



Identifying South Copeland Areas of Focus

Finding a suitable site for
a Geological Disposal Facility



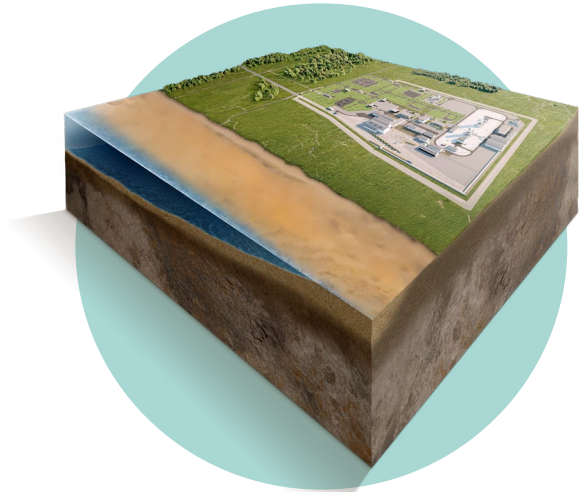
Nuclear Waste
Services

Introduction to Government Policy and the Siting Process

Nuclear Waste Services (NWS) is delivering a GDF as the safe, secure, and long-term solution for the most hazardous radioactive waste. It is one of the largest environmental protection programmes in the UK and ensures we remove the costs and burden of having to keep the waste safe and secure in surface storage facilities for many thousands of years. The UK Government's Policy for a GDF requires NWS to find two things – a suitable site and a willing community. A GDF cannot go forward without both being in place. At this stage in the Programme, there are three Community Partnerships: South Copeland; Mid Copeland; and Theddlethorpe. These areas have potentially suitable geology, yet we are some years away from being able to confirm whether a site is actually suitable. The purpose of this document is to explain how NWS has identified Areas of Focus within the existing Search Area and adjacent inshore area, to enable us to focus Site Evaluation studies and determine the potential suitability of the areas to host a GDF.



Simon Hughes
**Siting and Communities
Director**



NWS needs to identify both a suitable site and a willing community to host a Geological Disposal Facility (GDF). The key documents which set out this framework are the UK Policy Framework for Managing Radioactive Substances and Nuclear Decommissioning (the Policy) and Site Evaluation: How we will evaluate sites in England (the Site Evaluation document). NWS also undertakes an assessment of key siting decisions against factors relating to the overall GDF Programme. This includes consideration of NWS' Programme Deliverability, alongside technical and community considerations. Each of these three perspectives informs NWS' decision-making.

The Policy

The Policy puts a framework in place to ensure NWS works in partnership with communities to build trust and understanding of a GDF before any commitment to host a GDF is required. The Policy does not identify preferred sites or locations; it relies on communities working with NWS throughout the siting process and NWS undertaking the necessary technical analysis to assess the suitability of the areas under consideration. The Policy recognises that either a community or NWS may choose to withdraw from the siting process, ending the participation of the area in the GDF siting process.

The Siting Process

Site Evaluation: finding a suitable site

The Site Evaluation document establishes six 'siting factors' (and 26 associated 'evaluation considerations') against which we will assess site suitability throughout the siting process.



Safety & Security



Community



Environment



Engineering feasibility



Transport



Value for money

GDF Programme Deliverability

The mission of the GDF Programme is to deliver a permanent solution for the disposal of the UK's most hazardous radioactive waste through the design, construction, operation and closure of a GDF. When we take a decision, we need to understand how that decision impacts on our mission. We do this by considering Programme Deliverability, where (in addition to technical and community matters) we look at factors such as land access and acquisition, policy and legal considerations, permits, consents and licensing, Government and Programme stakeholders, operations and sustainability, and how the decision tends to perform against our Programme Objectives.

In order to deliver on this mission, our GDF Programme Objectives are:

- to build trust and work in partnership with one or more communities to gain consent and support to host a GDF;
- to facilitate economic benefits and growth, delivering regional jobs and skills and a positive legacy;
- to deliver a permanent solution for the safe disposal of the UK's most hazardous radioactive waste through the safe, sustainable, and cost-effective design, construction, operation and closure of a GDF;
- to enable the timely retirement of the significant and currently enduring financial liability and risk associated with above ground storage of the most hazardous radioactive waste, that would persist for thousands of years if a disposal solution was not developed.

Suitable Site and Willing Community

Under the Policy, a GDF will only be built where there is a suitable site with a willing community.



Willing Community

We started the process by engaging with people, groups, and organisations across the country to help them learn about the GDF Programme, so they could begin to consider whether their community might be interested.

The next stage of the process involves the formation of a Working Group. The Working Group's role is to open up engagement with the community, begin the work to understand the local area, and identify an initial Search Area for further consideration. The adjacent inshore area may also be considered.

The Working Group identifies initial members of a Community Partnership – which must include at least one relevant Principal Local Authority (rPLA) from the Search Area and will also include NWS – to take over from the Working Group and provide a longer-term platform for community engagement and involvement in the siting process.

Formation of a Community Partnership also triggers the availability of up to £1 million per year of Community Investment Funding. This funding is available for projects and initiatives that support economic development opportunities, improve community wellbeing, or enhance the local environment (including cultural and natural heritage). This Community Investment Funding will increase to up to £2.5 million per year if the community progresses to the next stage of the process, when deep borehole investigations are undertaken in that area.

