MINISTRY OF HOUSING
AND LOCAL GOVERNMENT

PLANNING GUIDELINE FOR
DATA CENTRE

PLANNING GUIDELINE FOR DATA CENTRE

Better Data
Better Solution

GARIS PANDUAN PERANCANGAN PUSAT DATA

PLANNING GUIDELINE FOR DATA CENTRE

Acknowledgement

This guideline was presented and approved at:

i. The 6th PLANMalaysia Planning And Development Committee Meeting on 23 November 2023;
ii. The 1st Ministry of Housing and Local Government Planning and Development Planning And Development Committee Meeting on 24 April 2024;
iii. Cabinet Meeting on 8 October 2024

This planning guideline should also be read in conjunction with the provisions of the Town and Country Planning Act, 1976 (Act 172) and other relevant existing legal provisions.

References should be also made to other planning guidelines prepared by the Department of Town and Country Planning (PLANMalaysia) and adopted at the state and local planning authorities level.

The Data Centre Planning Guideline can be downloaded at the following website:

myTOWNnet
MALAYSIAN TOWN PLANNING RESEARCH NETWORK

CONTENT

CONTENT

List of Tables

List of Figure

ABBREVIATION

4IR	The Fourth Industrial Revolution
ATM	Automated Teller Machine
CAAM	Civil Aviation Authority of Malaysia
CCC	Certificate of Completion and Compliance
CCTV	closed-circuit television
CGSO	Malaysia Office of the Chief Government Security Officer
CRAH	Computer Room Air Conditioning System
CSP	Cloud Service Provider
DC	Data Centre Providers
DEIA	Detailed Environmental Impact Assessment Study
DOSH	Department of Occupational Safety and Health
DSP	Digital Service Providers
EIA	Environmental Impact Assesment
EPF	Employees Provident Fund
EPG	Emergency Power Generator
ESAH	Electricity Supply Handbook
GP	Guidelines
IAAS	Infrastructure-as-a-Service
ICT	Information and Communication Technologies
IDA	Infocomm Development Authority
IRB	Inland Revenue Board
IT	Information Technology
DOL	Department of Labour
sq	square feet
KM	Planning Permission
KV	Kilovolt
m	Meter
Mbps	Megabits per second
MCMC	Malaysian Communications And Multimedia Commission /
MDEC	Malaysia Digital Economy Corporation
MIDA	Malaysian Investment Development Authority
MDF	Main Distribution Frame Room
MMR	Meet Me Room
MVA	Megawatt
OP.Co	Operation Company
PAAS	Perform-as-a-Service
SA	State Authorities
LA	Local Authorities
PDU	Power Distribution Unit
Prop.Co	Property Company
PUE	Power Ussage Effectiveness

ABBREVIATION

SAAS	Software-as-a-Service
SOCSO	Social Security Organisation
SPAH	Rainwater Management System
TIA	Traffic impact assessment
TNB	Tenaga Nasional Berhad
UBBL	Uniform Building By-Law
UPS	Uninterruptible Power Supply

1.0

INTRODUCTION

- Purpose
- Objectives
- Background
- Current Issues in Data Centre Development
- Legislative Provisions and National Policies
- Investment Process for Data Centre Development
- Scope of Data Centre Planning Guideline

1.0 INTRODUCTION

1.1 Purpose

This guideline serves as a standardise reference for the State Authorities (SA), Local Authorities (LA) and relevant agencies to coordinate and monitor the planning and development of data centres.

1.2 Objective

a. Identify current planning issues and data centre development trends;
b. Define data centres in terms of their concept, features, types, classifications, components and development scale;
c. Provide general planning guidelines for data centres regarding location, infrastructure and utilities, and specific guidelines for new data centre developments and data centre developments in existing buildings;
d. Establish the mechanism for the site implementation and control of data centre developments.

1.3 Background

The development of data centres as digital infrastructure has become a critical necessity due to the increased use of technology and digital services, driven by advancements of the Fourth Industrial Revolution. The geographical advantages of the Asia-Pacific region have positioned Malaysia as a top choice for data centre investments. This is supported by factors such as renewable energy resources, available land, a rapidly digital economy ecosystem, and seamless connectivity to Asia through existing submarine cable networks and landing stations.

Solutions to achieve a balance between gaining economic benefits from data centre development while ensuring that it does not excessively consume space and resources are urgently needed. Globally, Malaysia has expressed its commitment at the United Nations Climate Change Conference (COP 26) in Glasgow, Scotland in 2021 to achieve zero carbon emissions by 2050.

To facilitate this process, PLANMalaysia serves as an advisory agency on urban planning affairs and coordinates with local planning authorities in processing development plans including planning permission, building plans, road and drain plans, and earthworks plans. Therefore, a specific planning guideline for data centre development is needed.

The Honourable Minister of Investment, Trade and Industry, Tengku Datuk Seri Zafrul Tengku Abdul Aziz announced that Malaysia has received RM114.7 billion in investments related to data centres between 2021 and 2023. Additionally, the data centre market in Malaysia is projected to grow at an average annual growth rate of 16 per cent or RM9.36 billion from 2021 to 2026 (Source: MITI/ MIDA, Dec 2023). Based on the Global Data Centre Outlook 2023 (JLL Research), Malaysia is one of the key markets in the global data centre market. The main focus of data centres in Malaysia is in Cyberjaya, Kuala Lumpur and Johor Bahru.

At the national level, there are seven (7) main references related to support the development of data centres, namely the Twelfth Malaysia Plan (12MP), National Physical Plan 4 (NPP4), New Industrial Master Plan 2030, National Fourth Industrial Revolution (4IR) Policy, Malaysia Digital Economy Blueprint (MyDigital), National Digital Network (JENDELA) and Malaysia Smart City Framework.

1.4 Current Issues in Data Centre Development

To support the development of data centres in the country, a detailed planning guideline for data centre sites must be established. This will ensure that essential planning aspects and requirements can be implemented uniformly and effectively across states and Local Authorities (PBT).

During engagement sessions with stakeholders, several current issues in the planning and development of data centres were identified, such as:

a. **Choosing the right location** for data centre development is the biggest challenge, as these developments require vast tracts of land and substantial, consistent energy and water resources.

b. Local and State Authorities need **clear planning guidelines** to identify suitable sites and regulate data centre development. So far, data centres have not been fully considered in land use zoning and land use classification in development plans.

c. Poorly planned data centre development can lead to inefficient **use of resources** and high electricity consumption, contributing to increased carbon dioxide emissions.

a. The design of a data centre buildings, which are typically large, windowless, and lacking landscape features, can negatively affect **the aesthetic value at local area,** especially since they are operational for long terms. be operating for an extended period of time.

1.5 Legislative Provisions and National Policies

The preparation of these planning guidelines is in line with the provisions of the relevant existing Acts, Policies and Guidelines as follows:

Table 1.1 : List of Laws

No.	Legislation
a)	National Land Code (Act 828)
b)	Town and Country Planning Act 1976 (Act 172)
c)	Roads, Drains and Buildings Act 1974 (Act 133)
d)	Local Government Act 1976 (Act 171)
e)	Uniform Building By-Laws 1984

Table 1.2 : List of National Policies

Bil.	Policies and Guidelines
a)	12th Malaysia Plan
b)	4th National Physical Plan (NPP 4)
c)	New Industrial Master Plan 2030
d)	National Fourth Industrial Revolution (4IR) policy
e)	Malaysia Digital Economy Blueprint
f)	National Digital Network (JENDELA)
g)	Malaysia's Smart City Framework
h)	ANSI/TIA-942-B – *Telecommunications Infrastructure Standard for Data Centre*
i)	ANSI/BICSI 002-2019 – *Data Centre Design and Implementation Best Practices*

1.6 Investment Process for Data Centre Development

Figure 1.1 : Investment Process for Data Centre Development

Investors	Agencies	Role/ Process
	**Companies Commission of Malaysia**	• Register a company
	Digital Investiment Office	• Coordination of the investment • Conduct Assessment (incentives, grants, expatriate positions, customs taxes) • Facilitation (e.g provide 30% exemption for bumiputra equities at MIDA State) • Basic advocacy support
	Department of Environment	• Provide input on development • Assess Environmental Impact Assessment report
	State Government/ Local Authority 	• Ensure compliance with land use Zoning (Local Plan) • Ensure compliance with Data Centre Planning Guideline • Approval Planning Application and issue Certificate of Completion and Compliance (CCC) • Issue a Business License
	Department of Manpower, Employment Provident Fund (EPF), SOCSO, State Revenue Board (IRB)	• DoL – Register the workforce • EPF – Manage the savings fund • SOCSO – Oversee safety insurance • IRB – Handle income tax
 Data Centre	**Utility Companies and the Department of Safety and Health (DOSH)**	• Certify utilities from relevant utility company (telecommunications, electricity, water and gas) • DOSH – Register machine

Source: Compiled by study team with input from Digital Investment Office.

