Land Access Guideline for Customer Funded Projects

Guideline

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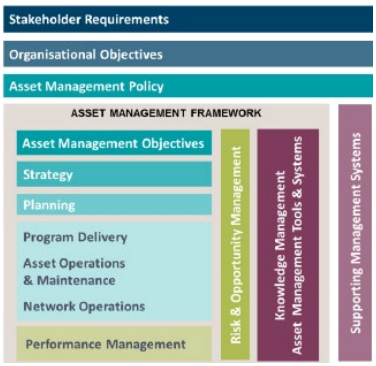

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Western Power's Community & Stakeholder Function is responsible for this document

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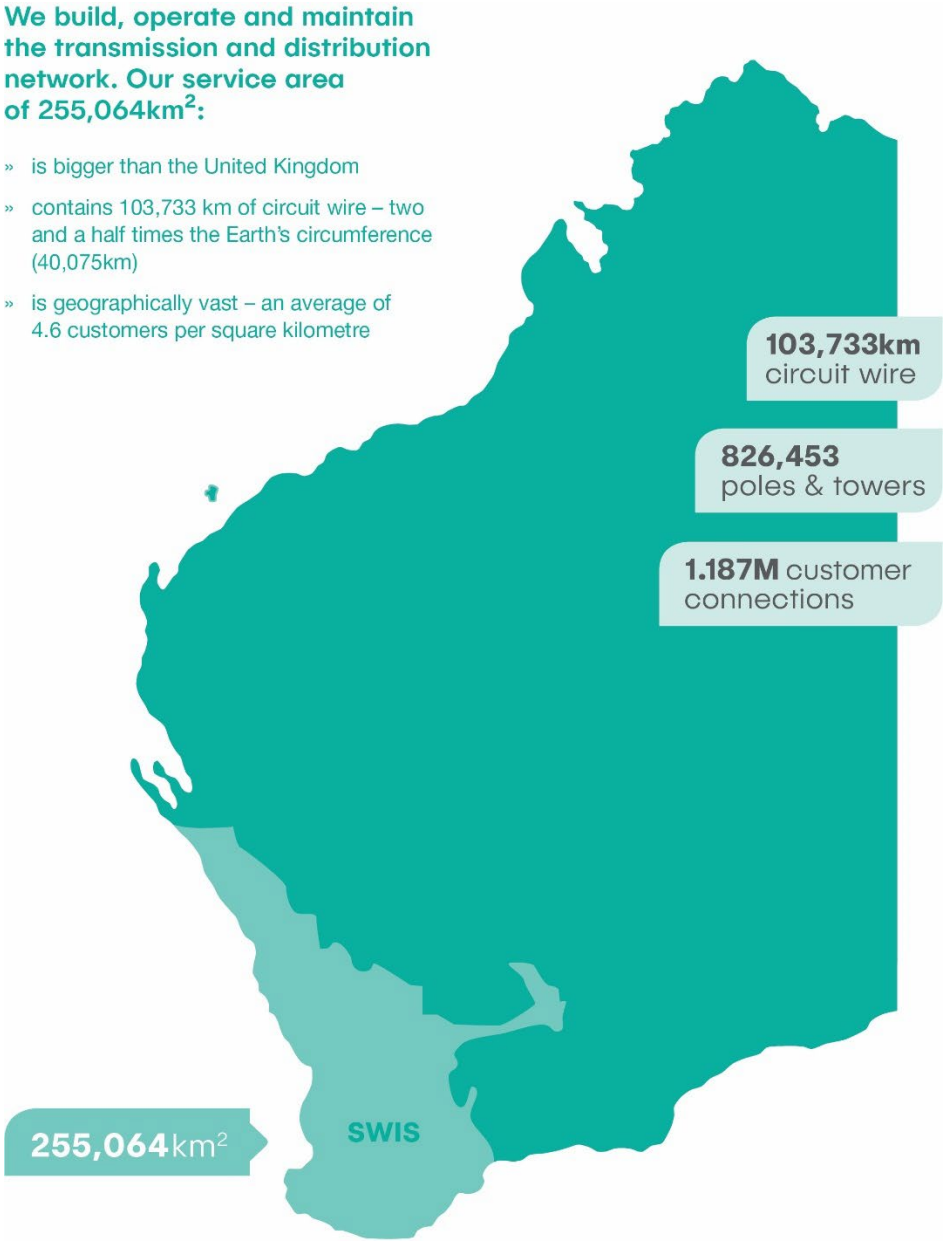
0	21/07/2023	First Issue	
1	1/11/2023	Minor amendments	

1. Introduction

Western Power builds, operates and maintains the South West Interconnected System (SWIS) transmission and distribution network. The network services an area of 255, 064km2 and supplies approximately 1.2 million connected customers.