As part of the Community Partnership, NWS will also work closely with communities to develop a positive and inclusive vision for the future of their area, should they ultimately decide to host a GDF. Significant Additional Investment would be made available in a community that hosts a GDF. This investment could include improved local education and skills capacity, enhanced transport infrastructure, or improved recreational facilities.

Onshore and inshore areas where a GDF and associated facilities may be located

Onshore (the area on dry land), the Search Area is the geographical area encompassing all the electoral wards within which we were able to search for potential sites.

The term 'inshore area' is used to refer to the area under the sea out to a maximum of 22km off the coast.



When ready, and once the community has had time to ask questions and learn about a GDF through community engagement, the rPLA on the Community Partnership will decide on a timeframe for determining the willingness of the Potential Host Community for a proposed GDF development through a Test of Public Support. A Test of Public Support will be taken in the Potential Host Community. If the residents of the Potential Host Community do not return a positive Test of Public Support, then the GDF Programme cannot progress in that location.

A decision to withdraw from the siting process can be taken at any time up until a Test of Public Support and must be agreed between the rPLAs on a Community Partnership. NWS can also choose to withdraw from the process in particular communities as our investigations continue and we narrow the options towards a final location.

Suitable Site

Alongside our community engagement, we also need to find a suitable site. Detailed studies and investigations of site suitability will be conducted to ensure a GDF can be constructed, operated, and closed safely and securely.

NWS evaluates each potential area to establish whether it is suitable for a GDF based on Six Siting Factors: safety and security, community, environment, engineering feasibility, transport, and value for money.

We carry out initial high-level evaluations of Search Areas and the adjacent inshore area, including non-intrusive activities such as geophysical surveys and desk studies of existing data such as geology, transport infrastructure, and power supply. Much of the information gathered as part of initial technical assessments may subsequently support the Development Consent Order process and the Environmental Permit applications required for Site Characterisation.

Site Characterisation is the further investigative work, including drilling deep boreholes to understand more about the geology deep below the surface where a GDF could be built.

The information gathered from these studies will also be essential for applications to secure the necessary regulatory permissions to build a GDF and will be key in the development of a GDF design and safety case.

Certain decisions, specifically the decisions on which communities to progress to deep borehole investigation and the final site selection, will require approval from the Secretary of State.

South Copeland Areas of Focus

A key starting point in the siting process is identifying the Search Areas. The Search Areas are the geographical areas on land within which NWS considers potential sites for a GDF. Search Areas are defined by electoral ward boundaries. However, the boundaries are not fixed and as NWS' investigations progress, the Community Partnership may review and refine the Search Area, as it identifies areas that it would prefer to be ruled out of consideration, or brings in additional areas that were not initially part of the Search Area.

Equally important is understanding the adjacent inshore area (the area beyond the coast out to a maximum of 22km). The Sub-surface parts of the GDF may be constructed in the rocks deep under the seabed in the inshore area.

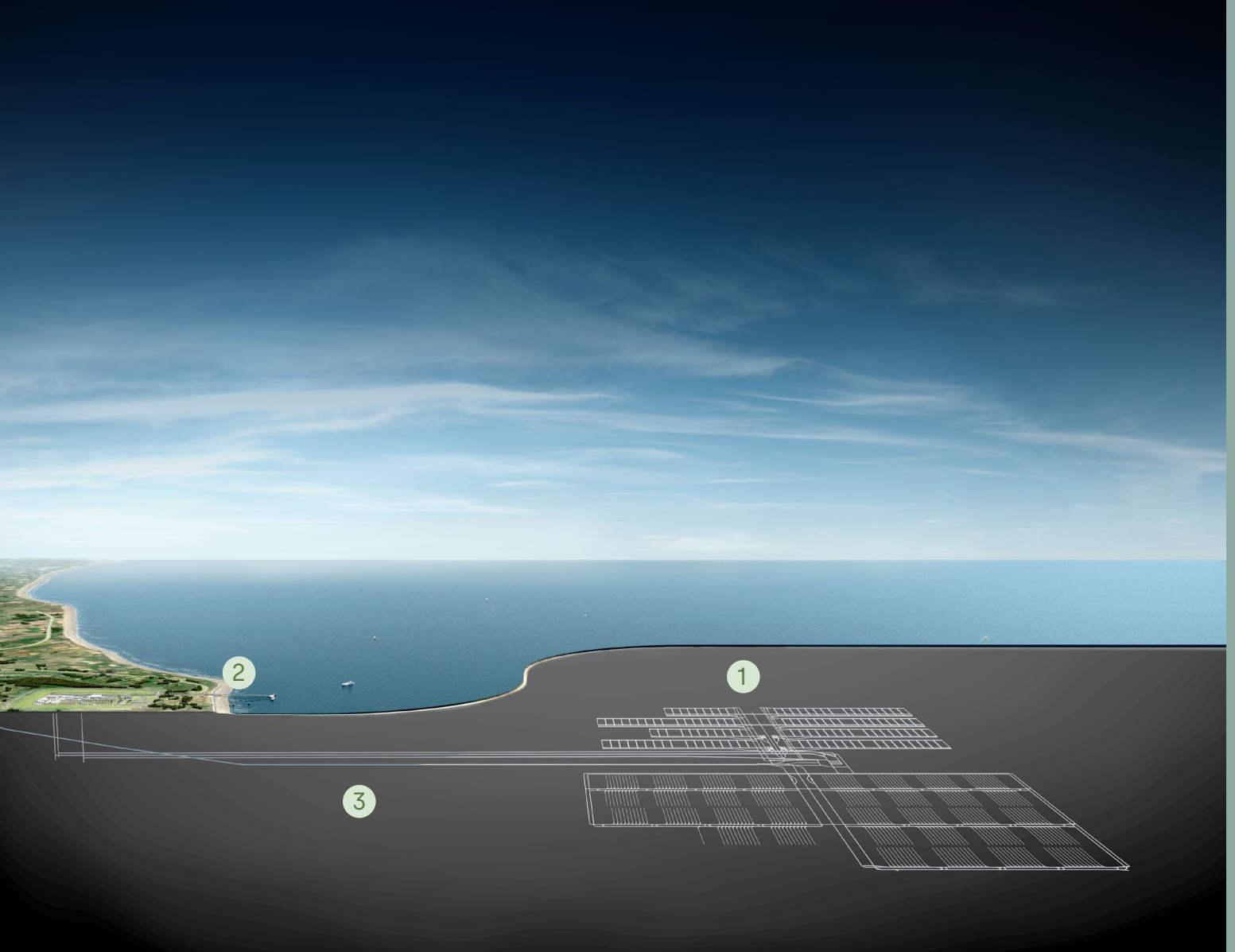
What are Areas of Focus?