1.7 Scope of Data Centre Planning Guidelines

This planning guideline include aspects of data centre development that exceed one (1) MVA and do not cover data centre activities and operation of the data centre.

This planning guideline cover the following key aspects:

Figure 1.2 : Scope of Data Centre Planning Guidelines

DATA CENTRE EXCEEDING 1 MVA

GENERAL GUIDELINES

- Data Centre Locations
- Electricity Supply Requirements
- Water Supply Requirements
- Telecommunication Infrastructure Requirements

SPECIFIC GUIDELINES

- Data Centres Development in New Areas
- Data Centre Development in Existing Building
- Cover aspects of planning control such as land categories and conditions, permissible land use zones, data centre categories, plot ratios, plinth area, height, building setback, open space requirements, road reserve requirements, utility reserve requirements, parking requirements, buffer zone requirements and design.

APPLICATION PROCEDURE

- OSC 3.0 Plus **Medium Category Planning Permission** Application **(99 days)**
- OSC 3.0 **Plus Industrial Green Lane (IGL)** Initiative Application **(29 days)***
- OSC 3.0 Plus **Prerequisite (PR)** Initiative Application **(22 days)*;** and
- Application for **Temporary Permit Plan** And **Minor Construction Permit (33 days).**

2.0

DEFINITION AND CATEGORIES OF DATA CENTRE

- → DEFINITION
- → CATEGORIES OF DATA CENTRE
- → TYPES OF DATA CENTRE
- → GENERAL FEATURES OF DATA CENTRE
- → KEY PLAYERS IN THE DATA CENTRE
- → DATA CENTRE CLASSIFICATION
- → COMPONENTS OF DATA CENTRE BUILDING

2.0 DEFINITION AND CATEGORIES OF DATA CENTRE

2.1 Definition

A Data Centre is a facility building used to centrally house ICT infrastructure equipment that functions to store, manage, process, and analyze data for an organization or company.

2.2 Categories of Data Centre

From the aspects of power capacity of a data centre, there are three (3) categories of data centre development that have been identified:

Table 2.1 : Data Centre Categories

Scale	Small Data Centres	Simple Data Centre	Big Data Centres
Power capacity	1-5 mega volt Amp (MVA)	>5-25 Mega Volt Amp (MVA)	> 25 Mega volt Amp (MVA)
Level Voltage	11 kV	33kV	132kV, 275kV

Small Data Centres

Power Capacity: 1-5 MVA
Level Voltage: 11kV

TNB Data Centre, Cyberjaya

Area: **2.62 acres**
Power Capacity: **4MVA**
Operational: **2024**
Planning Zone: **Commercial**

Simple Data Centre

Power Capacity: >5-25 (MVA)
Level Voltage: 33kV

Infinaxis Data Centre, Cyberjaya

Area: **3.08 acres**
Power Capacity: **12MVA**
Expected Completion: **2025**
Planning Zone: **Commercial**

Big Data Centres

Power Capacity: >25 MVA
Level Voltage: 132KV/275kV

BDC Data Centre, Sedenak

Size: **38.7 acres**
Power Capacity: **145MVA**
Operational: **2022**
Planning Zone: **Industrial**

2.3 Types of Data Centre

From the aspect of operation, there are three (3) types of data centres, namely:

a. Private Data Centre (Enterprise)

An enterprise data centre is located on-premises within an organization's facility or at an off-premises location. It is solely used for the organization's internal purposes and is fully managed by the organization itself.

b. *Colocation*

A colocation data centre is a physical facility that offers space, racks, and infrastructure for the development of data centre. It offers utilities such as electricity, cooling systems, network systems, and security features to ensure smooth operation of the servers and IT infrastructure. These physical facilities are rented out by colocation data centre providers, and organisation/company rents space in the form of racks, cages or suites.

Example: Equinix, Bridge Data Centre, AIMS

c. *Hyperscale*

A hyperscale data centre is a large-scale facility that house vast amount of data. This type of data centre is used by companies with massive data storage requirements, such as cloud services or data processing. Hyperscale data centres are designed with special considerations to meet the high storage and computing power demands.

Examples: Google, Amazon, Microsoft, Facebook and Apple.

2.4 General Features of Data Centres

The general features of a data centre consists of five components:

a. **Security**

A data centre must be designed with security aspects in mind. The facility must be protected from both physical and cyber threats, including theft, fire, and breach to the security system. To ensure the safety of data stored, access to the data centre is restricted to authorized personnel only. Security measures such as biometric scanning, and camera surveillance systems are provided to enhance security.

b. **Infrastructure**

Data centre infrastructure is composed of various components, including servers, storage systems, networking systems, power systems and cooling systems. Data centres require high-power capacity to operate and need to be cooled to prevent disruptions to data centre components. In addition, data centres also require backup generators, Uninterruptible Power Supply (UPS) and dedicated cooling systems in their operations.

c. Service

Data centres provide a wide range of services including data storage, management, backup and recovery. They also support applications such as email, e-commerce transactions and online gaming communities. Furthermore, data centres are increasingly involved in supporting the growth of the Fourth Industrial Revolution (IR4.0) such as Big Data, Machine Learning, and artificial Intelligence.

d. *Cloud Storage dan Exchange*

Cloud storage and exchange are online storage mediums that allow users to store data/information in a data centre and subsequently connect to cloud storage and exchange servers. This system will make simplify the process for customers to manage data while ensuring data security.

e. Management

Data centre management requires specific expertise, knowledge of the latest technology, and responsibility to ensure efficient and secure data centre operations. It also involves implementing best practices in operational handling for the entire data centre development. In terms of data centre management, there are three mechanisms typically found in data centre service provision:

i) Operation Company (OpCo)

An OpCo is a company that operates data centre that are rented or installed on the premises. OpCo is responsible for obtaining tenants and managing companies with relevant services.

ii) Property Company (PropCo)

A PropCo is a company that builds data centres and provide the space for rent to an OpCo. This company does not engaged in the day-to-day operation of data centre.

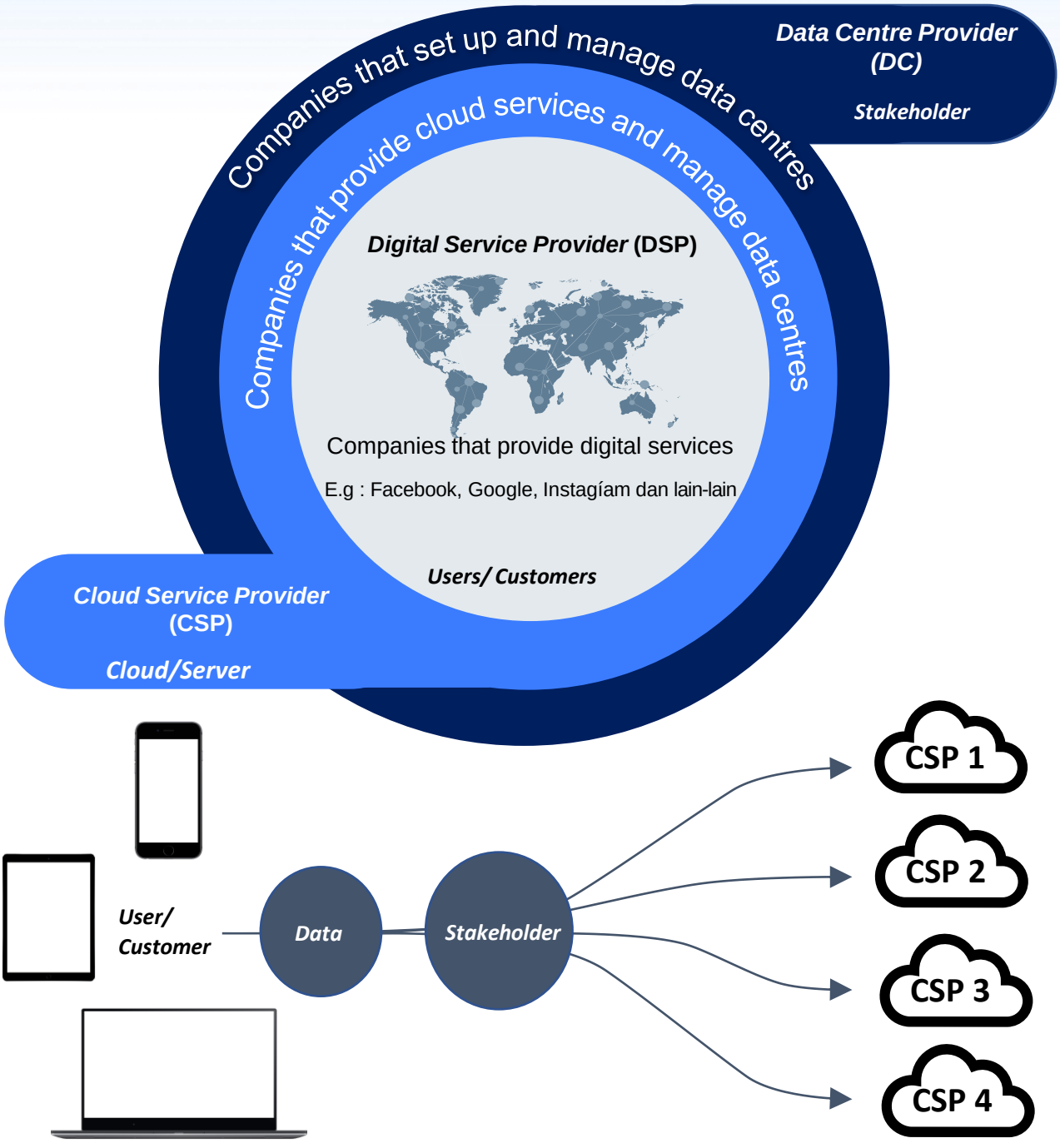
iii) Operation Company (OpCo) & Property Company (PropCo)

