment, taxable profits, capital allowances claimed, electricity intensity and tax paid by licensed data-centre or cloud-infrastructure businesses. SEZA already has a statutory performance-monitoring role in relation to the programme.²⁷³ Properly aggregated data would allow policymakers to test whether preferential rates and capital allowances attract investment without exposing individual taxpayers.²⁷⁴ It would also improve academic and parliamentary scrutiny of tax expenditure.²⁷⁵

²⁷¹ Income Tax Act (Cap 470), s 15(1).

²⁷² *Avery Lounge* (n 157) [45]–[49].

²⁷³ Special Economic Zones Act (No 16 of 2015), s 11(j).

²⁷⁴ Income Tax Act (Cap 470), sch 2.

²⁷⁵ *Avery Lounge* (n 157) [45]–[49].

PART D

The Legal and Regulatory Framework

D

Part D places the fiscal position within the wider regulatory framework. It shows that technology governance in Kenya is distributed across statutes in the same way that its taxation is distributed across tax heads, and that regulatory status and fiscal status intersect even though they arise under different instruments.

D1 Technology Governance beyond Taxation

This section sets out the regulatory framework within which a data centre operates, covering the statutes that govern communications, data protection, cybercrime, evidence and innovation, the policy instruments that sit alongside them, and the sandbox arrangements held by individual regulators.

D1.1 A Distributed Legal Framework

Kenya's technology-governance framework is, like its tax framework, distributed across statutes rather than contained in a single "technology law". The Kenya Information and Communications Act provides the principal communications-sector regulatory framework.²⁷⁶ The Science, Technology and Innovation Act governs the national science, technology and innovation system.²⁷⁷ The Data Protection Act regulates processing of personal data and is especially relevant to data-centre customers and cloud providers that process or host personal data.²⁷⁸ The Computer Misuse and Cybercrimes Act addresses cyber offences and related powers, while the Evidence Act provides rules for electronic and digital evidence.²⁷⁹ The relevance of each statute depends on the role performed by the operator. A pure colocation provider and a cloud application provider occupy different legal roles even where they use the same building.

The Technopolis Act of 2026 adds another institutional layer around technopolis development, while the cloud-policy framework provides more specific policy direction for cloud adoption.²⁸⁰ Sector licences for communications services, energy installations, environmental approvals or water abstraction and discharge continue to operate alongside these instruments. For tax analysis, their importance lies partly in defining what the business is legally authorised to do. An SEZ income-tax preference, for example, is connected to licensed business activity.²⁸¹ Technology regulation and tax status can therefore intersect even though they arise under different statutes.

D1.2 The Policy Framework

The Cloud Policy of 2025 and its July 2026 implementation guidelines that were adopted by Kenya are the most directly relevant policy instruments for cloud infrastructure.²⁸² They sit alongside the broader digital-economy and ICT policy framework. Policy documents should be used carefully in legal writing. They can establish government objectives, preferred architecture and planned regulatory direction. Tax exemptions derive from enacted legislation rather than from policy language. This separation is especially critical when an investment-promotion language portrays incentives in general terms. The controlling source for a tax benefit remains the statute, applicable regulations, Gazette instruments and, where disputed, judicial interpretation.

D1.3 Regulatory Sandboxes

Kenya has regulator-specific sandbox arrangements rather than a single whole-of-government sandbox regime. The Communications Authority uses an ICT regulatory sandbox to provide a controlled environment

²⁷⁶ Kenya Information and Communications Act (No 2 of 1998).

²⁷⁷ Science, Technology and Innovation Act (No 28 of 2013).

²⁷⁸ Data Protection Act (No 24 of 2019).

²⁷⁹ Evidence Act (No 46 of 1963), ss 106A–106I.

²⁸⁰ Technopolis Act (No 13 of 2026).

²⁸¹ Kenya Revenue Authority, 'Guidelines to taxpayers on the operationalization of the Special Economic Zone Programme' (June 2026) 3–5.

for testing emerging ICT products and services under regulatory supervision²⁸³ The Capital Markets Authority separately operates a regulatory sandbox for innovative capital-markets products and services under its own policy framework.²⁸⁴ The regulator matters because a sandbox relaxes or supervises requirements within a defined legal mandate. Participation in one sandbox operates alongside unrelated tax, data-protection or licensing obligations.