Large, varied Search Areas and adjacent inshore areas make it challenging to undertake appropriately detailed and proportionate work to understand the feasibility of delivering a GDF.

We have sought to identify smaller areas within the Search Area and inshore as the first step in the process of determining potentially suitable locations for the GDF as a whole. Specifically, we focused on three distinct types of Areas of Focus: Surface, Sub-surface, and Accessways. These smaller areas will guide more detailed Site Evaluation studies and help prioritise resources for assessing the potential of each area to safely host a GDF.

The process we have followed in identifying Areas of Focus is similar to the approach taken by other large infrastructure projects. We have identified areas, based on current information, that may have the potential to host project infrastructure, taking into account potential constraints such as areas with environmental protection, close to settlements, or areas of flood risk.

Some studies and investigations will continue across the Search Area and beyond – for example, to understand the wider geology and the potential benefits and impacts of a GDF.



Illustrative example of a GDF

Geological Disposal Facility for the most hazardous radioactive waste

1. Sub-surface
2. Surface
3. Accessways Tunnels connecting surface site to disposal area

A GDF is formed of three elements

A GDF will comprise three main elements – the right Sub-surface geological environment deep underground for the disposal area, a Surface location, and the ability to connect the two with Accessways. NWS needs to identify potentially suitable locations for the three key components of the GDF:



Step 1 – Identifying Sub-surface Areas of Focus

At the initial stage, NWS uses the outputs of the National Geological Screening, alongside other existing geological data and information, to identify the areas that are more likely to have the characteristics to host a GDF.



Step 2 – Identifying the Surface Areas of Focus

Once a Sub-surface Area of Focus has been identified, NWS considers surface locations within the Search Area, that have the potential to host the surface facilities of a GDF. NWS identifies land-use constraints based on the assessment principles, 'impact topics' and decision-making criteria set out in the National Policy Statement for Geological Disposal Infrastructure.



Step 3 – Identification of Accessway Areas of Focus

Once potential Sub-surface and Surface Areas of Focus have been defined, NWS identifies a potential accessway area using community considerations and geological characteristics – a corridor within which the surface site could be connected to the Sub-surface. This could consist of inclined tunnels linking to a surface portal, or shafts with connecting tunnels below ground, or a combination of both.

Further considerations in identifying Areas of Focus

- We review potential Areas of Focus against our Six Siting Factors and consider relevant information from technical studies to date, including the proximity and viability of routes to transport networks, e.g. the road and rail network, the design and assessment of which will follow subsequently; other nearby major development/project plans and the stage to which they have progressed; and the relative accessway distances between various areas under consideration.
- We also review the potential suitability of both the Sub-surface and Accessway Areas of Focus from a community and programme delivery perspective.
- We undertake a desktop review of land close to the boundaries of the potential Surface Areas of Focus to consider their inclusion.

This review process ensures that we look at the Areas of Focus to see whether they are realistically viable areas to carry out Site Evaluation studies. All Areas of Focus (Sub-surface, Surface and Accessway) are larger than required to allow for flexibility as we progress with the studies into design. The current estimate of the size of the surface site during the operational phase is about 1km², although this size could vary during construction. In some instances where there may be some constraints (for example flood risk areas), we may seek to still include that area and do more work to find out whether we can work within the constraints.

Areas of Focus going forward

As NWS' Site Evaluation work progresses and engagement activities continue to provide a better picture of the potential of the area to host a GDF, revisions to the Areas of Focus may be necessary.

As such, the Areas of Focus that NWS has identified are not irreversible. They are also not a formal refinement of the Search Area, where wider feasibility studies will also continue.

Areas of Focus will support further investigative and technical studies to inform NWS' decision on which areas to take forward to Site Characterisation.

How we identified Areas of Focus in the South Copeland Search Area

The original Search Area established by the Copeland GDF Working Group and taken forward by the South Copeland GDF Community Partnership included 'Millom' and 'Black Combe & Scafell' electoral wards. The Lake District National Park and proposed extension were excluded from consideration.

The Working Group also agreed that the focus for the sub-surface part of a GDF, where the waste would be disposed of, would be the deep geology beneath the inshore area, up to 22km beyond the coast of the Search Area.

Following the Local Government Reorganisation in 2023, Copeland Borough Council ceased to exist, becoming part of the new Cumberland Council unitary authority, and the ward boundaries were revised. To reflect that, the Search Area boundary also changed, and now covers the 'Millom' and 'Millom Without' electoral wards.