With regards to locating its infrastructure, coordinated land access is required, including landowner and community engagement, environment, heritage, and planning approvals. Understanding constraints (existing and future) and approval requirements for accessing land will help avoid unexpected future costs.

All identified land access issues should be resolved during the design phase of the Customer's project. This will help ensure existing and future access constraints on land where the Customer proposes to locate the Western Power infrastructure does not contribute to additional capital or operating costs or restrictions to Western Power.

1.1 Purpose and scope

The purpose of this guideline is to provide Western Power Customers some high level information regarding issues to be considered when selecting new sites for locating Western Power Infrastructure (Infrastructure).

The information provided specifically applies to new infrastructure however the principles are also applicable to relocation of existing infrastructure. However, for relocation works many of the issues and constraints would be pre-existing and well known.

In selecting appropriate sites for locating infrastructure over and above the compliance to its own technical standards, Western Power is also required to demonstrate compliance to a suite of relevant legislation. When the Customer has obtained their own approvals for infrastructure locations, they will be required to demonstrate compliance before Western Power will accept the proposed site.

1.2 Definitions

Term	Definition
Customer	The customer as described as the 'applicant' in the Customer Work Request.
Customer Work Request	The online 'Customer Work Request' form as published on Western Power's website from time to time.
Land Access	For this procedure Land Access means the coordinated approach facilitating access to land for locating Western Power assets including: • Landowner and community engagement • Regulatory approvals including environment, heritage, and planning • Engineering and design • Property and easement acquisition
Land Access Rights	Easements or other legal rights acceptable to Western Power over or in respect of land that is required by Western Power to perform and install the Works (or any part of them)
Landowner	This is the person(s) and/or entity(ies) (Private, Corporate and or Government) listed as registered proprietor(s) on the land's certificate of title
Network	Has the meaning given to Western Power Network in the Electricity Networks Access Code 2004 (WA)
Site	Location for installing Western Power Infrastructure
Western Power	Electricity Networks Corporation (trading as Western Power) ABN 18 540 492 861, a statutory body corporate established by section 4(1)(b) of the Electricity Corporations Act 2005 (WA).
Western Power Infrastructure	All Western Power owned assets required for the Customer's work request (i.e. network transmission and distribution equipment, communications sites and control technologies, substation, and terminal sites)
Works	The works requested by the Customer under the customer work request and carried out by Western Power

1.3 References

References which support implementation of this document

Table 1. References

REF	Title
Online	Western Power Customer Funded Community Engagement Brief Overview Generic

2. Design considerations

The advice below has been adapted from multiple Western Power technical, social, and environmental standards and procedures to accommodate Customer specific requirements when selecting new sites for locating Western Power infrastructure.

2.1 General design advice when selecting a suitable circuit route

It is important that a standard multi-criteria assessment be conducted to evaluate the suitability and overall value of a site before a final decision on the site option.

From an overall efficiency viewpoint there is a need to optimise the balance between the following criteria:

i. Technical aspects
   - hazard minimization (to and from the new infrastructure)

ii. Community impacts including landowner and other affected stakeholders

iii. Environment, planning and heritage approvals

iv. Cost considerations
   - Easement and site procurement costs
   - Site development cost
     - design considerations
     - construction costs (Including associated relocation costs)
   - Operational and maintenance costs and

v. Land tenure and land access rights

Prior to finalising the site option, the impacts and interaction between all these criteria and associated issues needs to be addressed by all affected stakeholders to develop the optimum balance between the technical aspects, community impacts, environmental impacts, cost, and land tenure requirements.

2.2 Technical aspects

The location of the infrastructure shall not expose the public or Western Power to unacceptable levels of risk. Hazards can be imposed on or by the infrastructure. The following table describes locations that should be avoided, so far as reasonably practicable to avoid hazards. When avoidance is not possible or preferred, then early consultation with both the owner of the hazard and Western Power is critical to determine if the hazard can be mitigated through design.