A company that both builds the data centres and stimultaneously manages it, providing storage services.

2.5 Data Centre Industry Players

Industry players for data centre development are divided into three (3) namely:

Figure 2.1 : Data Centre Operations Concept Cycle



2.6 Data Centre Classification

Based on the Telecommunication Industry Association Standards for Data Centre (TIA-942), there are four (4) classifications of data centres known as tiers. The following is a detailed table for each tier of data centres:-

Table 2.2 : Classification of Data Centres

Tier I ***Basic Site Infrastructure***	• Have single-capacity components for all data centre hardware equipment. • Have a single path or non-redundant component (N) for electricity supply and cooling system. • Downtime rate of 28.8 hours per year. • Uptime up to 99.671%.
Tier II ***Redundant Component Site Infrastructure***	• Contains single path for electrical supply, cooling system and redundant component (N+1) • It has UPS, and an auxiliary generator and is equipped with raised floors. • The downtime rate is 22 hours per year. • Up to 99.741% uptime
Tier III ***Concurrently Maintainable Site Infrastructure***	• Data centres that have received International Standard recognition. • Has a fully redundant component (N+1). • It has more than one (multiple) power supply, cooling system, UPS, and an auxiliary generator and is equipped with raised floors. • Downtime rate of 1.6 hours per year. • Uptime up to 99.982%.
Tier IV ***Fault Tolerant Site Infrastructure***	• It has almost the same hardware and development component requirements as Tier III. • Has fault-tolerant redundancy (2N or 2N +1) and the highest level of safety. • The downtime rate is 0.4 hours or 24 minutes per year. • Up to 99.995% uptime

Note:
- *Downtime* : Duration of outage for data centres.
- *Uptime*: Optimal uptime for data centres.
- N : Minimum energy and cooling requirements required for a data centre.
- N+1 : Energy requirements and additional backup requirements required by data centre.

Source : *Telecommunication Industry Association (TIA)*

2.7 Components in a Data Centre Building

There are eight (8) main components in the development of a data centre buildings, namely:

a. Computing Needs

Covering desktops, servers and racks, along with other related hardware.

b. Infrastructure Network

Including routers, switchers, modems, cables, and other components that connect the data centre with the storage server to the user.

c. Uninterruptable Power Supply (UPS)

A UPS is a device that functions as a backup power supply, providing power to all electronic equipment in case of an electrical supply interruption.

d. Cooling / Chiller System

The system maintains optimal temperature and humidity inside the data centre using air conditioning and specialized cooling systems like the Computer Room Air Conditioning System (CRAH)

e. Power Distribution Unit (PDU)

A PDU is equipment to control the flow of electricity power supplied to the data centre.

f. Emergency Power Generator (EPG)

EPG is equipment that contains generator sets and diesel to back up the electricity supply for data centres.

g. Security Needs

The security needs in the data centre include such as CCTV, biometric devices, mantraps, firewalls, detection equipment and fire extinguisher devices. Security personnel must be provided along with a control room and post guards.

h. ***Meet-Me-Room (MMR)***

Meet Me Room is a space that brings together all cables and fiber for the purpose of data exchange

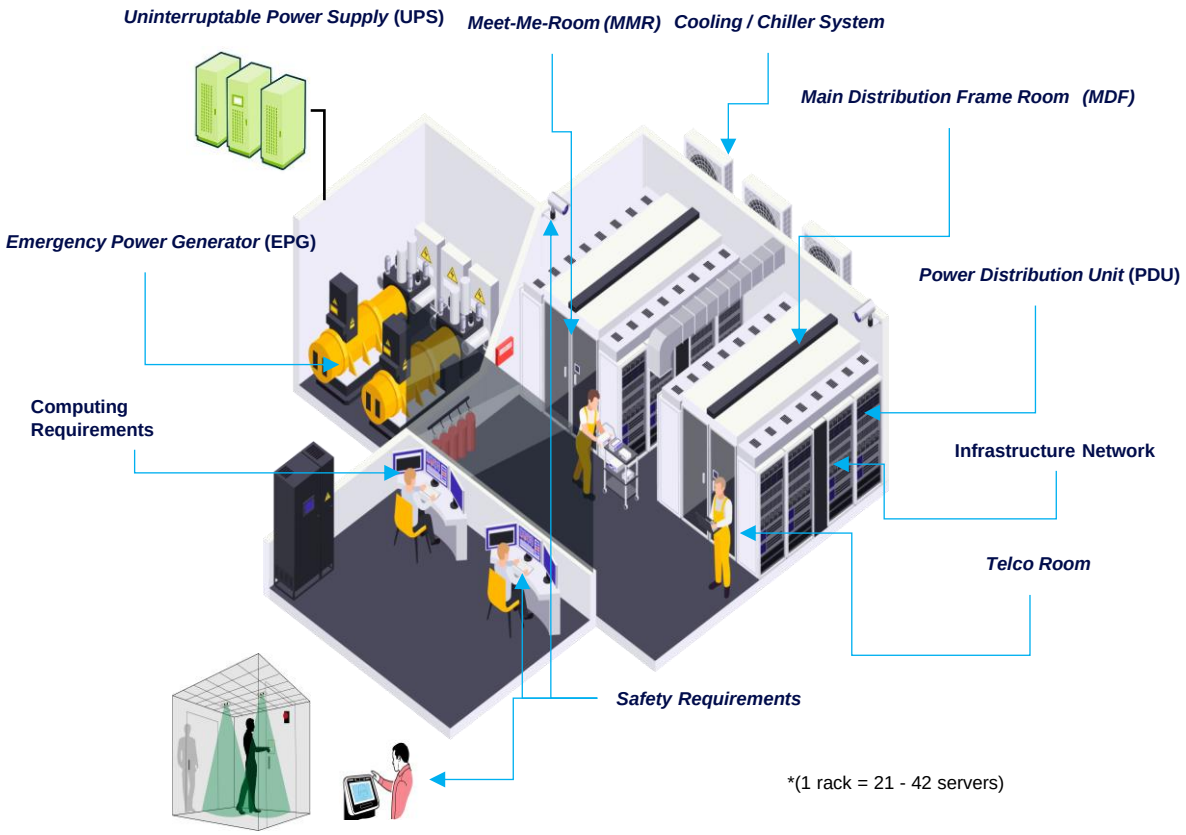
i. ***Main Distribution Frame Room (MDF)***

The MDF Room is the space that connects the appliances inside network facilities to cables and equipment within the data centre. Each cable that provides services to consumers and is distributed via MDF to MMR to process data.

j. ***Telco Room***

Telco Room is a space to place all service providers that operates in a data centre.