Our early work, which is available in the Initial Evaluation Report and subsequent Search Area Evaluation Report, confirmed the potential suitability of this Search Area and inshore area to host a GDF. These reports are available on the Community Partnership website.

NWS applied its methodology for identifying Areas of Focus to define the Sub-surface, Surface and Accessway Areas of Focus within the South Copeland Search Area. The methodology includes looking at a range of factors, such as geological characteristics, protected areas, environmental constraints and community considerations.



Sub-surface Area of Focus

Alongside the National Geological Screening data, in South Copeland, NWS looked at legacy 2D and 3D seismic data, and 3D seismic survey data collected by NWS in August 2022. This indicates that there may be a volume of rock with suitable geological characteristics to develop a GDF which could be accessed from a surface site. Further studies will continue to develop our understanding of this sub-surface area as a potential host geology.

The Sub-surface Area of Focus is approximately 300km². The full area would not be needed, yet at this early stage, looking at a larger volume of rock gives NWS flexibility in the design and location of the underground vaults and tunnels.

This Sub-surface Area of Focus is the same for both South Copeland and Mid Copeland Search Areas.

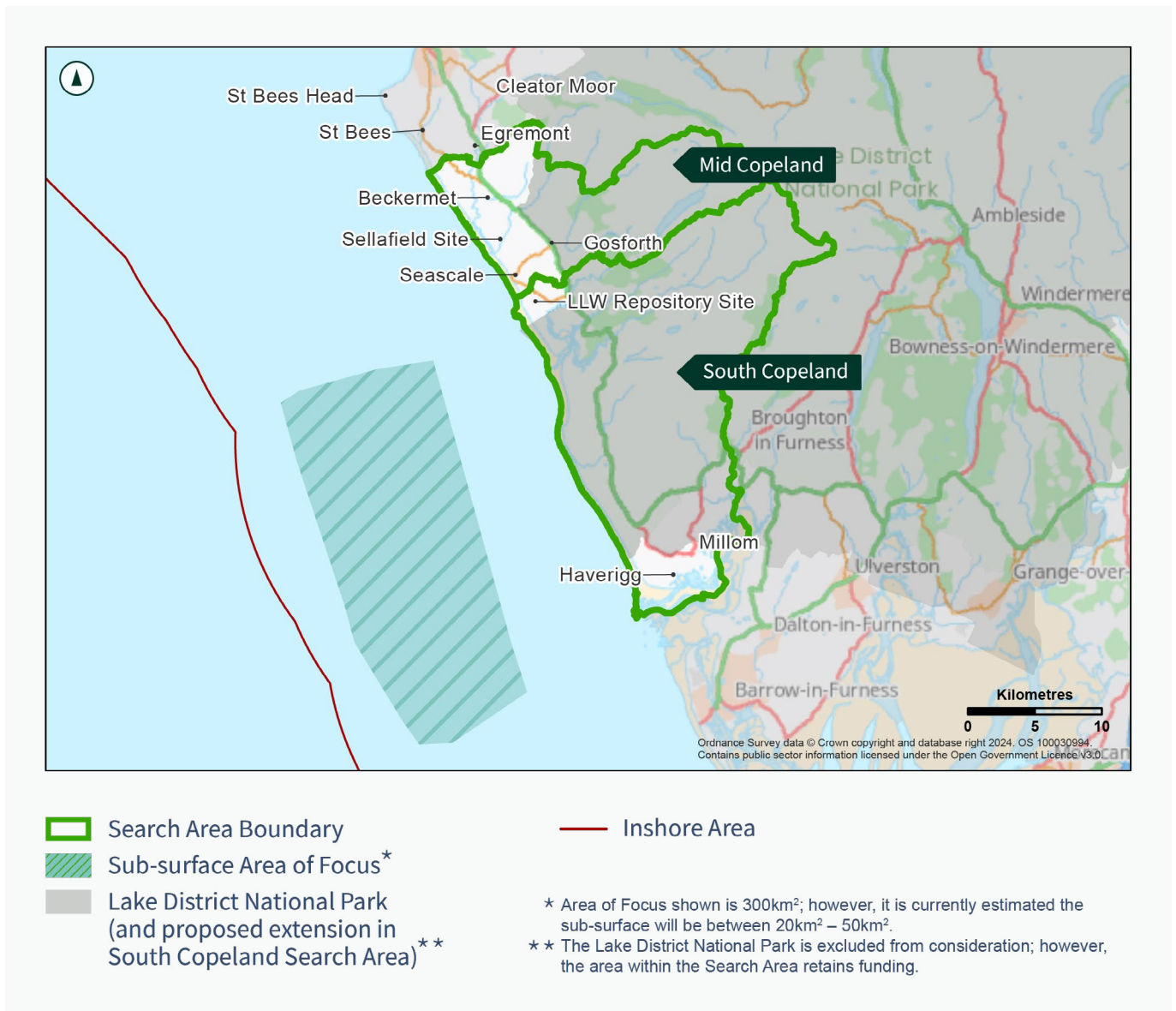


Figure 1: South Copeland – Mid and South Search Areas, and the Sub-surface Area of Focus

