ABERDEEN ENERGY TRANSITION ZONE FEASIBILITY STUDY

REPORT

February 2020

BARTON WILLMORE INVEST ABERDEEN ONE OPPORTUNITY NORTH EAST

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Executive Summary

With changes in the oil and gas sectors in recent years, the industry has evolved to consider the potential for new sustainable and low/zero carbon energy resources. Experts are suggesting that Aberdeen is ideally placed to capitalise on new energy transition opportunities in safeguarding the region's economic future. Grasping the emerging opportunity is critical to ensure that Aberdeen does not lose its competitive advantage against other competing cities around the North Sea.

With changes in the oil and gas sectors in recent years, the industry has evolved to consider the potential for new sustainable and low/zero carbon energy resources. Experts are suggesting that Aberdeen is ideally placed to capitalise on this new energy transition opportunities and help safeguard the region's economic future. Grasping the emerging opportunity is critical to ensure that Aberdeen does not lose its competitive advantage against other competing cities around the North Sea.

Energy transition refers to the global energy sector's shift from fossil-based systems of energy production and consumption — including oil, natural gas and coal — to renewable energy sources like wind and solar. 'Energy Transition Zone' ('ETZ') is not a universal term, however, in the context of this report it is a vehicle to promote a particular City to end users who specialise in this market and to prepare the necessary sites and infrastructure required to support that development.

Aberdeen City Council, Invest Aberdeen and Opportunity North East ('the client team') commissioned Barton Willmore to prepare a Feasibility Report to review the potential to accommodate a major international energy transition zone within an area of search around St Fitticks, land south of Torry, Altens, East Tullos, the Bay of Nigg and land around Aberdeen South Harbour (the study area). This report will form an important tool in identifying potential sites to accommodate this exemplar energy transition zone subject to further work in relation to planning and the corresponding business case.

As a general process, Energy Transition is (of course) ongoing around the world but in the same way that they responded to the demands of the Oil and Gas industry through the 70's and 80's, port cities around the North Sea, have recognised the commercial opportunities that energy transition will bring. In particular, in offshore renewables and subsea engineering - an area of strength in Aberdeen's supply chain.

Much of the activity is centred around existing Oil and Gas ports, as the rise on offshore wind and the need to land significant kit for offshore manufacture and assembly means that efficient marine access is intrinsically involved in energy transition. Common themes include a requirement for relatively large areas of flexible quayside space, new (often reclaimed) land accommodate this growth and good road, rail and freight transport connections are key.

Given the planning focus of this document, it is important to recognise that energy transition takes many forms. Renewable power generation (ongoing in this locale), staging area for large scale wind and manufacturing of offshore wind facilities all have very different land requirements. For the latter (and as emphasised through the stakeholder and technical workshops) proximity, and level access to the port are common features.

Aberdeen is ideally placed, geographically, to lead on the Crown Estates Scotland's next Offshore wind leasing round for the benefit of energy transition within the City Region and beyond. The City has embraced the environmental agenda and given its track record in Oil and Gas would be a hugely important exemplar in leading this worldwide process. Practically, Aberdeen is a good choice for business wishing to invest in offshore wind and other renewables. Geography aside, people in and around Aberdeen possess skills that are immediately transferable to this sector; the broader supply chain is comparable to the existing Oil and Gas supply chain; and the infrastructure (including the new South Harbour) exists.

The City does, however, need land that can accommodate these uses and / or investment in existing industrial land that can support this transition. A recent review by the Offshore Wind Industry Council (p19) suggests that anywhere between 12 hectares ('Ha') for staging and upwards of 28 Ha of land, if manufacturing facilities were desired, may be

required. This report seeks to identify some 30Ha of new net development land.

Even though the economic position is currently challenging and the Oil and Gas market has fluctuated over recent years, the Aberdeen economy is resilient. Over recent years the Aberdeen Economy has continued to have a disproportionate positive contribution to the UK and Scottish economies and their export base. The creation of the new harbour will bring additional activity and oil and gas will also remain key aspects of the regional economy. Usefully, the current Local Development Plan 2022 ('LDP') review presents an opportunity to consider the outcome of this report and act upon the recommendation of the adopted Supplementary Guidance document 'The Bay of Nigg Development Framework' ('BNDF)', which requires 'consideration of additional land through LDP Review'.

This Study considered many of the same sites that were in the BNDF however it took a fresh look at them specifically in relation to furthering opportunities in energy transition and armed with new information on the scale of land required, the importance of proximity to the port and the need for flexible quayside space and ideally level access. Like the BNDF process, stakeholder and technical engagement was also invaluable. However, this time the reality of the new harbour had sharpened contributors' minds in terms of what is required to attract those new investors.

That said, there was a recognition that pursuing an entirely commercial approach was not possible given the broader needs of people in Aberdeen. Therefore, different scenarios were considered against the requirement for 30Ha net of new development land. These were then tested against the emerging needs from the research and the technical workshops namely proximity to the Harbour (for a core area at least) and enabling level access where possible.

A three-stage strategy emerged;

- Firstly, to include the majority of the category one sites that surround the Harbour; and, to allocate this and additional land to the East of the road shown in the BNDF through St Fitticks Park specifically for energy transition uses (i.e. ETZ Core) within the emerging LDP 2022. And to identify or safeguard the requirement for a rail reservation either through the ETZ Core / or along the existing line itself within the emerging LDP 2022.
- Secondly, to emphasise the importance of East Tullos in the creation of the ETZ and specifically its potential to form part of this initial ETZ Core. That may include giving the norther part of East Tullos a specific ETZ zoning within the emerging LDP. The nature of the link between East Tullos and St Fitticks is key to ensure that East Tullos' obvious proximity can be of benefit to the areas regeneration; that link must enable the easiest and most level access possible.
- Thirdly to identify further sites in the emerging LDP 2022 as important ETZ-related development sites within the future. Further investigation is required into mechanisms which will encourage Tier 1, Tier 2 and supply chain companies (including Research & Development and innovation) and those industries pursuing Energy Transition opportunities to locate in these sites.
- Following its completion, this feasibility report will be submitted to ACC's Planning Service to advocate potential amendments (i.e. ETZ allocations) within Aberdeen's emerging LDP 2022. This would seek to ensure that the delivery of the energy transition zone is supported in planning terms and allocated within the LDP 2022. The central purpose of this document is therefore to inform and influence the emerging LDP 2022. Further studies on a range of subjects are either underway or will be commissioned.

There are also numerous local communities close to the Study Area, including Torry, Nigg, Kincorth and Loirston. The ETZ business case will include a skills plan to enable the ETZ to create training and job opportunities that are aligned to the needs of local people.

Moreover, it will be important that these communities are consulted as part of the LDP process. They should be actively involved in shaping strategic ambitions within the study area and beyond in the same way as they were through the preparation of the Bay of Nigg Development Framework.

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"The path to a low carbon economy offers the opportunity to support diversification of the economy, the reallocation of skills and the potential to attract new technology and innovation to the city".