Figure 2.2 : Components in a Data centre Building




3.0

PRINCIPLE OF DATA CENTRE PLANNING

3.0 PLANNING PRINCIPLES

The planning principles for data centre development include the following principles:

a. Sustainable

The development of data centres must focus on minimising the impact of their construction on renewable resources and maintaining the surrounding environment. This can be achieved by using energy-efficient technologies, and renewable energy sources, and implementing efficient cooling practices to reduce carbon emissions.

b. Share

Shared resources in the context of data centres refer to the efficient use of infrastructure and equipment. Cloud data centres, for example, share equipment among multiple clients to optimise costs and reduce operational expenses.

c. Safety

Safety considerations include the physical security of employees and the infrastructure of the data centre. Data centres, especially those with high-power equipment and diesel-powered generators, must have plans for fire safety and emergency procedures.

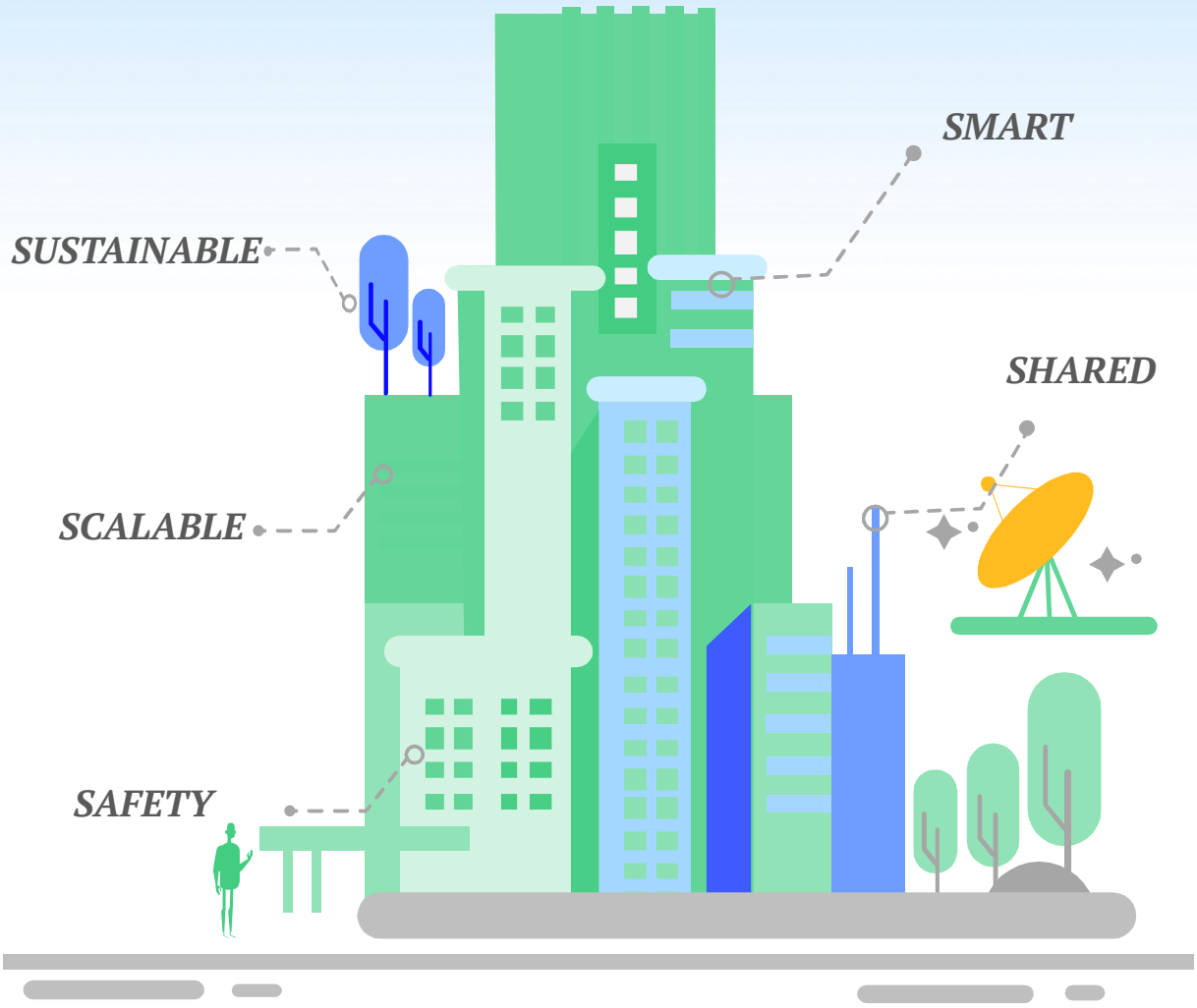
d. Scalable

Scalability involves planning the data centre site to accommodate future growth. A flexible layout should be capable of adjusting to increasing demands. This includes the capacity to add more servers and networking equipment as needed.

e. Smart

Smart technology in data centre planning refers to the integration of advanced technologies such as IoT, machine learning, and automation to optimise operations. Smart technology can adjust cooling systems and energy usage dynamically, increasing efficiency while reducing operational costs.

Figure 3.1 : Principles of Data Centre Planning



4.0

GENERAL GUIDELINES

- DATA CENTRE LOCATION
- ELECTRICITY SUPPLY REQUIREMENTS
- WATER SUPPLY REQUIREMENTS
- TELECOMMUNICATIONS INFRASTRUCTURE REQUIREMENTS

4.0 GENERAL GUIDELINES

In general, the planning and development of a data centre must comply with and consider aspects such as suitable location, electricity supply requirements, water supply requirements and telecommunication infrastructure requirements.

4.1 Data Centre Locations

i. The placement of a data centre should take into account accessibility factor and its proximity to the main infrastructure and utility services that support a data centre;
ii. The location should be outside of areas that are at risk of natural disaster such as flood, landslides and other disasters;
iii. The location should be outside environmentally sensitive areas (ESAs) such as coastal area, water catchment areas, undergroundwater sources, hilly areas and related;
iv. Placement in the peatland areas is discouraged;
v. The location should not be within the radius of important national security targets as determined by the Office of the Chief National or State Security Officer (CGSO);
vi. The location of a data centre should be far away from high-risk industrial activities such as the chemical, petroleum and similiar; and
vii. It should not be near major highways, railways lines, or aviation flight paths and must comply with the height control regulations established by the Civil Aviation Authority of Malaysia (CAAM).

The factors for selecting a site for data centres should be appropriately considered during the data centre zoning process by the authorities, either during the preparation of the local plan or at the master plan stage.

4.2 Electricity Supply Requirements

i. There should be a Main Intake Substation with a capacity of 11kV for small data centres and 33kV for medium-scale data centres. For large data centres, a capacity of 132kV or 275kV is recommended.;

ii. Data centre development is encouraged to be located proximity to existing transmission lines or Main Intake Substations. If it is far away, it is necessary to provide additional requirements for crossroads;

iii. All data centres to be developed must consider efficient use of electricity based on the Power Usage Effectiveness (PUE) standard as practiced by the industry.

iv. Conventional or green energy standby generators should be provided with sufficient capacity to support data centre needs.

v. Data centres are encouraged to use renewable energy technologies and energy-saving methods; and

vi. Other electricity supply-related requirements are encouraged to seek advice and comments from Tenaga Nasional Berhad (TNB), such as the those found in Electricity Supply Handbook (ESAH), prior to finalizing investments and land purchases, as well as submitting data centre development plans.

Table 4.1 : TNB Main Switch Station (SSU) Requirements by Data Centre Development Scale

Scale	Small data centres	Simple Data centre	Big Data centres
TNB Main Switch Station (SSU) Requirements	7.6 m x 5.7 m (11 kV)	30 mx30m (33 kV)	120 m x 110 m (132 kV) 190 m x 160m (275 kV)

Source : *Tenaga Nasional Berhad*

4.3 Water Supply Requirements

i. The water supply required by a data centre is subject to the scale of the data centre's development, taking into account the the guarantee of continuous water supply for a minimum daily usage, base on the type and scale of the data centre's development.

ii. The provision of water storage tanks is subject to the water supply used by a data centre;

iii. Data centres should also use water-saving and renewable water technologies such as direct expansion & eco-chiller water systems, rainwater management systems and others;

iv. Other water supply related requirements should seek advise and comments from relevant state water suppliers and the National Water Services Commission (NMSC); and

v. Data centre development should also take into account efficient water usage, based on the water usage efficiency practiced by the industry.