Safaricom’s Daraja environment is analytically distinct from a public regulatory sandbox. Daraja provides a developer environment for building and testing integrations with M-PESA APIs.²⁸⁵ It is commercially valuable, but it functions as a developer test environment rather than an exercise of governmental regulatory discretion. This distinction resolves the ambiguity that often appears when “sandbox” is used to describe both regulator-supervised experimentation and technical test environments. The institutional abbreviation also matters. The Communications Authority of Kenya is ordinarily abbreviated CA and operates the ICT regulatory sandbox.²⁸⁶ The Competition Authority of Kenya is a separate regulator, commonly abbreviated CAK, with a different statutory mandate.

²⁸² Ministry of Information, Communications and the Digital Economy, ‘Kenya cloud policy 2025 implementation guidelines’ (n 110).

²⁸³ Communications Authority of Kenya, ‘Regulatory sandbox’ <https://www.ca.go.ke/regulatory-sandbox> accessed 13 August 2026.

²⁸⁴ Capital Markets Authority, *Regulatory Sandbox Policy Guidance Note* (March 2019) https://www.cma.or.ke/wpfd_file/regulatory-sandbox-policy-guidance-note-march-2019-final/ accessed 13 August 2026.

²⁸⁵ Safaricom, ‘Daraja 3.0’ <https://developer.safaricom.co.ke/> accessed 13 August 2026.

²⁸⁶ Communications Authority of Kenya, ‘Regulatory sandbox’ <https://www.ca.go.ke/regulatory-sandbox> accessed 13 August 2026.

Conclusion and Recommendations



Kenya has built a reasonably complete apparatus for granting relief to data centre investment and no apparatus at all for measuring what that investment consumes or what the relief costs.

E1 Conclusion

This section draws the argument of the report together and states its central finding.

Kenyan tax law can already be applied to every principal economic activity of a data centre. Business income is taxable. Remote digital supplies may attract tax in the hands of the non-resident supplier. Recurrent business inputs may be deducted. Statutory allowances are available on capital assets. Taxable supplies fall to be accounted for under the value added tax regime. Internet data services may bear excise duty. Property instruments may bear stamp duty. Equipment imported into East Africa is treated under the customs regime of the Community.²⁸⁷ The organising insight is that a facility which presents commercially as one project is decomposed by law into a series of distinct fiscal objects.

That decomposition also creates the openings through which relief is granted. A licensed Special Economic Zone enterprise, developer or operator may combine a preferential corporate rate, a hundred per cent investment deduction for qualifying buildings and machinery, specified withholding tax relief, zero rating of qualifying supplies and relief from stamp duty on qualifying instruments.²⁸⁸ The 2026 amendments reinforced that architecture, in particular by removing the ten year temporal wording from paragraph 73 of the First Schedule to the Income Tax Act.²⁸⁹ Each of those benefits operates on statutory conditions, and none of them is accurately described by the general term tax exemption.

SPOTLIGHT

For an investor, the practical consequence is that the identification of technical infrastructure and the mapping of contracts should precede the tax analysis rather than follow it. Before the financial model is closed, each server, battery, fibre import, cloud agreement, connectivity charge and property instrument should be assigned to its correct statutory category. For government, the more consequential reform is a consolidated data centre and cloud tax guide, supported by anonymised sector data and a more predictable customs administration. That would preserve the generality of the tax system while making its application to strategic digital infrastructure coherent, transparent and defensible. The wider question, which Part E takes up, is whether a settlement that grants relief facility by facility while measuring consumption nowhere can be described as governance at all.

E2 Recommendations

The recommendations that follow are directed at the institutions with the power to act on them, and each is framed so that compliance can be observed and dated. They proceed from a single premise, which is that a

²⁸⁷ Income Tax Act (Cap 470), s 12E and sch 3.

²⁸⁸ Kenya Revenue Authority, ‘What incentives do investors get?’ <https://www.kra.go.ke/32-about-investors/60-tax-incentives> accessed 13 August 2026.

²⁸⁹ Special Economic Zones (Amendment) Act (No 12 of 2026), sch 1.

state may reasonably choose to subsidise digital infrastructure, but that it cannot reasonably choose to subsidise infrastructure whose fiscal cost and physical consumption it has never measured.