Jean Morrison MBE
- Aberdeen Renewables Energy Group (AREG)

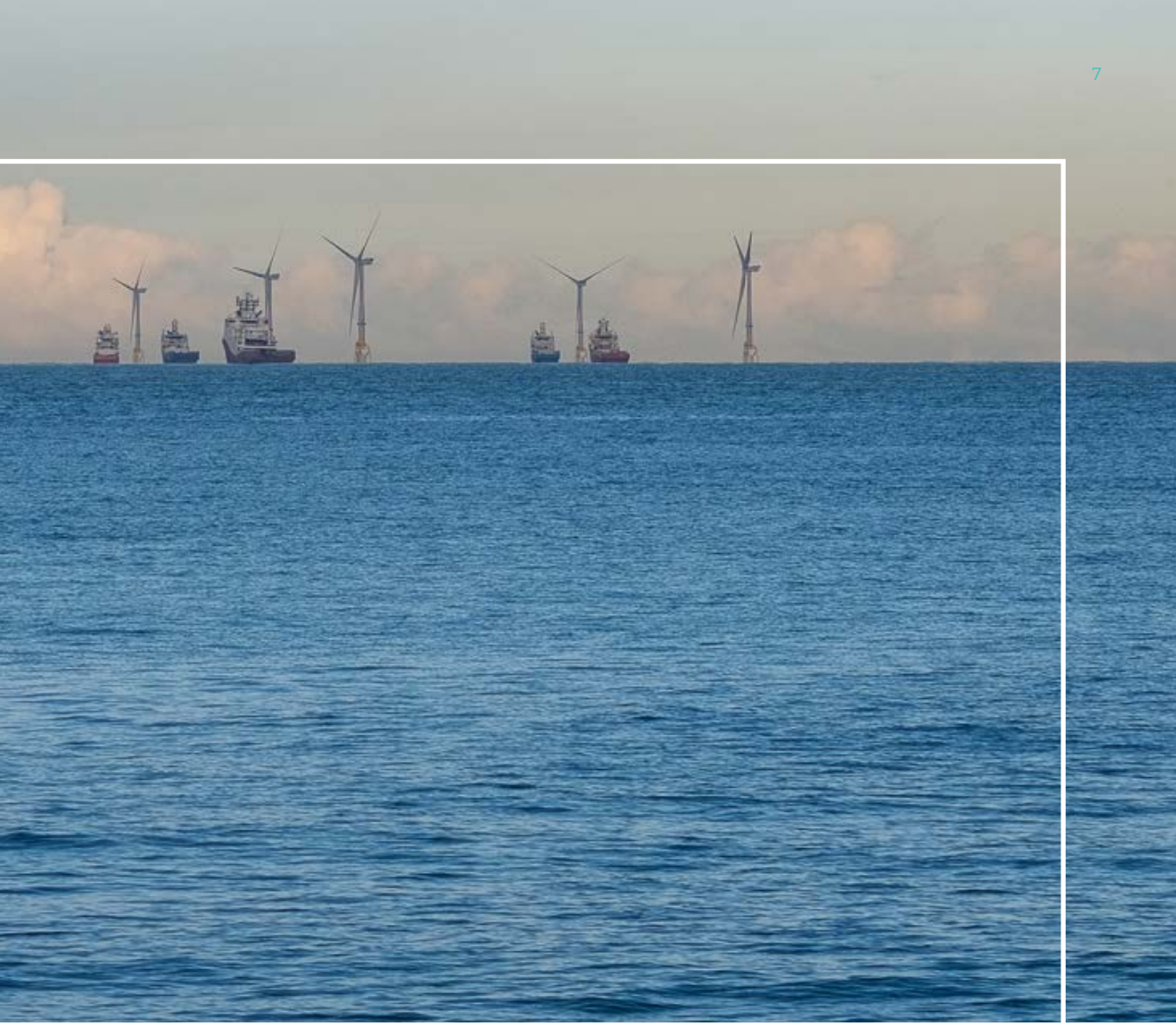
Energy Transition

National Policy Agenda

1.1 Investment in low carbon and renewable energy resources has been advocated by Scottish Government policy which promotes climate change ambitions and energy transition away from carbon-based energy resources.

1.2 Initial legislation promoting this strategy was created by the Climate Change Act (Scotland) 2009 – which introduced a duty on Ministers to outline a programme for climate change adaption and to set ambitions to deliver wider carbon reduction targets. This initially set targets to reduce greenhouse gas emissions by 80% by 2050. Critically, part of these targets included a requirement that 50% of Scotland's overall energy consumption will be from renewable sources by 2030 and that the energy system within Scotland will be almost completely 'decarbonised' by 2050.

1.3 To deliver such strategies, public investment in renewables projects followed with various funding streams including the energy investment fund (i.e. >£20M to deliver low carbon energy infrastructure), subsidies to encourage local carbon infrastructure transition and funding for low-carbon transport.



1.4 In addition to the primary legislation above, the Scottish Government introduced a Climate Change Plan which outlined how Scotland will move towards a low carbon economy to deliver sustainable economic growth and to create a cleaner, greener and healthier Scotland by 2032.

1.5 To deliver such aspirations the Climate Change (Scotland) Bill 2018 was enacted which set a target date for Scotland to reach net-zero emissions by 2045. It also increased targets for a reduction in carbon emissions to 70% by 2030 and 90% by 2040. As such, this affords Scotland some of the most rigorous statutory targets in the world to achieve net-zero emissions within this period.

1.6 At the national level, this is supported by the National Infrastructure Renewables Plan (N-RIP) which seeks to support the development of a globally competitive offshore renewables industry based in Scotland alongside infrastructure priorities up to 2040. Support for offshore wind infrastructure is specifically identified at Aberdeen Harbour for landward based support for offshore wind 'distributed manufacture' and 'operational maintenance' projects. Moreover, the Infrastructure Commission was recently set up to advise on a new infrastructure investment plan and to identify strategic land areas to significantly boost economic development and support Scotland's low carbon objectives.

1.7 More recently, in January 2020, the Infrastructure Commission published their Phase 1 Key Findings Report. This report included eight recommendations including one to reach net zero carbon over the next 30 years and to accelerate the decarbonisation of heat and transport.

1.. Where is Energy Transition Taking Place?

1.8 Energy transition zones are largely undefined as a definition within Scotland, the UK and Europe.

1.9 There are examples where areas have been created to encourage low carbon energy development, production and/or distribution but these have not been formally defined as energy transition zones. These areas comprise a shared set of values that promote climate change principles and low carbon energy resources. However, the majority of these areas usually relate to one specific low carbon industry rather than all potential industries within the energy transition sector.

1.10 While energy transition as a general term is underway across much of the industrialised world significant activity is focused around ports and harbours. We know for example that much of the wind renewables activity is focused offshore as turbines become ever larger. Investment is also increasing in tidal energy.

1.11 The following provides a review of existing ports and harbours that are undertaking significant investment to land and port infrastructure to accommodate energy transition related uses.