4.4 Telecommunication Infrastructure Requirements

i. A site or space for neutral communication infrastructure, connection or point of interconnect should to be provided;

ii. The internet supply for a data centre should use fiber optic or dark fiber*;*

iii. Each data centre development must have at least two (2) service providers; and

iv. The minimum internet speed access should be 300 mbps.

BETTER DATA ,
BETTER SOLUTION

5.0

SPECIFIC GUIDELINES

→ Data Centre Development in New Areas

→ Data Centre Development in Existing Buildings

5.0 SPECIFIC GUIDELINES

5.1 Data Centre Development in New Areas

Table 5.1 : Specific Guidelines for Data Centre Development in New Areas

CONTROL ASPECTS	DETAIL
Category and Land Condition	• **Land Category**: Building or Industrial • **Land Conditions**: Approval of a special permit from the State Authority is required for permission to use land other than the express conditions stipulated under the KTN (Act 828). JKPTG Circular No. 2/2023: Procedures for the Use of Land in the Building and Industrial Category for Purposes Other than Building and Industrial Categories or Requirements
Permitted Land Use Zones	Allowed in **industrial** land use zones (light and medium) as well as **commercial** land use zones (refer to the gazetted development plan)
Data centre Categories	**All types of data centres** (small, medium, and large) are allowed.
Plot Ratio, Plinth Area, Building Height, Building Displacement	Subject to gazetted Development Plan and Uniform Building By-Laws 1984 (UBBL)
Requirements for the Preparation of Open Areas	• 10% of open space provision required; or • 5% provision if the master plan has been approved
Road Reserve Requirements (Minimum)	• Local Roads- 20 meter (66') • Collector Street - 30 meters (100') • Junction Visibility Triangle- 9,144m x 9,144m (30' x 30')
Utility Reserve Requirements	• For new developments (greenfields), additional utility reserves of 1.5 metres wide should be provided on the left and right sides of the road reserve
Parking Requirements	**<u>Parking requirements only refer to office floor space only</u>** • Car: 1 parking lot per 46.41mp (500 sq. ft. office gross floor space) +10% visitors • Motorcycle: 20% of the total parking lots • Disabled: Minimum 1 lot (placed near the main entrance with ramp and railing facilities) • Loading Bay: Minimum 1 lot

continuation…

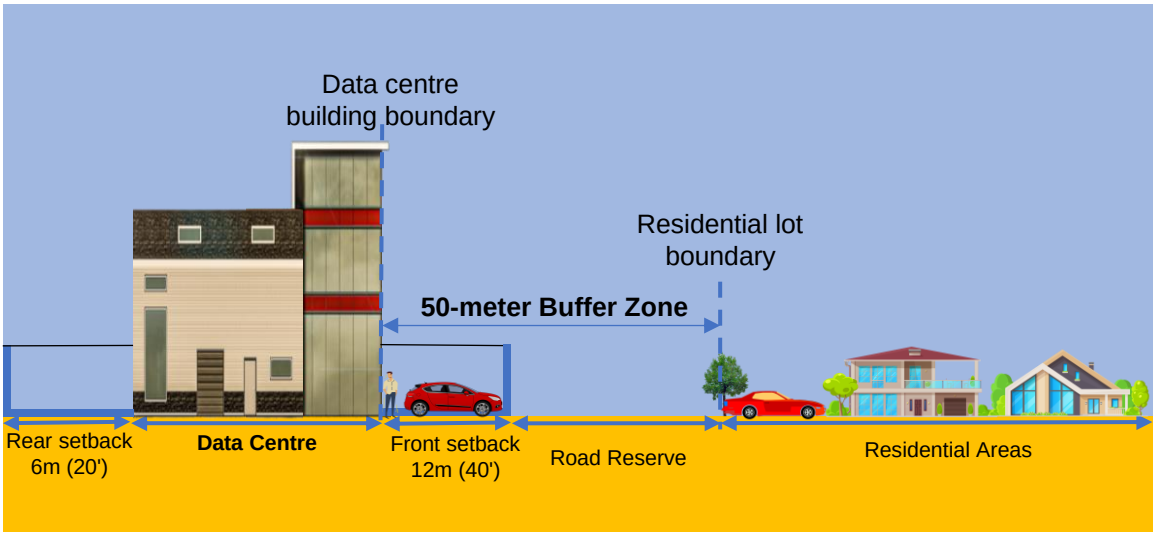
COMPONENT	PLANNING ZONE : COMMERCIAL	PLANNING ZONE : INDUSTRY
Data Centre Components	**Office Space** • Office /Command centre/ Discussion Room; • Dining room / Pantry; • Prayer room; • Toilet; • Gym; • Auditorium; and • Any space used for employees /visitors. **Non-Office Space** • Data Hall; • Chiller Room, Mantrap, Battery Room, Meet-Me-Room • Generator Set (need to prepare noise barrier if it is close to a residential area); • Guard Lodge; • Loading Area; • Waste Disposal Area; and • Other supporting facilities related to the data centres. *Note : The floor plan must clearly show both office and non-office spaces along with their respective areas.	
Buffer Zone	• A 50m buffer zone should be provided from the proposed data centre building boundary to the residential lot boundary; or • No buffer zone is required if the noise level does not exceed > 5dB above the original noise level. *Note: Buffer zone providers can consider such as roads, building setback, planting perimeter, parking lot and other suitable measures as determined by the LA.	
Design	• The façade of the building should be attractive, and should fit into the surrounding development context; • The building façade should consider the use of soundproof materials or materials can prevent the effects generated by data centre activities.	
Other guidelines	• The placement of fire hydrants and other fire mitigation requirements must meet the requirements of the Fire and Rescue Department of Malaysia; • Mandatory installation of rain water harvesting system for building with a roof ≥ 100 square meters; • Encouraged use of solar; • Encouraged implementation of CPTED design and Universal Design • Intelligent security control system with CCTV	

Figure 5.1 : Example of Enhanced Building Facade Design with Commercial Features and Architectural Elements.

Source:
www.orlandosentinel.com/2023/10/18/data-centre-along-i-4-in-eatonville-nears-completion-despite-ballooning-construction-costs/

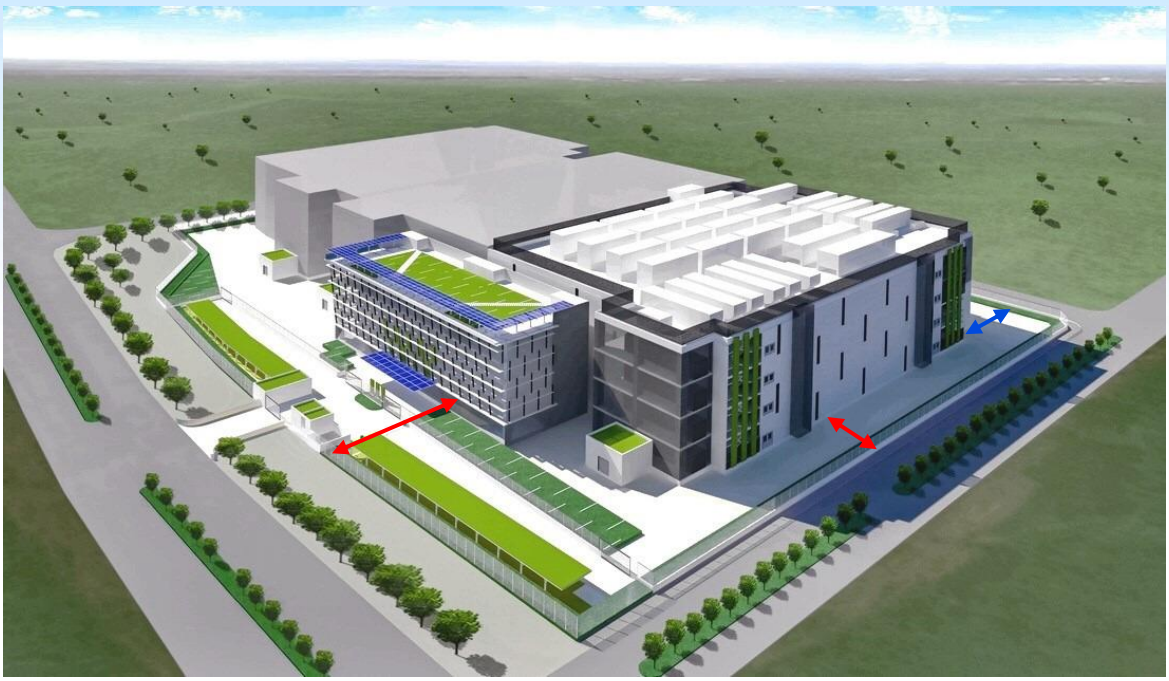
Source :
www.datacentredynamics.com/en/news/ntt-building-sixth-data-centre-in-cyberjaya-malaysia/