Table 2. Technical aspects and risks to be considered when identifying line route locations

Location of Route	Risk
Sensitive sites (schools, hospitals, public playgrounds, recreational areas)	Public safety (transfer potentials) electric and magnetic field (EMF) exposure concerns. Audible noise emissions.
Close proximity to underground services and buildings	Public safety (transfer potentials or audible noise emissions – radio or TV interferences)
Close to forest or heavy industries (refineries, mine sites, industrial sites)	Fire (will have access constraints during summer), windblown debris and contamination from pollutants will require specialised equipment to perform in such environments. Potential airborne pollution that could be hazardous to personnel may not be acceptable.
Close to a foreshore	Accelerated pollution, corrosion and damage from tidal surges and tsunamis
Low lying areas or proximity to creeks, rivers, and wetlands	Seasonal flooding or flooding from rising water levels or localised weather events can restrict access. It may require structure foundations to be added to design.
Routes with restricted access (narrow, other easements, third party inductions etc)	Vehicle impacts. Design considerations to mitigate against limited clearances (extra or taller structures). Ongoing access constraints for maintenance activities. Constructability impacts.
Routes located near or over cliffs or steep rocky slopes	Damage from landslides. Limited access or access requiring specialised equipment required will increase risks to personnel. Constructability impacts.
Proximity to other circuits. There are limitations on situating multiple circuits in a corridor (especially in high and extreme fire risk zones)	Mutual induction risks. Common mode failure (bush fires, storm, vehicle impacts, structure failures)
Proximity to other services (railway, conductive pipelines, communication services including pits, pillars, and fences)	Constructability and maintenance impacts (third party access and approvals). Design constraints - mitigation for induction to other services (pipelines or cables).
Public roads property boundaries and reserves to be followed as a preference	Allows more reliable access to circuit route. More likely to facilitate the acquisition of easements
Crossings (roads, pipelines, fences, other power lines etc)	Preference is to cross at right angles (90 degrees) to: • reduce the exposure length of the crossing • reduce visual impacts • limit derating in case of underground cables. Preference is to avoid multiple crossings of other lines in parallel due to: • increased construction costs and time • maintenance restrictions • operational impacts and risks – each extra crossing increases the risk of one line failure causing a second line outage.

Location of Route	Risk
Major road, highways, freeways, and railways	Increased ground clearances for overhead lines is often required (heavy haulage clearances). Traffic management will also need to be considered for the construction and maintenance of the line. Usually requires third party permits and restricted working hours. Roadside barrier installations and increased risk from collisions. Generally, will increase construction costs due to larger structures required for achieving the clearances or barrier installations. Underground cables also require specialist construction equipment (e.g. directional drilling) and third party permits.
Close to the outside of a bend in a road or next to heavily trafficked or high-speed roads.	Vehicle impact on structures, equipment, and personnel. Constructability impacts. Access into and from roads. Roadside vehicle safety barrier installations.
Waterways	Increased ground clearances, aerial warning devices often required for navigable waters can also add significant load to the support structure. Bird diverters are often required for protection of water birds. Early identification of any of the above requirements is necessary to avoid redesign impacts and time delays in obtaining the required warning devices. Availability of accurate information is critical for design: • maximum expected water level above Australian Height Datum (AHD) • maximum height of vessels expected to use the water way (critical in risk assessment) • environmental assessment for determining bird diverters. Type, weight and number required)
Bridges and tunnels	Mainly affects cable installation – early consultation with the relevant authority critical to design. Issues can be weight, working in confined spaces and consideration to other shared services.
Above ground pipelines	Aerial warning markers often required. Early consultation with pipeline owner critical in design.
Bird flight paths	Bird diverters are often required to mitigate against bird impacts to the circuit. They are typically also prescribed by relevant environmental agencies and will need extra design considerations to mitigate against extra load (weight and wind).
Agriculture or surface mines	Will often require increased ground clearances due to land users machinery heights (haul trucks and harvesters) resulting in nonstandard design considerations
Airports, landing strips, aeroplane flight paths (department of defence), low level flying activities (crop dusting or recreational flying)	Often will require warning devices on lines and structures or avoidance altogether. Early consultation with the relevant authority, landowner or recreational flying club is critical in determining what design constraints will be required.
Easement restrictions	Other third-party easements over land will need to be considered to determine if access will be restricted. Can lead to design constraints and increased access costs.

Location of Route	Risk
Close proximity to forests, reserves, areas with protected flora and fauna	Constructability and maintenance impacts (third party environmental approvals and permits). Seasonal survey requirements. Impacts to the infrastructure from debris and fire in vegetated areas. Future maintenance access route restrictions.
Soil and groundwater contamination	Existing contamination sites should be avoided or an understanding of the extent of the contamination and remediation requirements gained prior to finalising the site option. Western Power will not accept any contaminated site liabilities associated with gifted assets. As such, assessment, remediation and validation of existing contaminated sites will be required prior to the new asset handover.