Torshavn

North Sea Examples

Port of Gothenburg

- Expansion of c.200K sqm (20ha land) proposed to create a new port terminal, additional quays and laydown areas;
- Land reclamation is critical for Gothenburg to achieve these figures; and
- The port already has direct connection to rail & road links to connect the port to industries/customers etc.

Port of Rotterdam

- Expansion proposed to increase Rotterdam's cargo capacity to be one of Europe's largest ports;
- This includes extensive land reclamation;
- The proximity of industrial uses adjacent to port operations is key to the port's success; and
- It already has direct connection to both rail & road links.

Port of Torshavn, Faroes

- A new terminal c. 900m+ quayside and c.100m2 (10 ha) of land to accommodate harbour operations; and
- This is set against the scarcity of land adjacent to the port and therefore reclamation is proposed.

Esbjerg, Denmark

- Extensive land areas to accommodate offshore wind manufacture (multiple industries), laydown areas and storage of extremely large components.
- Increased innovation and state of the art operational technology (i.e. automated artificial intelligence systems) that allow for increased efficiencies in manufacturing production and distribution.
- Excellent connectivity to strategic area with various rail links and multiple rail terminals within the port.
- A 40,000m2 terminal expansion is also currently underway.


Oslo
Bergen
Stavanger
Gothenburg
Esbjerg
Amsterdam
Rotterdam

Lerwick

Tain

Peterhead

Montrose

Dundee

Leith

Blyth

Belfast

Hull

Felixstowe

UK Port Examples

Port of Nigg, Tain - Energy Park

- A new 250m long East Quay is proposed alongside >11ha of adjacent laydown areas to specifically accommodate offshore renewables projects.

Port of Blyth

- This harbour is directly adjacent to an existing rail terminal; and
- It also includes over 35ha of development land (i.e. Enterprise Zone etc) directly adjacent to quays and port-related land.

Belfast Harbour

- Belfast Harbour has extensive land & strategic development sites (40+ha);
- Adjacent energy related supply chain accommodate efficient movement of components and services to/from the harbour. Belfast Airport lies on land to the west of the port, allowing for efficient transport of staff/parts; and
- Belfast port contains a research and development / university hub area – enhancing its offer within this area.

Dundee

- New £10M quayside (300m) allows for total quay length of 1,600m with 6 working berths to increase capacity for decommissioning and off-shore wind. Additional cranage capacity of 1500t (860t@24m) is also provided.

Peterhead

- New reclamation project to accommodate 3ha of operational land, beyond the existing 8 ha.
- This accommodates a total of 14 berths and supports enhanced laydown/storage and decommissioning uses.

Hull

- Beyond the multi-million pound container facility, the Port of Hull contains over 23,000m2 covered storage buildings and over 65 hectares of open storage/laydown areas.
- This is combined with a total quayside length of approx. 13,000 to accommodate a variety of end user requirements.

- Expansion plans to accommodate one million m2 (100ha of operational land) and 1 km of additional quay length (2022 to 2030) which includes extensive reclamation.

3. What can we take from other examples?

1.12 There are number of common attributes within the above examples that have encouraged and that enabled the delivery energy transition related uses within these areas. Therefore, likely requirements for energy transition zone within Aberdeen include:

1. Sufficient land at scale is required or must be able to be provided via dredging at the harbour to create sites that can accommodate 'land hungry' renewables operations - including staging areas with large components and manufacture.
2. Land needs to be directly adjacent to a harbour, with flat topography - to allow for as much land in one location that has direct, level access to a harbour. Such land is specifically required to accommodate offshore manufacture and assembly - considered to be critical to an energy transition zone within Aberdeen. At least 30ha + (net) of real world deliverable will be required if not more.
3. Direct connectivity to road and rail infrastructure is critical;
4. A host of secondary sites are required, closely connected by road and rail infrastructure.
5. Proximity to existing industrial areas, close to port operations, is important to accommodate potential supply chain activities and increase efficiencies in moving components/service
6. Involvement with universities and opportunities to explore world class research & development and innovation is also key;
7. Advances in technology to provide automated artificial intelligence management systems to increase operational effectiveness in port distribution activities is important.
8. Exploring opportunities to reuse energy via waste heat, energy recovery or energy storage will be important to facilitate more efficient energy systems.
9. Potential to introduce business rate relief and/or tax incentives - perhaps through an enterprise zone (or masterplan consent area) to stimulate activity.
10. Agreement of a shared set of values to deliver low and zero carbon energy outcomes.

4. Utilising Aberdeen's Assets

1.13 Aberdeen is Europe's Energy capital, serving not only the UK Continental Shelf (UKCS) but providing products and expertise to a global energy industry from West Africa to the Gulf of Mexico.

1.14 Aberdeen is therefore best placed to delivery an energy transition zone for the following reasons:

- The construction of Aberdeen South Harbour creates a purpose built state of the art 24-hour operational facility with extensive deep water, large areas of quayside and laydown/storage space. It will provide a unique marine capability and with extensive berthing facilities to accommodate increased demand and will comfortably facilitate the renewable energy sector's distribution requirements.
- It has excellent transportation links with other locations to accommodate transfer of components but also people.
- City-Deal funding is already in place to finance improved road infrastructure and access to South Harbour. It also lies on Scotland's East Coast mainline railway line with scope to consider increased rail connectivity to South Harbour via a separate rail link/spur.
- It has an extensive Oil and Gas supply chain with industrial capabilities on its doorstep. Also, existing businesses are already involved in the renewables and offshore wind sector. 51,000 of Scotland's

energy jobs (including renewables) are in the City Region.

- It already has a thriving innovation and Research & Development sector with world class universities that can advance technological change in energy production/transition .
- It has the skills and the workforce to accommodate such change and the City could populate new roles within this new low carbon agenda as somewhere that employees could be based comfortably.
- Rather uniquely, it has available land around South Harbour to accommodate such expansion, avoiding the need for dredging or land reclamation as seen within other port examples discussed above. The ability to utilise this land is one of its most critical benefits.

What energy related uses are present or programmed within next 10 years?

1.15 In addition to the above characteristics, the following tables provide a review of the energy related uses that are either present, proposed or could be anticipated within the study area. This identified that such uses can be accommodated and that the study areas is ready to be transformed should existing, pipeline and aspirational energy-transition related uses come forward within an energy transition zone.