Figure 5.2 : Illustration of Buffer Zone for Data centre Development



data centre building boundary to the residential lot boundary; or

Figure 5.3 : Illustration of Building Setback for Data centre Development



Front setback 12m (40')
Side setback 6m (20')
Rear setback 6m (20')

5.2 Data Centre Development in Existing Building

Table 5.2 : Specific Guidelines for Data Centre Development in Existing Buildings

CONTROL ASPECTS	DETAIL
Category and Land Condition	• **Land Category**: Building or Industrial • **Land Conditions**: Approval of a special permit from the State Authority is required for permission to use land other than the express conditions stipulated under the KTN (Act 828). JKPTG Circular No. 2/2023: Procedures for the Use of Land in the Building and Industrial Category for Purposes Other than Building and Industrial Categories or Requirements
Permitted Land Use Zones	Allowed in **industrial** land use zones (light and medium) as well as **commercial** land use zones (refer to the gazetted development plan)
Data centre Categories	**Small (1-5 MVA) and medium (>5-25MVA)** are allowed
Plot Ratio, Plinth Area, Building Height, Building Displacement	Subject to gazetted Development Plan and Uniform Building By-Laws 1984 (UBBL)
Parking Requirements	**Parking requirements only refer to office floor space only** • Car: 1 parking lot per 46.41mp (500 sq. ft. office gross floor space) +10% visitors • Motorcycle: 20% of the total parking lots • Disabled: Minimum 1 lot (placed near the main entrance with ramp and railing facilities) • Loading Bay: Minimum 1 lot
Buffer Zone Requirements	The determination of the buffer zone distance is on a case-by-case basis, according to the site and environmental conditions with an assessment of public health and safety risk aspects.
Other guidelines	• The existing buildings/premises proposed for data centre development have received certificate of completion and compliance (CCC). • The development of components and other technical requirements must follow the approval of the original planning permission (KM) and building plan (PB). If it involves amendments, it is necessary to resubmit the KM and PB applications. • For developments that require higher electricity and water usage than originally allocated, prior approval and feedback from TNB and state water supply company must be obtained. • A lapidation report must be prepared to ensure that there is no disturbance or damage to adjacent buildings.

6.0

APPLICATION PROCEDURE

- Method 1: Application for Planning Permission (KM) Medium Category 3.0 Plus (99 Days)
- Method 2: OSC 3.0 Plus Industrial Green Lane (IGL) Initiative Application (29 Days)
- Method 3: OSC 3.0 Plus Prerequisite (PR) Initiative Application (22 Days)
- Method 4: Application for Temporary Permit Plan and Small Construction Permit (33 days)

6.0 APPLICATION PROCEDURE

To get approval for data centre development, developers must submit their plans* to the local authority. This should be done through the One-Stop Centre (OSC) and the OSC 3.0 Plus system. The application procedures for new area development area developments include the following methods:

a. **Method 1: Application for Planning Permission (KM) Medium Category 3.0 Plus (99 days)**
b. **Method 2: Application for OSC 3.0 plus Industrial Green Lane (IGL) Initiative (29 days)**
c. **Method 3: Application for OSC 3.0 Plus Prerequisite (PR) Initiative (22 days)**

In addition, existing office buildings or business premises suitable for conversion into data centres are allowed.

Method 4: Application for Temporary Permit Plan and Minor Construction Permit by the Head of Department (33 days) can be used for development proposals that do not involve amendments to the approval of planning permits and existing building plans.

The Development Plan includes

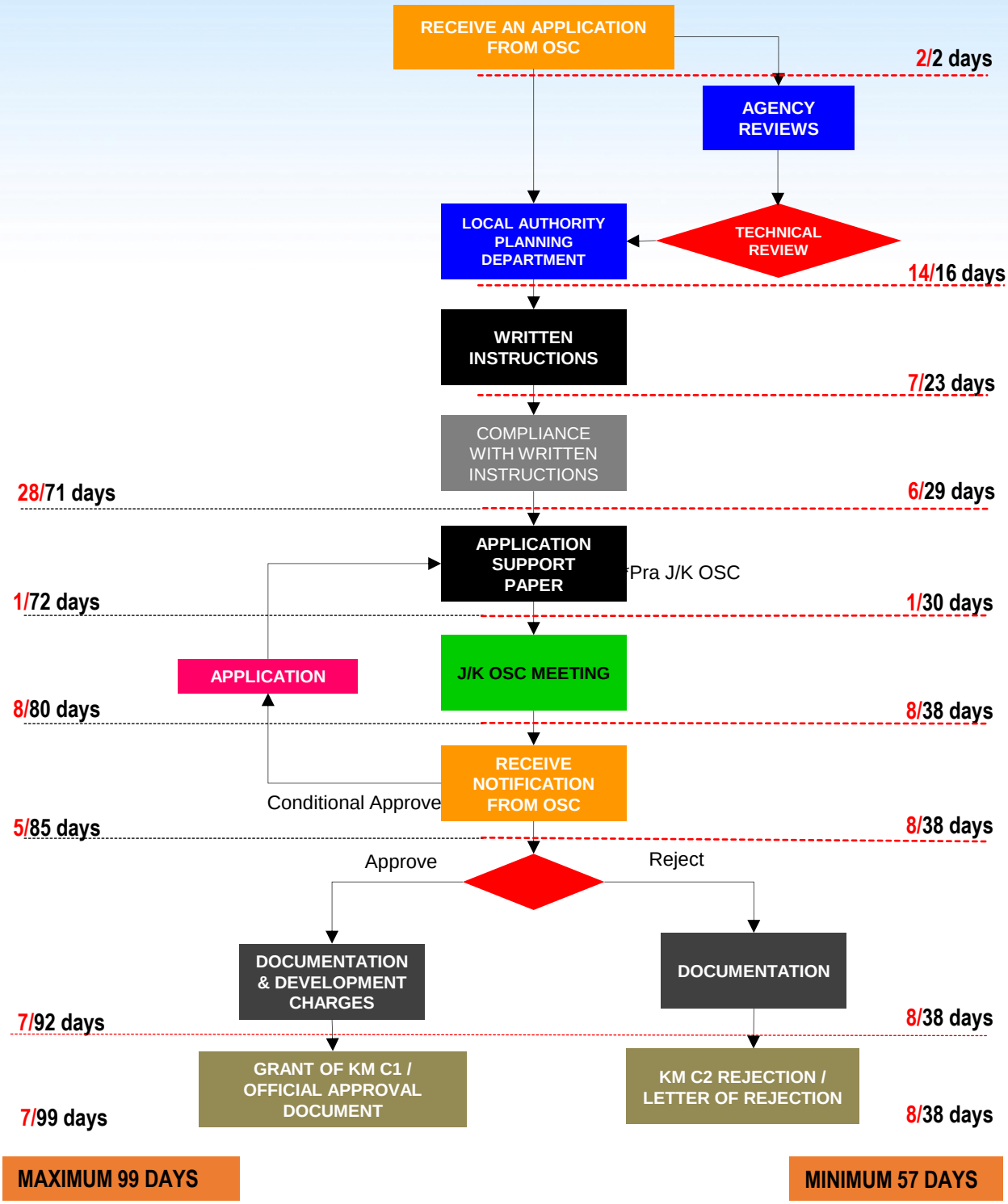
- *Planning Permission*
- *Earthworks Plan*
- *Road and Drain Plan; and*
- *Building Plans*

6.1 Method 1 : Application for Planning Permission (KM) Medium Category 3.0 Plus (99 Days)

For the development of data centres using Method 1, it is based on the application for planning permission for the Medium Category in the OSC 3.0 Plus Manual (First Edition, 2019). It needs to comply with several criteria as follows:

a. Data centre development that comply with the express land use condition;
b. Data centre development involving one or more phase within a development scheme that has already receive layout plan approval;
c. Data centre development involving main switching station with a voltage of 33kV or 11kV and a maximum power capacity of 25 MVA (single customer/ public distribution license);
d. Involving simultaneous applications with any combination of medium category planning permission applications, road and drainage plans, earthworks plans, and building plans.

Figure 6.1: Method 1 – Application for Planning Permission (KM) Medium Category OSC 3.0 Plus (99 days)



Source : JKT, 2024.