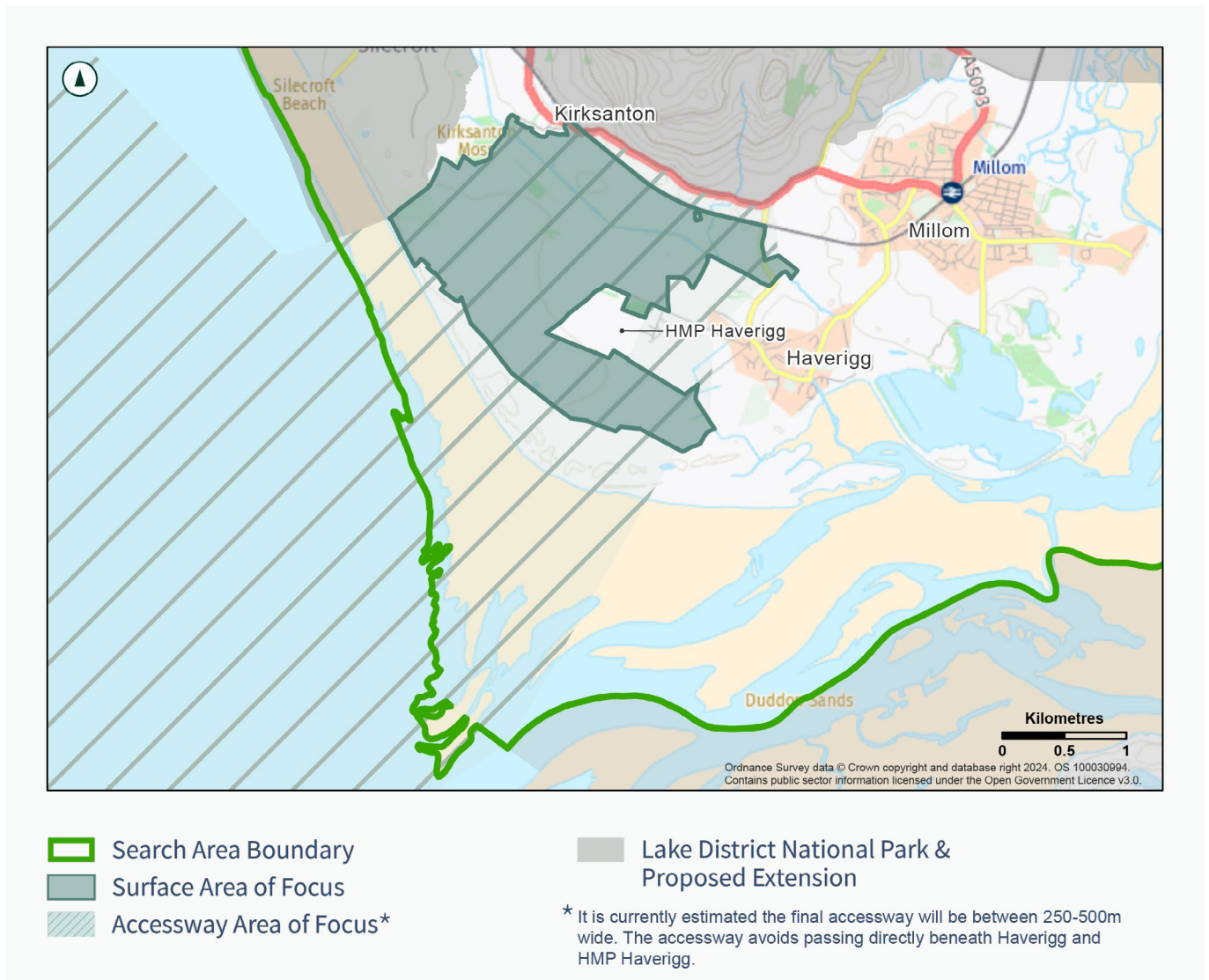


Figure 2: South Copeland – Land West of Haverigg Surface Area of Focus

Surface Area of Focus

Through the application of the Areas of Focus methodology, a number of potentially suitable and less constrained areas were identified in the South Copeland Search Area. Further consideration of this area, that took into account NWS' Siting Factors, as well as community and programme considerations, resulted in the identification of a Surface Area of Focus at the Land West of Haverigg, which NWS will prioritise and consider further at this time.

Land West of Haverigg

This Surface Area of Focus is to the west of Haverigg, between the Lake District National Park (LDNP) and the coast. This land is approximately 3.5km².

The area is bounded by the LDNP and Cumbrian Coast Railway Line to the north and east, and the coastline in the west and south. Whilst maintaining the feasibility of the Surface Area of Focus, we have sought to minimise the number of included residential properties.

A buffer of approximately 500 metres has been applied from the urban areas of Millom and Haverigg. Kirksanton has also not been included in the Surface Area of Focus. Other considerations mean that HMP Haverigg, Kirksanton Moss Nature Reserve and the Duddon Estuary Site of Special Scientific Interest are not included within the Area of Focus.

connection tunnels could be constructed joining the Sub-surface Area of Focus to the Surface Area of Focus. This is significantly wider than will be required to allow for flexibility; it is currently estimated the final accessway will be between 250-500m wide.

For the onshore part of the accessway, we have sought to avoid passing directly beneath Haverigg and HMP Haverigg.