1. Energy Generation & Energy Reuse		
Existing Energy Transition Uses/ Priorities	Programmed Energy Transition Uses/Priorities	Potential Energy Transition Opportunities
Existing Materials Recycling Plant - North Altens	Approved Energy from Waste (EfW) Facility - East Tullos	Offshore renewables manufacture and assembly (including extensive laydown & storage areas) - directly adjacent to the harbour
Aches hydrogen production and refueling station		Potential harbour-related Energy Recovery Centre
Onshore wind turbines associated with businesses (Altens)		Combined Heat and Power (CHP) production
		Sites to facilitating decarbonisation of the supply chain
		Energy Pipelines - to provide energy connection to other areas - connecting South Harbour to energy related infrastructure
		Energy plant - close to major energy generators - i.e. heavy industry or South Harbour

2. Supply Chain Industries		
Existing Energy Transition Uses/ Priorities	Proposed Energy Transition Uses/ Priorities	Potential Energy Transition Opportunities
Existing supply chain industries already located adjacent to existing harbour, within East Tullos and within Altens industrial estates		Potential energy transition supply would e located within existing industrial estates - likely those industrial estates with the greatest connectivity to South Harbour

3. Energy Storage		
Existing Energy Transition Uses/ Priorities	Proposed Energy Transition Uses/ Priorities	Potential Energy Transition Opportunities
	Potential Solar Farm Opportunity (i.e. Opportunity Site OP 64) - Former Ness Landfill	Soil scrubbing to allow for energy storage within landfill cells etc
		Seasonal energy storage sheds adjacent to harbour
		Floating energy storage (i.e. gas on vessel/tanks etc)

4. Carbon Capture and Storage		
Existing Energy Transition Uses/ Priorities	Proposed Energy Transition Uses/ Priorities	Potential Energy Transition Opportunities
		Consider opportunities within study area to accommodate this process. Likely supply chain industries servicing this sector within former oil fields within North Sea
	Links to research and development aspirations and a proposed centre of excellence	Potential for research and development centre - within energy transition zone e.g. OGTC Developments and Net Zero Solutions Centre.

5. Hydrogen – Generation, distribution and reuse		
Existing Energy Transition Uses/ Priorities	Proposed Energy Transition Uses/ Priorities	Potential Energy Transition Opportunities
	Hydrogen Capacity Study commissioned by ACC, SE and ONE. Locations to increase hydrogen production / distribution are currently being investigated.	New potential Hydrogen production Plant – c.1ha site
		Potential hydrogen refueling station close to energy hubs

6. District Heating		
Existing Energy Transition Uses/ Priorities	Proposed Energy Transition Uses/ Priorities	Potential Energy Transition Opportunities
	District Heating proposed within Aberdeen by ACC's emerging LDP 2022. Includes land around existing infrastructure and industrial estates.	Potential inclusion of energy transition zone district heating system – connecting South Harbour to East Tullos and surrounding industrial estates. Potential to connect to heat sources (South Harbour, EfW at East Tullos and Materials Recycling Facility in Altens North).

7. Ship to Shore Energy Opportunities & Smart Ports		
Existing Energy Transition Uses/ Priorities	Proposed Energy Transition Uses/ Priorities	Potential Energy Transition Opportunities
		Creation of ship to shore energy from a shoreside energy hub to allow vessels to turn engines off
		Transport Scotland initiatives on hydrogen ferries (and trains)

Study Area


Aberdeen South Harbour
St Fitticks Park
Bay of Nigg
East Tullos
Coast Road
Altens
Wellington Road

Background

The Brief

2.1 To accommodate the delivery of an energy transition zone within Aberdeen, the client team has outlined various project outcomes summarised as follows:

Identification and review of one or a series of sites to accommodate real world deliverable land options for up to 30ha, suitable for energy-related development and capable of supporting an energy transition zone on land to the south of Torry, East Tullos, Altens the Bay of Nigg and Aberdeen South Harbour.

- The study will also consider the nature of growth across existing and new activity in energy transition projects including, but not confined to oil and gas, offshore and onshore renewables, carbon capture utilisation and storage and hydrogen;
- Outline how priority sites could be developed;
- Outline the risks and constraints in relation to bringing forward these sites;
- Identifying how the current and emerging planning policy context will impact future expansion and development of the aforementioned industries; and
- Provide suggestions on planning mechanisms to support an energy transition zone within Aberdeen within an expedient timescale to allow for feasible sites to be supported by the emerging LDP 2022 and any subsequent planning applications.

The 30 ha Land Requirement

2.2 The 30ha land requirement figure has been defined by the client team (within the project brief) as they are acutely aware that extensive areas of land will be required to accommodate the offshore renewables sector and other low carbon operations that require large areas for manufacturing and for the laydown/storage of extremely large components etc. It has been noted that this 30ha requirement could be located within one large site however, and more likely, it could also comprise a series of sites.

2.3 Additionally, the 30ha requirement has been informed by industry standard net operational land requirements for offshore renewables projects.

2.4 Specifically, the Strategic Review of UK East Coast Staging and Construction Facilities Report prepared by the Offshore Wind Industry Council outlined the following land requirements:

- A staging area of at least 12ha-20ha with direct, level access to a quayside - to accommodate an offshore renewables 'assembly only' facility.
- A minimum net land requirement of 20ha - to accommodate an offshore renewables staging/assembly and one renewable manufacturing plant,
- A net land area of 28ha-32ha - to accommodate offshore renewables assembly and manufacturing where two manufacturing industries are involved.

2.5 The 30ha net land requirement therefore seeks to best accommodate this requirement, provide for other potential sites that do not require proximity to the harbour and, critically, provides a resilience that enables Aberdeen to be best placed to accommodate the renewables manufacturing sector and other low-carbon and energy related industries.

Technical Requirements

2.6 This study will also review technical and end-user requirements to understand how future operators within an energy transition zone could be accommodated. This is explored in more detail within Sections 4 and 5.

Economic Background

2.7 Aberdeen's contribution to Scottish and UK economies has been impacted by fluctuating oil prices in recent years. The economic context within Aberdeen is summarised as follows (which reflects the latest position with the Aberdeen Economic Policy Panel Report 2019):

- Aberdeen needs to move further and faster to address the climate emergency and achieve net zero emissions targets.
- Geopolitical tensions and demanding emission reduction targets have resulted in economic uncertainty and challenging economic conditions for many cities.
- Despite this, there is a resilience within the City Region's economy and it continues to recover year on year with forecasts predicting moderate economic growth.
- This cautious optimism is echoed within other wider indicators which suggest that Gross Value Added (GVA) per head remains amongst the highest in the UK.
- With this in mind, the oil and gas sector – along with the supply chain that supports it – will continue make a significant economic contributions to the Aberdeen City Region. However, diversification within the energy sector and the overall City Region economy will be crucial to the City-Region's long-term success.
- Other infrastructure investments including the provision of the AWPR, digital infrastructure and South Harbour also have the potential to enhance connectivity to the City Region and broaden its appeal.
- This is set against an outflow of net migration, further exacerbated by the uncertainty of Brexit.
- Bold policy making based on deliverable outcome and securing local comparative advantage(s) is therefore crucial.
- The Aberdeen City Region Deal provides a mechanism to encourage such key economic priorities - with £250 million funding anticipated over the next 10 years. Around South Harbour there is also a commitment of £25 million to secure off-site road infrastructure improvements.

2.8 Therefore, it is clear that the construction of an energy transition zone within the study area could deliver many of these aspirations. Accordingly, there is funding, a supportive policy position and the delivery infrastructure required back the an energy transition zone within the short to medium term.