6.2 Method 2 : Application for OSC 3.0 Plus Industrial Green Lane (IGL) Initiative (29 Days)

The Industrial Green Lane (IGL) initiative is an improvement effort for the OSC 3.0 PLUS System, particulary in terms of the planning permission process and procedures for planned industrial estates. Therefore, data centre developments within industrial land use planning zones is encouraged using Method 2.

Before formally submitting an application through the OSC 3.0 Plus Online System, the developer or principle submitting person (PSP) / submitting person (SP) must first obtain the agreement between the Mayor or President of the local authority and the developer.

For the initial technical coordination through the Technical Briefing Project (TBP) session, the application is submitted to the Industrial Green Lane (IGL) Unit at the respective Local Authority to obtain preliminary comments within 14 days and determine the acceptance of the IGL project. The TBP session must be held physically and chaired by the Mayor or President together with all stakeholders (developers, PSP / SP, internal technical agencies of local authorities and relevant external technical agencies).

There are several criteria must be met for a data centre development proposal to be processed under the IGL initiative. These include:

i. The proposal must be located in a planned industrial areas where the proposed development site has been approved for the Planning Permission (KM) layout (Master Plan);
ii. Land matters/matters (e.g. payment of premium for Notice 5A [NLC] must be resolved);
iii. Site readiness for building construction;

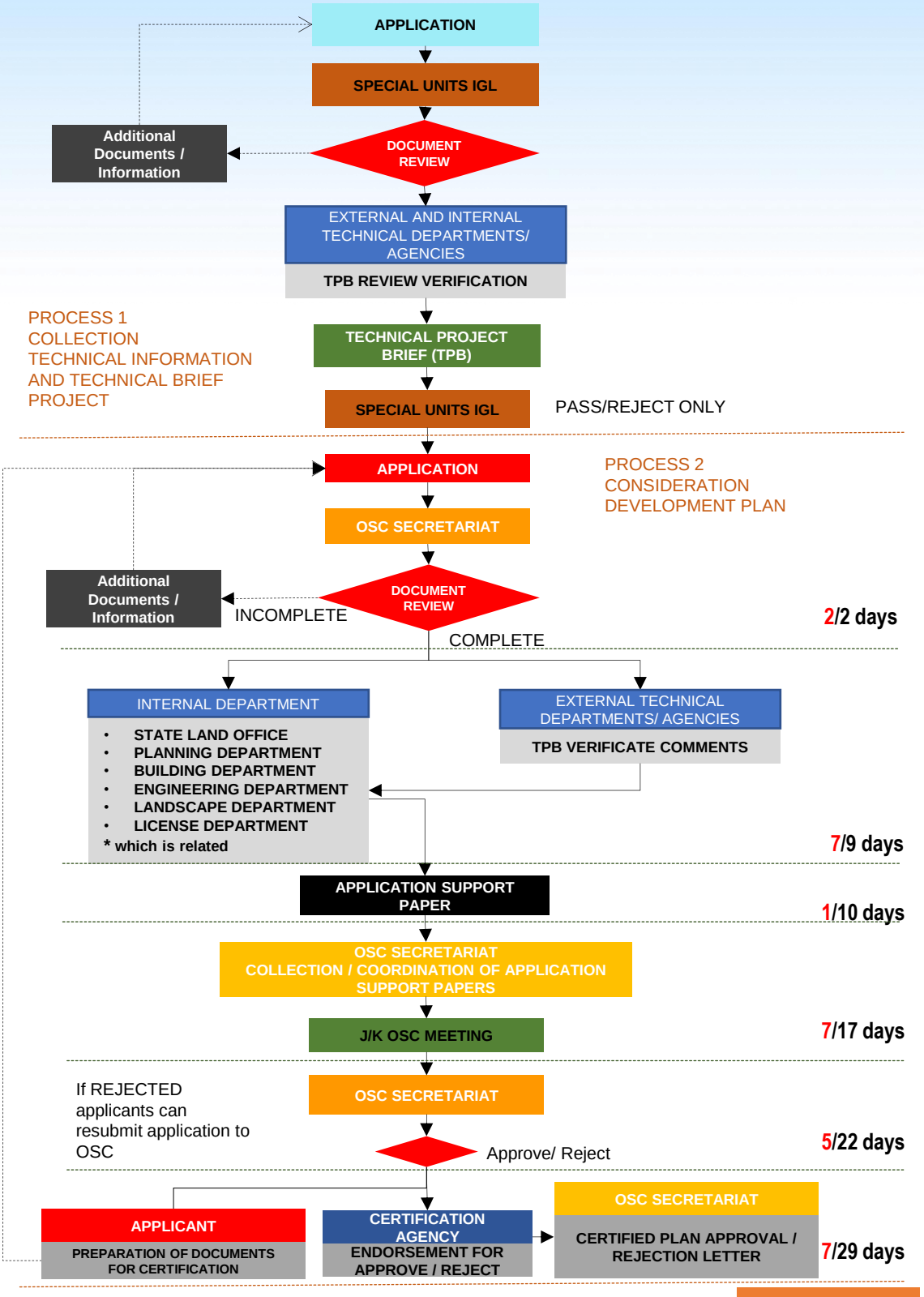
iv. Availability of connection of external utility supplies (electricity, water, communications, sewerage, gas etc.);
v. The proposed development has obtained the approval of the EIA, TIA and RSA Reports; and
vi. The proposed development is not intended to be rented out to parties other than the owner.

PSP/SP must comply with the preliminary technical reviews decided during technical briefing project session before submitting the application through the OSC 3.0 Plus Online System.

In the IGL Initiative, the concept of agile regulation is applied to ensure rapid implementation starting from the planning stage until the building is completed and operational, this includes:

i. IGL initiative reduce the approval time for planning permission from 99 days to 29 days;
ii. The developer will receive early permission for building work after the planning permission is approved. This includes site cleaning, hoarding installation, workers quarter, project signage, piling work, site foundations and building construction; and
iii. The developers can submit a business license application once the construction has achieved 80% progress on-site, and it will be approved within 24 hours after the Certificate of Completion and Compliance (CCC) is issued.

Figure 6.2: Method 2 - OSC 3.0 Plus Industrial Green Lane (IGL) Initiative Application Flow Chart (29 days)



Source : JKT, 2024.

6.3 Method 3 : OSC 3.0 Plus Prerequisite (PR) Initiative Application (22 Days)

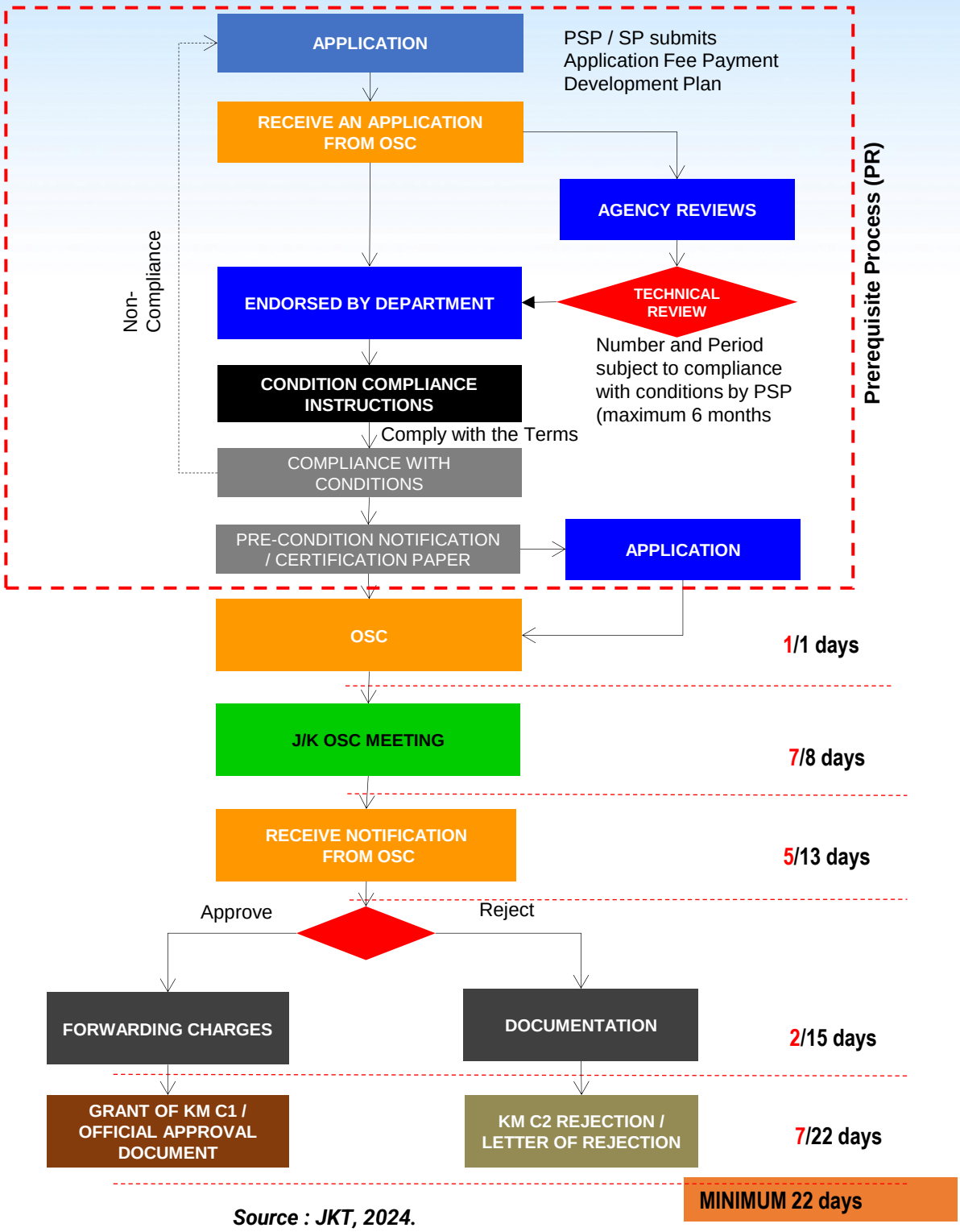
Prerequisite (PR) is an improvement proposal for the existing pre-consultation process and procedure that prioritizes the concept of Easy-Self Regulated System. PR can be applied for all types of developments, including data centres. The implementation process for will be implemented through the development of a new module in the OSC 3.0 Plus Online System.