2.3 Community and landowner engagement

Stakeholder engagement is a practice that has been recognised as critical to the success of any organisation. Though not specifically outlined in legislation, there are engagement requirements for obtaining other legislated approvals for the route. Social licence to operate (SLO) refers to the ongoing acceptance of a company or industry's standard business practices and operating procedures by its employees, stakeholders, and the general public. SLO is created and maintained slowly over time as an organisation builds trust with the community it operates in and other stakeholders. It is often characterised by activists or the media, with community acceptance never being universal.

As such, Western Power also require the Customer to show evidence that they have adequately engaged with the community, stakeholders and affected landowners when defining the site Western Power will ultimately construct its infrastructure in.

The Customer is responsible for all the community and landowner engagement requirements for the Western Power works associated with the Customer's project. Once the Customer has confirmed the scope of the new Western Power infrastructure (line route, equipment, location etc) to be constructed for the project, Western Power will develop a community engagement brief. The brief will outline the minimum engagement requirements for the project.

The community and landowner engagement for the Western Power works component of the Customer's project should be incorporated into the Customer's engagement plan for the project. The Customer is required to send all engagement materials and all communications that reference Western Power to Western Power for review prior to use.

In the development of any site for the location of infrastructure there is a risk of community resistance. This could range from acceptance to outrage or protest which can result in delayed approvals and reputational damage to the Customer and Western Power. Understanding the community, their concerns, and expectations, and engaging with them early will help manage the risk and increase the likelihood of site development and minimal costly design amendments.

The community engagement process should start as soon as possible as this is often lengthy and may influence the design and approval disciplines. Community acceptance for the site should be fostered by the Customer. Addressing community concerns early can help avoid costly design amendments.

Table 3. Community and landowner engagement: Issues and requirements

Issue	Requirements / Characteristics
Public Safety	Hazards perceived to be imposed on the community that need to be properly addressed in design are: • perceived health and safety issues such as electromagnetic fields (EMF) and technical issues such as radio frequency interferences (RFI) • earth potential rise transfer (EPR) • touch and step potential concerns
Noise, radio / television interference	Western Power designs its infrastructure in compliance to Environmental Protection (Noise) Regulations 1997. It is important to identify any sensitivities to noise where the infrastructure is being planned as early as possible. This should be addressed in the community engagement process.
Community and Landowner Engagement	Community and Landowner acceptance is required for all Western Power asset locations to finalise the relevant design. Helping community and landowners gain some understanding of the commitment to engagement and process for working with them can allay concerns.
Visual amenity	Overhead powerlines are seen to be unsightly and alter the appearance of the natural environment. The following should be considered during the site selection process: • Country environments – preferably in areas where they are nor clearly visible from roads (i.e., along the base of a hill or behind tree belts or mountainous terrain – keeping in mind accessibility requirements) • Urban areas – local authorities typically prefer service or road corridors that have been planned. • Avoid prominent areas such as tourism spots or roads etc. Visual impact studies are sometimes prepared for an environmental approval. Though they are not always required they can be useful tool and should be considered for use in community engagement. Height constraints and structure type or colour can be considered in the design process.
Other utilities / Land users	Understanding other utility installations (road, communications, gas, water, and rail) and land users will help avoid unexpected amendments and costs. All issues should be resolved prior to finalising the site for design.

2.4 Environmental, heritage and planning approvals

The Customer is responsible for the environmental impact assessment (EIA), planning assessment and heritage impact assessments of the projects works and gaining all necessary external environmental, planning and heritage approvals in accordance with applicable legislation and regulations. The assessment of the site is expected to form part of the broader Customer project assessment and approvals to ensure cumulative impacts are addressed.

Western Power expects that the Customer will either utilise internal environmental, planning or heritage specialist resources or engage a suitably qualified and experienced consultant. Western Power will require copies of all relevant assessments, surveys (including spatial data and shapefiles) and approvals (including any management plans or other commitments made to secure approval) for project to go ahead.

Western Power will undertake an internal due diligence assessment to understand potential surveys, approvals and timeframes. The due diligence assessment will also assess the project's approvals and management conditions to ensure they do not burden Western Power with unacceptable constraints during the construction, operation or maintenance of the network being developed.

2.5 Cost considerations

Selection of suitable sites is the first step in meeting the functional requirements for the circuit design. The site should be the shortest and straightest option while also considering the above-mentioned technical aspects (section 2.2 above).

To provide the Customer with an initial estimate and solution advice, Western Power will typically provide the Customer with an initial design suitable for the Customers' needs. However, as the site is developed by the Customer there may be several changes or site deviations that will require the initial design to be reviewed.