Transport

2.9 Various transportation studies have been prepared (or are being prepared) that will influence the delivery of an energy transition zone within the study area.

External Transport Links to Aberdeen South Harbour – Prepared by PBA on behalf of ACC

2.10 A separate transport appraisal is currently being prepared for ACC by Peter Brett Associates ('PBA') to examine and enhance transport connectivity to/from South Harbour. The report uses Scottish Transport Appraisal Guidance (STAG) to create a series of options to fully consider their ability to address project objectives. Specifically, to overcome a range of constraints relating to congestion on Hareness Road and Coast Road railway bridge and the disconnection of East Tullos to South Harbour. It also seeks to unlock opportunities to encourage aid the redevelopment of East Tullos and potential to safeguard and enhance rail freight.

2.11 Seven route options were considered,with four taken forward for further consideration. These include a potential route over St Fitticks Park to East Tullos (via a bridge/underpass). These options are being considered within the STAG 2 Appraisal which will assesses each route in more detail and present its findings within 2020. It is understood that funding has been secured via the Aberdeen City Region Deal, which could allow for construction of the preferred option as early as 2026.

STAG Road Option	Description
Route A2	Provide a new road connection from Greenwell Road / Greenbank Road via St Fitticks Community Park to Coast Road with a new underbridge under the railway line
Route A3	Provide a new road connection from Greenwell Road / Greenbank Road via the former Ness Landfill site and a new bridge over the railway
Route A4	Improve the existing route via Hareness Road through the provision of a new bridge over the railway on Coast Road and capacity improvements
Route A5	Provide a new road connection between Coast Road and Souter Head Road and a new bridge over the railway on Coast Road.
	Public Transport Options:
Option B1	Extend / enhance existing bus services between ASH and Aberdeen City Centre
Option B2	Provide a new bus service between ASH and Aberdeen City Centre for cruise tourists
	Active Travel Options:
Option C1	Enhance active travel routes between ASH and Aberdeen City Centre
Option C3	Provide a dedicated cycle route from Coast Road through Tullos Hill to the A956 and onward to the Deeside Way

FIGURE 1: ROAD OPTIONS RECOMMENDED TO BE TAKEN FORWARD FOR STAG 2 APPRAISAL

Wellington Road Study

2.12 A multi-modal corridor study of Wellington Road has also been undertaken by ACC's appointed consultants (AECOM) to prepare a STAG Part 1 appraisal that defines options for improving strategic transport connections and active travel along this route. It outlines various constraints including traffic congestion, right-turn impacts on through traffic and unfriendly walking/cycling environments. Based on the initial findings a shortlist of improvements has been identified including:

- Strategic Cycle Improvements;
- Shared Bus / HGV Priority Lane;
- Souterhead Roundabout Improvements + enhanced crossings;
- Hareness Roundabout Improvements + enhancements;
- Additional capacity between Souterhead and Hareness Roundabouts;
- Upgrade to dual carriageway at former HM Craiginches Prison Site;
- Wellington Road Bus Quality Package; and
- Wellington Road Corridor Right-turn / Traffic Signals Priorities Review Package.

2.13 Stage 2 is currently underway and will provide a detailed review of potential options, alongside implications of the AWPR, South Harbour and other key developments along Wellington Road. and identify a preferred or series of options to meet the study objectives.

Hydrogen

2.14 With respect to Hydrogen, ACC have appointed consultants to consider the projection of demand for hydrogen within Aberdeen and to explore opportunities to facilitate the delivery of a 'hydrogen hub' for production and storage. This study is currently underway. Initial discussions with ACC's consultants have outlined that opportunities for hydrogen production could be related to a single large-scale off-site hydrogen production facility, perhaps with a site area of up to 1ha. Alternatively, the strategy could include a series of smaller 0.1ha sites (located close to users i.e. within bus/rail interchanges etc). Further investigation is taking place to consider which option could be taken forward. Either way, it has been highlighted that Aberdeen needs to cater for potential hydrogen use within rolling stock by enhancing the hydrogen bus fleet and via other industries, perhaps even fueling ferries. Therefore, opportunities to accommodate the growth of the hydrogen sectors within an energy transition zone could be extremely important.

Land Availability and Land Turnover

2.15 ACC's Employment Land Audit 2018 outlines that in recent years Altens and East Tullos industrial estates have experienced extremely low turn over of industrial floorspace/land at 0% - 2.7% per year. This is compounded by the limited availability of unconstrained large scale 'occupy-ready' industrial units/sites and dilution with non-industrial uses (i.e. car showrooms etc). Much of the land within Altens has been subdivided into private ownership that could prevent its delivery whilst selected vacant plots are restricted by highways and accessibility constraints. In contrast, much of the land within East Tullos is under leases that are controlled by ACC on behalf of the Common Good Fund, which could potentially impact their delivery.

Planning Policy Position

2.16 The Development Plan for Aberdeen comprises:

- Aberdeen City and Shire Strategic Development Plan 2014 ('SDP'); and
- The adopted ACC Local Development Plan 2017 ('LDP').

2.17 The LDP 2017 sets ACC's statutory land use policy for Aberdeen. There are various policy objectives within the study area including:

- a) Aberdeen South Harbour: Covered by LDP Policy B5 - Aberdeen Harbour. This includes all operational land at North Harbour and South Harbour - which includes a presumption in favour of harbour infrastructure and ancillary uses that are required for the effective and efficient operation of the harbour and are functional requirements to this use.
- b) Altens and East Tullos: LDP Policy B1 - Business and industrial land. This provides support for business industrial and employment land within the City.
- c) Land around South harbour – LDP Policy NE2 Green Belt and LDP Policy NE1 Green Space Network. These policies seek to preserve the natural setting of the green belt and the continuity, character and function of the green space network.
- d) Opportunity Site 'OP 62 Nigg Bay' - The wider South Harbour area is identified as an Opportunity Site (Ref: OP62 - Nigg Bay) within the LDP stretching across a 55ha area that includes the South Harbour and the approved temporary construction areas. This provides strong policy support for port-related expansion within this area, subject to meeting various policy requirements.
- e) Opportunity Site 'OP 64 Solar Farm' - This Opportunity Site seeks to encourage a solar farm within a 20ha parcel of land within the Former Ness Landfill .

2.18 At the regional level, in principle support is also provided for new associated development around South Harbour within the adopted Aberdeen City and Shire Strategic Development Plan ('SDP') as follows:

- a) Strategic Growth Area - Aberdeen City is identified as a strategic growth area and the City Centre is identified for strategic regeneration.
- b) Aberdeen Harbour - The SDP then identifies 'Aberdeen Harbour' - relating to North Harbour as this was the sole harbour at the time the Strategic Development Plan was prepared - as a 'vital gateway for the regional economy' and as a 'key port' within Scotland.
- c) Key Port - Critically, the SDP identifies the harbour (i.e. North Harbour) as a 'Key Port in the National Renewables Infrastructure Plan' suggesting that growth aspirations for the existing harbour (i.e. North Harbour) should be accommodated. This effectively encourages the harbour expansion beyond North Harbour in line with Aberdeen Harbour Board's Case for Growth document which, in turn, supported the approval and subsequent construction of South Harbour at the Bay of Nigg.