Accessway Area of Focus

Applying the Areas of Focus methodology, we have identified a potential accessway within which the

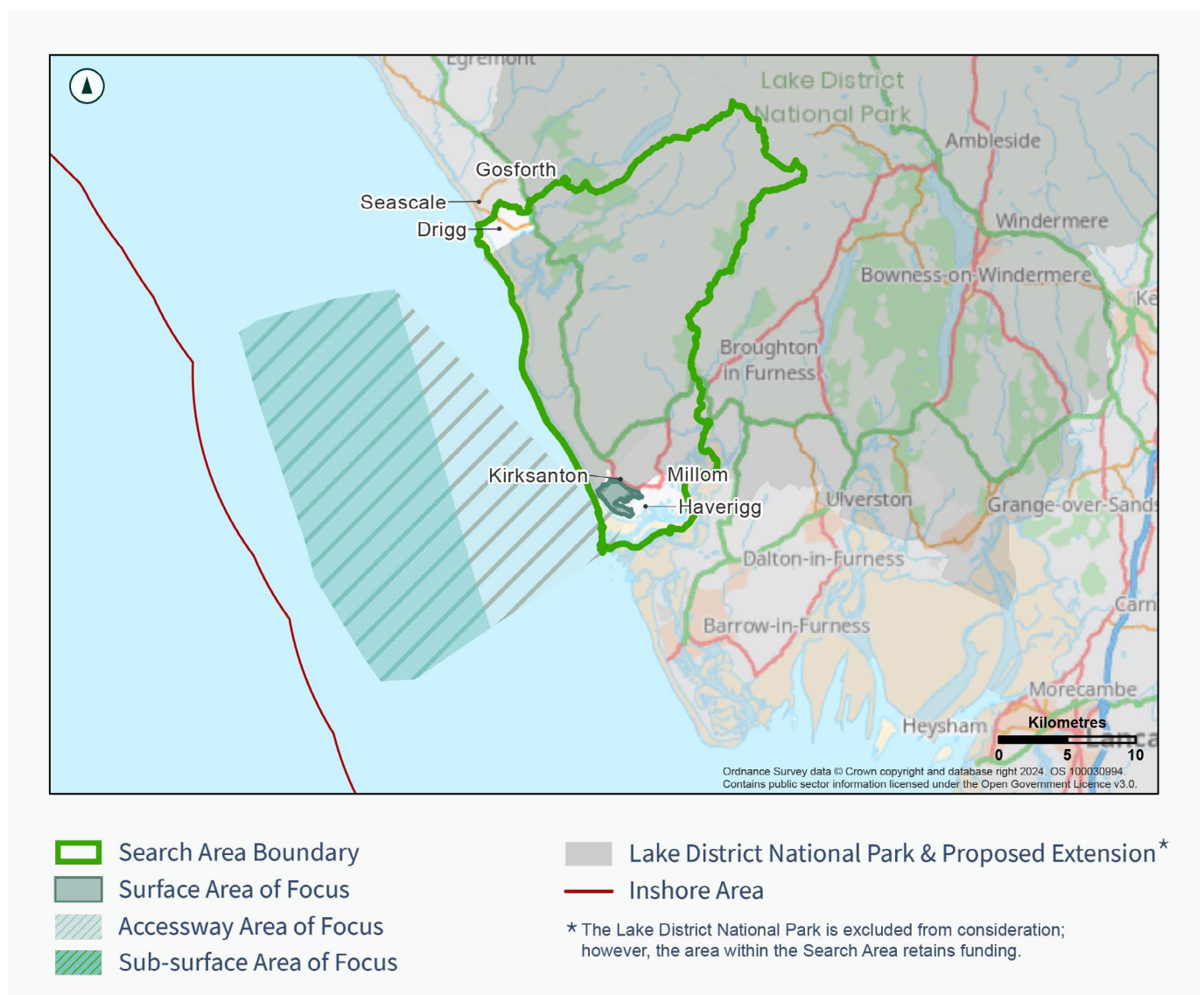


Figure 3: South Copeland – Accessway with Sub-surface and Surface Areas of Focus

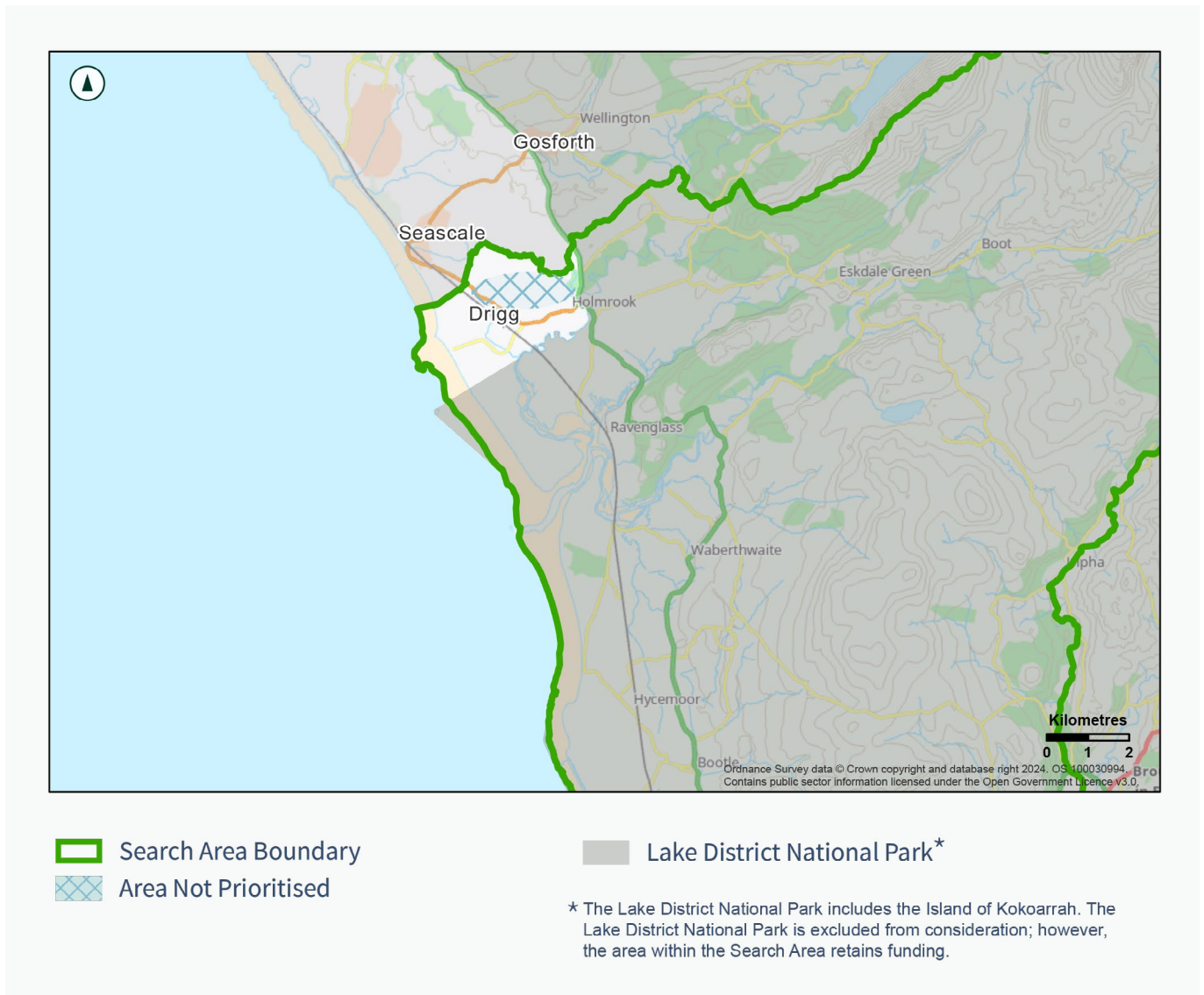


Figure 4: Other area considered but not prioritised

Other areas NWS considered in the Search Area

One other area was looked at; however, NWS is not prioritising it at this stage for the following reasons:

Land Northeast of LLW Repository

This area is approximately 3.5km² and is to the northeast of the LLW Repository site.

The LLW Repository is the only national repository of its type and its continued operation is fundamental to supporting the UK nuclear estate. NWS considers that an Area of Focus so close to the LLW Repository site could potentially impact ongoing operation of the site.

Community

South Copeland GDF Community Partnership

The Community Partnership was formed in December 2021. It is made up of members including a Chair, the local authority, NWS, and community members.

The Community Partnership guides and supports the community through the GDF siting process by assisting with two-way communication between local people and NWS, delivering engagement activities and awarding Community Investment Funding via the Community Investment Panel.

Its role includes seeking out and sharing relevant information, discussing concerns and answering questions about the siting process and what hosting a GDF could mean for South Copeland.

In 2023-24, the Community Partnership attended over 60 engagement events and had over 900 conversations with local people.

Communications activities include providing newsletters and information leaflets to households, e-bulletins to subscribers, and sharing information on social media.

The role of the Community Partnership is to:

- facilitate discussion with the community;
- identify relevant information that people in the Search Area and Potential Host Community want or need about the siting process;
- be the key vehicle for community dialogue with NWS;
- review and refine the boundaries of the Search Area as NWS' investigations progress;
- identify priorities for Community Investment Funding;
- make recommendations to the relevant principal local authorities on the Community Partnership on whether to invoke the Right of Withdrawal and if and when to launch a Test of Public Support;