There are no set rules in determining the best route. Selecting a site is an interactive process that ultimately affects the final design of the circuit. The process should consider design, construction, and maintenance requirements of the infrastructure in addition to the environmental impacts and community issues. While it is easy to appreciate cost savings in respect of materials for shorter routes (for example conductor length), the shortest route may incur costs which outweigh these savings.

For example, a shorter line option:

- with more bends (as opposed to a straighter, longer line route) will require more support structures significantly increasing material and foundation costs.
- through environmentally protected areas (as opposed to a longer line route avoiding) may increase the approval timeframes and conditions, and even add costs to construction and maintenance.
- through built up areas or smaller high value properties (as opposed to a longer line route around these areas) coupled with varying land values and high easement costs could ultimately add cost and time to the line route. Other associated design considerations may also be required for mitigating the risk of fire, induction, audible noise, and radio or television interference.
- traversing through more smaller properties (as opposed to fewer larger properties) can potentially increase the landowner engagement effort required. The complexities associated with greater numbers of landowner negotiations can impact project cost and timeframe.

The information below provides more detail on the common functional characteristics and requirements that can influence the design and cost of a site.

Table 4. Cost considerations: Description and Requirements

Description	Requirement / Characteristic
Location	i. Proximity of residents to the site is the dominant factor. The closer residents are to a site increases the potential for a higher standard of design to satisfy those residents' concerns (safety, visual impacts, level of engagement effort required) ii. Surrounding land use, community and environmental features will influence the circuit design options for a specific site. Sites located away from homes and other features typically raise fewer concerns. iii. A highly frequented area may have increased construction, maintenance, and emergency response costs due to access restrictions. Visual impacts from the infrastructure to an area of local significance can also influence the level of community concern. iv. Routes along lot boundaries are preferred, especially in rural areas where fire breaks are maintained. This can assist in reducing vegetation management costs for the life of the asset as well as providing easy access for maintenance. Utilising property boundaries can also minimise impacts to land use such as cropping.
Access	i. Access to a site is required for the construction, operation, maintenance, and inspection of the site on a 24 hour, seven days a week basis. ii. Access roads must be suitable for use in all weather conditions and must be constructed to withstand all loads likely to occur during construction, operation, and maintenance activities for the life of a circuit. Construction vehicles such as cranes and trucks should be considered. iii. Material transportation and structure assembly must also be considered when planning site access. iv. The site must have at least one suitable vehicle access point from a public road ensuring safe exit and entry to the road. Local government or Main Roads approval may be required. v. All site access roads through private and government owned property must be covered by a registered easement or other land tenure protection mechanism.
Dimensions	i. The site corridor (including all approvals, permits and easements) shall be of sufficient size to accommodate the ultimate infrastructure being planned to include: a. the asset b. special items (transition structures, cable pits) where required c. access routes for all vehicles (including construction and maintenance) d. areas to accommodate materials or assembly of structures, and e. an appropriate buffer zone maintained round the structures. ii. Not allowing enough access through cramping or oddly shaped areas can introduce significant operational restrictions, the need for specialised design, equipment, training, and work practices. This can introduce costs and hazards which would not exist in a standard design.

2.6 Identification of land tenure and land access rights

Western Power requires a range of land tenure over its various network assets. This tenure is for the purpose of enabling legal rights of access, long term protection of assets, to avoid public encroachment, ensure an appropriate level of control over the land, and to meet legislative compliance. Freehold title or Crown reserve management order is typically required for communication sites, transmission terminals and substations. Easements are required for transmission and distribution lines or cables. They are also required for sole use Customer switchyards, and placement of infrastructure within road reserve or other Crown reserve.

All transmission line routes (overhead and underground) and some distribution lines shall be accompanied by a registered easement in accordance with Western Power's network standards. It is often difficult to negotiate a new line route and easement with affected landowners and emphasis should be given to commencing engagement as soon as it has been identified a new circuit is required.

During the early project planning and concept design stages Western Power will identify within its Works Planning Report whether land tenure and property transactions are required to be facilitated by the Customer.

Western Power completes its land tenure and property transactions using standard template documentation which cannot be altered except for inclusion of project and site-specific details required by Landgate. Standard documentation is needed for efficient administration of the large land tenure and property portfolio held by Western Power, and to ensure the land tenure and property arrangements meet operational needs of the asset.

Western Power requires the Customer to complete survey and valuation works and make compensation offers to landowners. Following the compensation offer being made to landowners by the Customer, the Customer is to negotiate agreements and demonstrate evidence of these in writing to the Western Power conveyancing department. Formal final conveyancing documentation is then prepared and sent back to the Customer to arrange all landowner and encumbrance, or interest holder signed consents so Landgate dealings can proceed.