2.19 At the national level, support for the expansion around South Harbour (nominated as Aberdeen Harbour Expansion Project at the time) is identified within the Scottish Government's National Planning Framework 3 ('NPF3')- which represents the top tier of Scotland's Planning Hierarchy. This national 'designation' provides national support for South Harbour establishing its need at the Bay of Nigg but also setting a baseline from which options for wider economic growth can stem.

Policy implications to support the delivery of an energy transition zone

Implications

2.20 Accordingly, the following summarises the potential implications that the current policy position has on the development of an energy transition zone around the Bay of Nigg.

2.21 It is anticipated that the current policy position, is supportive of redevelopment opportunities, but that the provision of an energy transition zone is somewhat more complex than the policy remit contained within the adopted LDP 2017. Whilst some sites are identified for future development within the study area, a requirement for an additional 30ha is larger than previously envisaged.

1) LDP Policy B5 Aberdeen harbour:

- Policy support is afforded by the above policy which outlines a presumption in favour of harbour infrastructure and ancillary uses. This policy designation largely covers land associated with the South Harbour footprint and some of the temporary construction areas.
- Within this allocation, the largest potential site that could be developed is at Gregness - where harbour related development could be developed. However, stand alone energy related developments (not related to the harbour) may not fall within the 'acceptable' development types covered by this existing policy. Other areas covered by this policy are also relatively constrained in terms of their size, and location (on the eastern side of Coast Road).

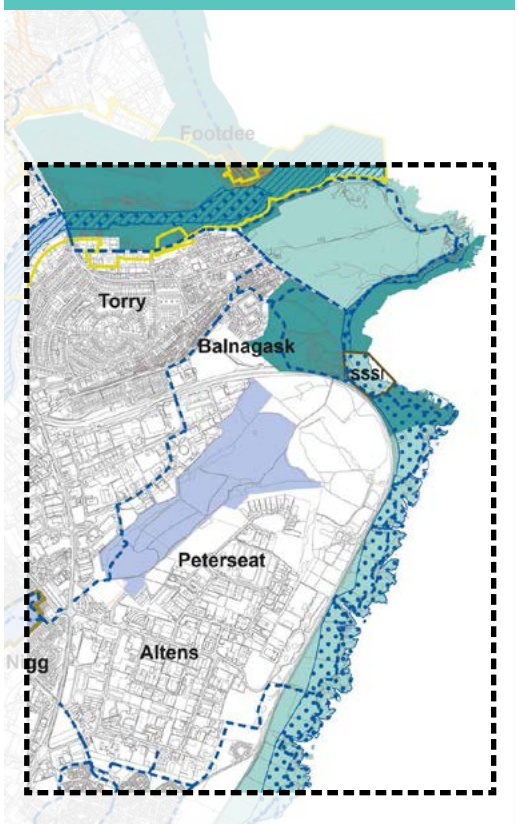
2) LDP Opportunity Site (Reference: Site OP 62):

- LDP Opportunity Site (Reference: Site OP 62) covers the wider South Harbour location. There is no specific policy requirement for such sites but the LDP suggests their allocation will 'give further detail and particulars of each site and their capabilities'.
- OP 62 suggests that there is an opportunity within the larger 55ha area to provide for Aberdeen Harbour expansion – which provided support for

FIGURE 2: NPF3 EXTRACT - ABERDEEN HARBOUR

13. NPF3: Statement of Need and Description - Aberdeen Harbour
1. Location: Nigg Bay
2. Description of Classes of Development at the location for: a) the construction of new and /or replacement harbour facilities where the resultant buildings or structure is or exceeds 10,000 square metres, or the area of the development is or exceeds 2 hectares. b) the construction of new and / or replacement road infrastructure from existing networks. c) the provision of water supply and related infrastructure directly for new habour facilities

FIGURE 3: EXTRACT FROM LDP CONSTRAINTS MAP



Natural Environment
Local Nature Conservation Sites
Site of Special Scientific Interest (SSSI) Local Nature Reserve (LNR)
River Dee Special Area of Conservation
Undeveloped Coastal Management Area
Developed Coastal Management Area

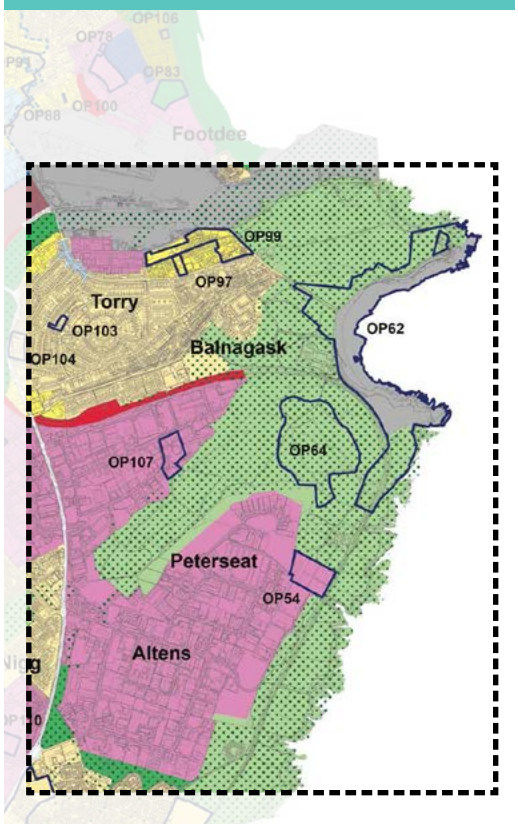
Economic Development
Pipelines
Pipeline Notification Areas : Outer zone
: Mid zone
: Inner zone

Transport
Aberdeen Western Peripheral Route
AWPR - Compulsory Purchase Area
Harbour Port Boundary

Heritage
Conservation Areas
Proposed changes to Old Aberdeen CA

Others
Core Paths
Aspirational Core Paths
City Boundary

FIGURE 4: EXTRACT FROM LDP PROPOSALS MAP



Natural Environment
Green Belt (NE2)
Green Space Network (NE1)
Urban Green Space (NE3)

Housing
Residential Areas (H1)
Mixed Use Areas (H2)
Land Release Policy (LR1)

Community Facilities
Existing Community Sites and Facilities (CF1)
New Community Facilities (CF2)

Economic Development
Business and Industrial Land (B1)
Specialist Employment Areas (B2)
West End Office Area (B3)
Aberdeen Airport (B4)
Aberdeen Harbour (B5)

Transport
Land for Transport (T1)
Aberdeen Western Peripheral Route
Aberdeen Airport Public Safety Zone

Others
Opportunity Sites (OP number)
City Centre Boundary (NC1)
City Boundary

harbour related development within the wider opportunity site area. However, this area covers land associated with the development of South Harbour (already committed) and other constrained sites (including both headlands and land to the east of Coast Road). Moreover, this policy does not cover energy transition uses specifically nor does it provide the land areas required to accommodate such uses. Therefore, this Opportunity Site allocation would not be sufficient in delivering the ambitions of this project.