- agree a programme of activities to develop the community's understanding of the siting process and the potential implications of hosting a GDF;
- develop a Community Vision and consider the part a GDF may play in that Vision; and
- monitor public opinion in relation to siting a GDF within the Search Area and the Potential Host Community.

Community Investment Funding

The GDF Programme provides up to £1 million Community Investment Funding per year to the Community Partnership.

Since the Community Partnership formed, £3 million of funding has been awarded. This money is making a difference to local people, fuelling projects that provide economic opportunities and improve wellbeing, leaving a legacy for the community, regardless of whether the community eventually hosts a GDF.

Community Investment Funding can be used to pay for projects, schemes or initiatives that:

- improve community wellbeing, for example, improvements to community facilities, enhancement of the quality of life or health and wellbeing of the community;
- enhance the natural and built environment including cultural and natural heritage, especially where economic benefits, for example through tourism, can be demonstrated; or
- provide economic development opportunities, for example, employment opportunities, job creation, skills development, education or training, promotion of local enterprise, long-term economic development or economic diversification.



Community Vision

One of the Community Partnership's key roles is to work directly with local people to create a Community Vision. This means involving local people in discussions about how they would like their community to evolve and to consider the part that a GDF may play in that Vision becoming a reality.

There have been in-person Community Forums where people could share their hopes and aspirations for their community. There is also a questionnaire which can be completed. The Community Partnership engagement team have been sharing this at events, on the website, via the newsletter and on social media to get the views of as many people as possible. The Community Partnership intends to set up a focus group of local people to review the Vision as it develops.

What is the Timescale for the GDF Programme?

Timescales and Next Steps

This is an overview of the GDF programme, with a focus on activities over the next few years to deliver deep borehole investigations – also called “Site Characterisation”.