The principal submitting person (PSP) must submit an application through the OSC 3.0 Online Plus system. The local authority will then review it online and notify the PSP about payment or fee. Once the PSP has made the payment, the local authority will distribute the application online to the technical agencies for review. The PSP will complete the application based on the compliance instructions and obtain a precondition notification letter from the technical agencies. The local authority will present the application to the OSC Committee Meeting and distribute the decisions. The PSP must pay the development charges to obtain official approval letter.

There are several criteria must be met for a data centre development proposal to be processed under the PR initiative. These include:

i. Land matters have been settled before the implementation of PR; and
ii. Development plan applications must be submitted simultaneously (KM, road and drain plans, earthworks plans and building plans) through the OSC 3.0 Plus Online System after completing PR process.

Figure 6.3: Method 3 - OSC 3.0 Plus Prerequisite (PR) Initiative Application Flow Chart (22 days)



Source : JKT, 2024.

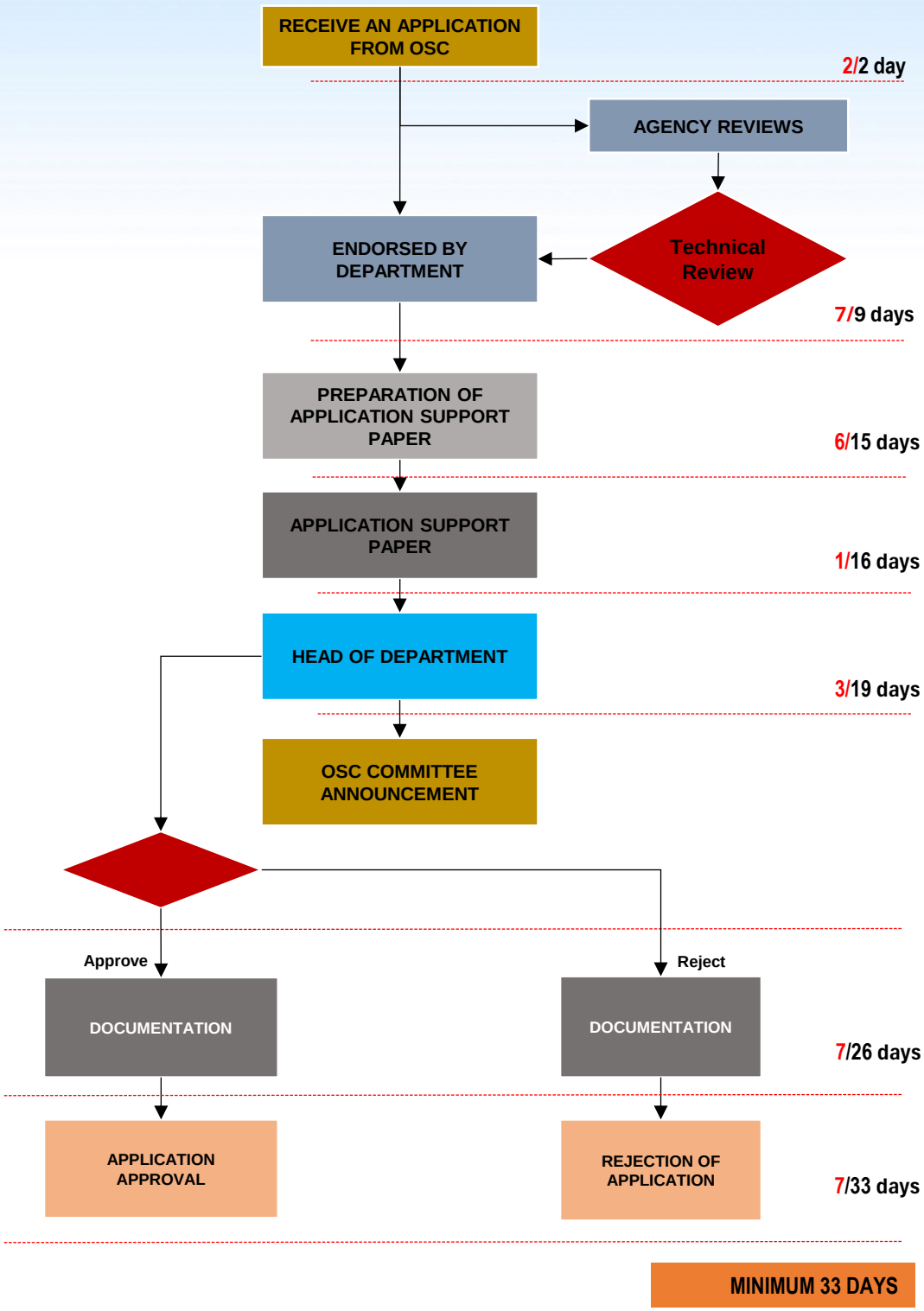
6.4 Method 4: Application for Temporary Permit Plan and Small Construction Permit (33 Days)

For data centre development in an existing building that does not involve amendments to the planning permission and the original building plan, the application can be submitted using Method 4.

There are several criteria that need to be met for a data centre development proposal to be processed under Method 4. These include:

i. The existing building have obtained Certificate of Completion and Compliance (CCC);
ii. The existing buildings must have a dilapidation report to ensure no disturbance to adjacent buildings;
iii. The building is not adjacent to the residential premises;
iv. The building is located in a commercial or industry land use; and
v. Reviews and approval on electricity and water supply requirements have been obtained in advance from TNB and the State Water Supply Company.

Figure 6.4: Method 4 - Work Flow Chart of Temporary Permit Plan and Small Construction Permit (33 days))



Source : JKT, 2024.

7.0

SUMMARY

7.0 SUMMARY

The Data Centre Planning Guidelines focus on the interpretation, categories, planning principles, site planning as well as the implementation mechanisms that must be followed for the development of a data centre. These guidelines are expected to be a reference to ensure that data centre development prioritizes the principles of safety, sustainability, ismart through clear development procedures and regulation. This align with legal provision to enhance the operational efficiency of the data centre.

MINISTRY OF HOUSING
AND LOCAL GOVERNMENT

PLANMalaysia

Perancangan Melangkaui Kelaziman

Planning : Beyond Conventional

myTOWNnet

MALAYSIAN TOWN PLANNING RESEARCH NETWORK

Department of Town and Country Planning
(PLANMalaysia)
Ministry of Housing and Local Goverment
Block F5, Complex F, Precinct 1,
Federal Government Administrative Centre,
62675 PUTRAJAYA , MALAYSIA

03-8091 0000

www.planmalaysia.gov.my