3) Green Belt Exceptions

- There are restrictive LDP policy objectives around South Harbour zoned as Green Space Network and Green Belt. These policies seek to prevent development that impacts or erodes the green network or development that is not compatible with the natural setting of the Green Belt.
- Despite this, exceptions provide support for 'essential infrastructure' as long as the coherence and continuity of the green space network is retained.
- One exception includes transport proposals identified within the LDP (if they cannot be accommodated anywhere other than the Green Belt). This exemption was one of the primary reasons why the development of South Harbour was supported and why the link road option through St Fitticks Park has been considered.
- Therefore, support for the expansion around South Harbour for harbour-related infrastructure and/or uses required for the effective operation of the harbour could comply with exceptions criteria for both LDP policies above.
- However, non-harbour related developments associated with an energy transition zone are unlikely to fall within such exemptions. They are therefore likely to be deemed contrary these policies and perhaps even significantly contrary to the LDP. In such circumstances, and without a change in policy position, material considerations outweighing the Development Plan would need to be relied upon to justify support.

Conclusion

2.22 The following summarises the background review:

- The Aberdeen economy is resilient and ready to capitalise on future economic growth opportunities. Diversification of the energy sector - and therefore support for energy transition - will be critical to delivering such growth.
- The study area is already in the process of extensive physical change predicted in the Bay of Nigg Development Framework ('BNDF'). ACC foresaw the challenges that this would bring and proposed extremely useful guidance to deliver such transformation.
- There is commitment to deliver a link road between East Tullos and South Harbour and a series of policy objectives that support change in this area.
- With the imminent opening of South Harbour and support for the delivery of energy transition zone, the nature of South Aberdeen will be radically transformed. The BNDF allowed some transformation. However, the restrictive (Green Belt and Green Network) policy position would need to be updated to support such uses and to accelerate the delivery of energy transition uses within the City.
- Accordingly, the anticipated activity around energy transition creates a unique inward investment opportunity to influence the future role of this area. The timing of the emerging LDP process could not be better to support such change.

FIGURE 5: ABERDEEN SOUTH HARBOUR - UNDER CONSTRUCTION

Planning for Energy Transition

Impact of the Bay of Nigg Development Framework

3.1 While the broader policy context for the land across the energy transition zone is relatively restrictive, ACC did foresee the need for change and predicted the potential for strategic planning change around the new South Harbour. In 2017, it adopted the BNDF as statutory Supplementary Guidance to inform future decision making in this area.

3.2 While the focus was on development around South Harbour generally, the BNDF effectively considers how these sites can be used generally i.e. for more than harbour use. The Framework can be used, however, just as effectively as a basis for the planning of an energy transition zone for the City.

3.3 The BNDF also outlines various transport and policy interventions required to deliver the overarching vision and identifies several future development sites to achieve this goal.

3.4 It also sought to inform the preparation of the LDP, establish localised masterplans for South Harbour, Altens and East Tullos and, most critically, to identify broader strategic infrastructure investment/interventions required to support the LDP process.

03

3.5 Importantly, the BNDF was intended to feed directly into the LDP process - as outlined below:

"Development Plan Cycles are 5 years long and as a result the Development Framework will be considered in this context. Later phases will require to be considered upon each LDP review in the context of emerging policies and strategies".

Extract from Adopted BNDF - Section 5

Years 0-5

3.6 The proposed 0-5 year interventions include the provision of the New South Harbour, road realignment at the harbour entrance, improvements to Coast Road, introduction of improved footpath/cycling connections, to expand a range of uses and attract new work streams at the harbour.

Years 6-10

3.7 Interventions associated with years 6-10 are summarised as the regeneration of Altens Industrial Estate by road improvements and redevelopment of underused/empty sites through their LDP allocation.

Years 11-15

3.8 Interventions for years 11-15 are summarised as provision of an access road across St Fitticks Park with link to East Tullos; redevelopment of East Tullos and provision of additional sites through their LDP allocation.

Years 16-20

3.9 Interventions identified within years 16-20 are summarised as the longer term redevelopment of East Tullos, junction improvements to/from East Tullos and the provision of a rail halt etc adjacent to East Tullos.

Baseline Report

3.10 A Baseline Report to the BNDF was also prepared in 2015 outlining a series of potential spatial options, including a number of potential future development sites. These included part of St Fitticks Park and land around Doonies Farm.