Site Characterisation

We anticipate that the majority of new sub-surface information from techniques such as seismic surveys, shallow and deep boreholes, down-hole testing and sampling etc., will be generated during the Site Characterisation work that we will undertake.

Site Characterisation is a critical step for the GDF programme because the information obtained from the deep borehole drilling work will enable NWS to further design and develop the necessary safety cases for a GDF in that location.

What is a Development Consent Order?

Within the GDF programme, the drilling of deep boreholes, and any subsequent development of the GDF itself, are separate Nationally Significant Infrastructure Projects. Each requires a separate Development Consent Order (DCO), as well as environmental permits.

A DCO is the planning consent required to progress developments categorised as Nationally Significant Infrastructure Projects, defined in the Planning Act 2008. DCOs are examined by the Planning Inspectorate and granted by the Secretary of State.

Environmental permits establish conditions which projects must meet in order to protect people and the environment. Permits are granted and regulated by the Environment Agency in England.

For the GDF itself, we will also require a nuclear site licence. The regulatory powers which come with the nuclear site licence ensure the safe construction, commissioning, operation and eventual decommissioning of a nuclear site. It is granted by the Office for Nuclear Regulation. No nuclear site licence is required for the deep boreholes.

NWS has started preparatory work on DCO applications for the drilling of deep boreholes in the areas engaged in the siting process, although the decision on which areas to take forward will be subject to approval by the Secretary of State.

NWS will engage and consult widely on the evolving information which will support its DCO applications. Even once a DCO application has been submitted, there are multiple opportunities for the public to continue to participate in the process – both in writing and also in person at hearings. It's important that everyone involved and interested is able to see the information on NWS' proposals, ask questions and have an opportunity to have their say during development of the proposals.

In parallel to preparing and submitting its DCO applications, NWS will work with the Environment Agency to prepare and submit its application for the environmental permit which is also required before the drilling of deep boreholes can begin. The Environment Agency will consult with the public on applications for environmental permits.

Only once NWS has all the necessary consents can Site Characterisation work begin. The Site Characterisation stage is a long period of time, and it may result in NWS finding reasons why an area is not suitable and withdrawing from that community.

After the Site Characterisation work is completed, NWS will move to the next major phase of selecting a site and seeking approvals for the GDF itself. Before NWS can seek the regulatory approvals required for the GDF (including a new DCO and environmental permit, as well as a nuclear site licence), there must first have been a positive Test of Public Support in the relevant community.

The current planning assumption is that a GDF will be available for intermediate level waste emplacement in the 2050s and high-level waste and spent fuel from 2075. Construction, operation and closure of a GDF is expected to take around 150 years and will run into the next century.

Site Suitability Phase:

Evaluating the suitability of an area to safely host a GDF

Desk-based studies, ground surveys, environmental assessment, consultation and engagement leading to DCO and Environmental Permit applications for borehole and other investigations that we need to develop our GDF design and safety case.

Approximately 10yrs of Site Characterisation works to enable development of our safety case and a potential GDF design.

It is possible that during this phase we could find reasons why an area wouldn't work and take it out of the process.

GDF Development Phase

If an area is considered suitable to safely host a GDF, we would progress our design proposals for the surface facilities, accessways and a disposal area within the Area of Focus.

Development of the GDF design would include desk-based studies, ground surveys, environmental assessment, consultation and engagement to DCO, Environmental Permit and Nuclear Site Licence applications.

WORKING GROUPS/
COMMUNITY PARTNERSHIPS

→ Identification of Search Area

SITE EVALUATION

→ **2025**
Area(s) of Focus identified

→ **~ 2026**
Government approval to proceed to deep borehole investigations

SITE CHARACTERISATION

→ **~ 2030**
All permissions in place from regulators to begin Site Characterisation

DESIGN

→ **~ late 2030s**
NWS decision submitted to Government on GDF location following Test of Public Support

Site selected

CONSTRUCTION

→ **~ early 2040s**
All consents in place from Government and regulators to enable construction to start

OPERATION

→ **~ 2050s**
First waste packages arrive at a GDF

CLOSURE

~ Indicative dates, subject to change

What happens next?

(The following dates are indicative and subject to change).

Ongoing

Ongoing assessment of Area of Focus – there will be a range of desktop studies and on-the-ground surveys, as well as engagement with landowners, to collectively ensure we fully understand the potential of an area to host a GDF.

December 2025 - Spring 2026

We expect to submit a decision on the communities to take forward in the process to deep boreholes to enable more detailed investigations to DESNZ in December 2025, to enable Secretary of State approval, which is expected in spring 2026.

Autumn/Winter 2028

Where relevant, we expect to move from multiple Areas of Focus (for example, where we may be looking at two separate potential surface areas) in a community to identification of a single Area of Focus. This decision is expected to be taken in accordance with our Decision-Making Framework process – date autumn/winter 2028.

Spring 2025 - Spring 2028

Preparation of consents to enable the delivery of Site Characterisation – while the exact location of the Site Characterisation works is not yet known, they will be both inshore (within territorial waters) and onshore (on land). It will take a number of years to prepare the applications to obtain the various consents; we will be publishing more information including opportunities for public engagement next year on this programme of activity – date spring 2025 – spring 2028.

Spring/Summer 2028

Current estimated date for submission of consents for Site Characterisation – once we have prepared the applications, they are submitted for approval to regulators – date spring/summer 2028.

2030

Current estimate for commencement of Site Characterisation – assuming the required consents are granted, this is when we would commence characterisation activities, both at sea and on land, to supplement our understanding of an area's potential to host a GDF – date 2030.



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