E2.1 A Consolidated Data Centre and Cloud Tax Guide

The Kenya Revenue Authority, working with the Special Economic Zones Authority, the Communications Authority of Kenya and the Ministry responsible for the digital economy, should publish a consolidated data centre and cloud tax guide. It should set out representative capital allowance classifications for common mechanical and electrical equipment, the customs headings most frequently encountered on a data centre build with an express warning that an advance ruling may be required, the value added tax treatment of utility and cloud inputs, the treatment of imported services, the documentation required for zone zero rating, and worked examples distinguishing an infrastructure charge from an excisable connectivity service. A draft should be published for comment within twelve months of this report and issued in final form within eighteen months.

E2.2 A Public Register of Data Centre Electricity and Water Use

Parliament should require every data centre with an installed information technology load above one megawatt to disclose annually, in a public register, its electricity consumption, its water consumption, its power usage effectiveness and its generator running hours. The obligation should be administered by the Energy and Petroleum Regulatory Authority together with the Communications Authority of Kenya, and should take effect within twelve months of enactment. The refusal of the Kenya Power and Lighting Company to release consumption data on grounds of confidentiality demonstrates why a statutory disclosure duty, rather than a request for cooperation, is the appropriate instrument.

E2.3 Customs Predictability for Long Horizon Infrastructure

The National Treasury and the Kenya Revenue Authority should expand the use of advance tariff rulings for information and communications infrastructure, publish those rulings in a searchable form, and accompany each Kenya specific stay of the Common External Tariff with a statement of the reason for the stay and of the period for which the position is intended to hold. The 2026 divergence between optical fibre, stayed at ten per cent, and lithium-ion batteries, stayed at zero, shows that two assets in a single build can move in opposite directions within one gazetted year, which is a procurement risk that better signalling would substantially reduce.

E2.4 Conditional, Time Limited and Reviewed Incentives

Every fiscal incentive granted in respect of data centre investment should be conditional and time limited. New incentives should carry a sunset clause of no more than ten years, the Authority should review each incentive against its stated objectives every three years, and the National Treasury should disaggregate data centre and cloud infrastructure within its annual tax expenditure statement from the financial year 2027/28. An incentive whose cost has never been published cannot be defended on the ground that it works, because nothing has been measured against which the claim could be tested.

E2.5 Anonymised Sectoral Statistics

The Kenya Revenue Authority and the Special Economic Zones Authority should publish annual anonymised statistics for licensed data centre and cloud infrastructure businesses, covering aggregate capital investment,

taxable profits, capital allowances claimed, electricity intensity and tax paid. Aggregation at that level preserves taxpayer confidentiality while allowing Parliament, researchers and the public to test whether preferential rates and accelerated deductions are attracting the investment for which they were granted. The first publication should cover the financial year 2027/28.

E2.6 Environmental and Social Assessment for Larger Facilities

No data centre with an installed capacity above five megawatts should be licensed without an environmental and social impact assessment that includes a public hearing in the host community and that addresses generator emissions, noise, waste heat and water abstraction and discharge. The National Environment Management Authority should issue regulations to that effect within twelve months. The existing noise limits under the Environmental Management and Co-ordination (Noise and Excessive Vibration Pollution) Regulations 2009 should be applied to continuous mechanical plant expressly, rather than by analogy with other commercial sources.

E2.7 Guidance on Cross Border Cloud and Software Payments

The Kenya Revenue Authority should issue guidance, within twelve months, on the characterisation of cross border payments for cloud and software. The guidance should adopt a rights and function test consistent with Seven Seas Technologies and Dynasoft, and should distinguish a royalty from a fee for technical services, from a payment for a digitally supplied service within the significant economic presence rules, and from an imported service for value added tax purposes. The absence of such guidance places the classification risk on the taxpayer at the point where the statutory language is least determinate.

E2.8 Completing the Research Record

The gaps identified in this report should be closed rather than carried forward. The mapping in Part B should be repeated within twenty four months so that growth can be measured against a fixed baseline. Independent measurement of ambient temperature, noise and air quality around at least two Nairobi facilities should be commissioned, since every health finding relied upon in Part A is drawn from studies conducted in other jurisdictions and none has been replicated in Kenyan conditions. Where an operator or an authority declines to supply data, the refusal and its stated ground should be recorded in the published record.

The Unmeasured Grid

Infrastructure, Environmental Impact and Taxation of Data Centres in Kenya



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