3.11 It therefore provides an important background document showing ACC's thinking towards this issue.

FIGURE 6: EXCERPTS FROM ADOPTED BAY OF NIGG DEVELOPMENT FRAMEWORK

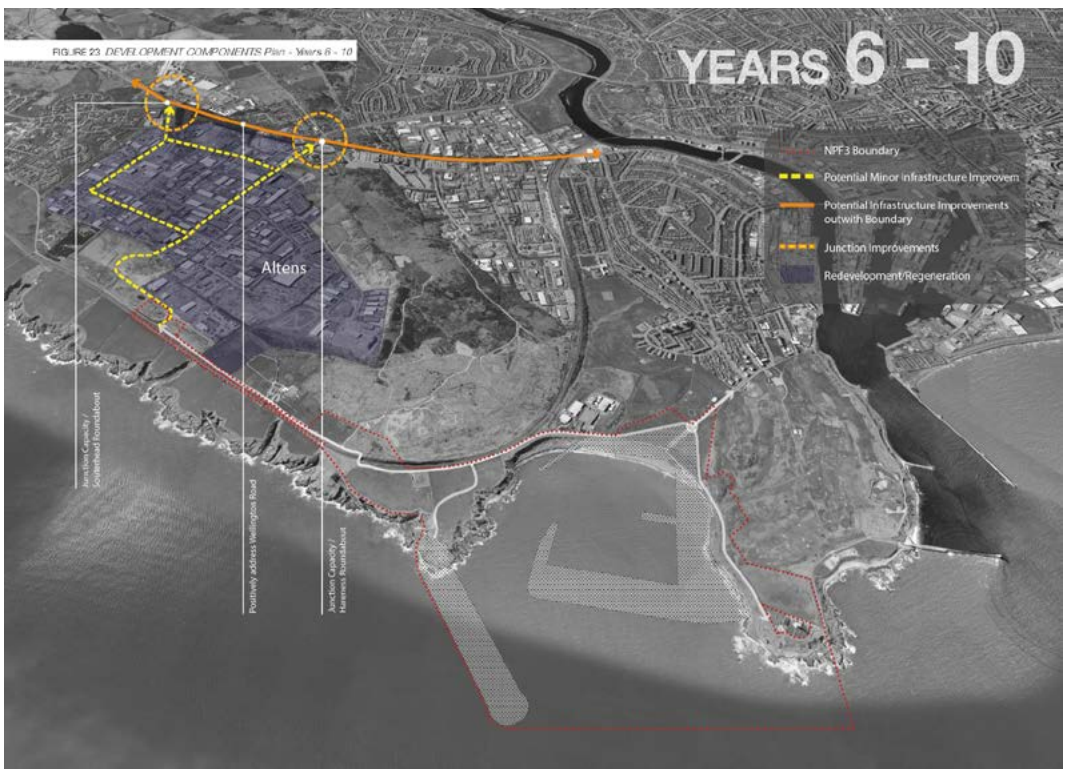


FIGURE 23. DEVELOPMENT COMPONENTS Plan - Years 6 - 10
YEARS 6 - 10
Altens
NPF3 Boundary
Potential Minor Infrastructure Improvem
Potential Infrastructure Improvements outwith Boundary
Junction Improvements
Redevelopment/Regeneration
Junction Capacity / Souterhead Roundabout
Positively address Wellington Road
Junction Capacity / Haremoss Roundabout


FIGURE 26. Development Components Plan - Years 11 - 15
YEARS 11 - 15
Tullos Hill
Ness Landfill Area
NPF3 Boundary
Natural Environment Improvements
Potential Major Infrastructure Improvements
Potential Minor Infrastructure Improvements
Potential Infrastructure Improvements outwith Boundary
Junction Improvements
Potential Footpath Improvements
Rail Sidings
Junction Capacity / Greenbank Roundabout
Positively address Wellington Road
Improve pedestrian access between East Tullos + Town
Rail Sidings
Junction Capacity / Greenwell Road

Land for Energy Transition

3.13 The site boundaries for the energy transition zone area of search and the BNDF are broadly comparable. Importantly, however, the original BNDF was focused on supporting the harbour whereas development serving the energy transition zone has broader objectives relative the growth of the Aberdeen economy as a whole.

3.14 A wide ranging review of land options have been considered as part of this study to identify their appropriateness for potential energy transition zone type uses.

Assessment Category	Description
1	Sites associated with Aberdeen South Harbour: • including sites with extant planning approval; • existing temporary construction areas (with the potential to extend lease arrangements on selected sites); and/or • land covered by ACC's LDP Opportunity Site (OP 62) Allocation.
2	Sites which were assessed within the BNDF and could be developed using utilising exiting roads / other infrastructure
3	Sites which the BNDF suggested that additional infrastructure interventions/improvements would be required to be developed.
4	Sites that do not feature within the original BNDF

3.12 For the purposes of this study, the list of sites reviewed is summarised below equating to 426ha.

REF	SITE NAME	Area (Ha)
	Category 1	
1a	St Fitticks (Lease Option)	2.5
1b	Girdleness	4
1c	Gregness	7.1
1d	North of Greyhope Road	1.64
	SUB TOTAL	15.24
	Category 2	
2a	Altens North	102
2b	St Fitticks Park	17.6
2c	Doonies Farm	16.8
2d	West of Coast Road at Hareness	17.2
2e	Nigg WWTW	3.5
2f	Former Ness Landfill	42.6
	SUB TOTAL	199.7
	Category 3	
3a	Altens South	82.1
3b	East Tullos	60.1
3c	Rail Halt & Sidings	8.6
	SUB TOTAL	150.8
	Category 4	
4a	South of Balnagask Golf Course	21.5
4b	East of Coast Road (opposite Doonies Farm)	17
4c	East of Coast Road (opposite Harness Road Junction)	14.3
4d	Land to East of Coast Road (opposite Langdykes Road)	7.5
	SUB TOTAL	60.3
	TOTAL	426

FIGURE 7: POTENTIAL SITES FOR ENERGY TRANSITION ZONE

Site Assessment Criteria for Energy Transition

3.15 A comprehensive assessment of each site's suitability, accessibility and deliverability has been undertaken. This assessment checklist is included within Appendix 1.

3.16 This was based on :

- Planning & Policy – to consider planning policy implications and environmental constraints;
- Roads, Transport and Other Infrastructure – review of existing road infrastructure and potential new road provision/investment that could include site selection;
- End User Requirement – to consider operational requirement for land and proximity to the harbour etc; and
- Deliverability and Availability – to consider ownership, infrastructure constraints and servicing amongst other issues.

3.17 The criteria are broadly similar to ACC's LDP Sustainability Checklist, albeit, this current assessment includes additional criteria specific to the consideration of an energy transition zone (i.e. end user requirements etc) and excludes selected criteria relating to non-industrial related uses (i.e. residential/retail uses etc).

3.18 Critically, site assessments were also influenced by commentary received during technical workshops with key stakeholders as this provided an extra level of insight not available when undertaking desktop reviews. This commentary sometimes differed from the desktop site assessment results – and often advocated a different approach for a site's inclusion, or otherwise, with the energy transition zone. Therefore, the final assessment of suitability, availability and delverability of each site has been informed by both the desktop review and the outcomes from the technical workshops.

04

Assessment and Dialogue

Introduction

4.1 The criteria used for scoring the suitability, deliverability and accessibility of each site is contained within Appendix 1 which includes categories on Planning/Policy, Roads and Transportation, End User Requirements and Deliverability/Availability requirements.

4.2 A comprehensive review of assessment criteria was then undertaken using six scenarios based the criteria referenced above.

4.3 The results of this assessment are outlined within the site assessment spreadsheets within Appendix 2 .

4.4 A summary assessment for each category has been outlined below.

Category 1 Sites

4.5 Most of the Category 1 sites score highly in Planning/Policy terms as many are covered by an Opportunity Site allocation within the LDP or have extant consent for temporary construction associated with South Harbour. ACC also has an interest in these sites (which are currently being leased to Aberdeen Harbour Board to accommodate the above temporary construction areas) which score them highly in availability terms. Moreover, their proximity to South Harbour is their most desirable quality with some sites lying directly adjacent to the harbour (i.e. Sites 1a and 1d). This positioning means that the delivery on an energy transition

zone would be dependent on the inclusion of both these sites – and in particular Site 1a and Site 1d - which are the most critical sites, directly adjacent to the harbour.

4.6 Site 1 b and Site 1c c are located on exposed headlands which make their development more challenging.

4.7 Site 1b could be suitable to accommodate temporary facilities for renewables project teams alongside open space enhancements if a measure of income for this use was administered towards the long term improvements of strategic green space. However, this may be more difficult for the community to accept given its status as a pubic park.

FIGURE 8: CATEGORY 1 SITES

Category 2 Sites

4.8 The Category 2 sites are diverse, and therefore their suitability is varied. Review of assessment criteria conclude that Site 2b offers the greatest scope to deliver the inner core of an energy transition zone within the study area given its proximity to the harbour (lying directly adjacent to the harbour with level access) and given that it can be amalgamated with other sites to form a larger site that could accommodate offshore renewables. Other sites (i.e. Sites 2a and Site 2d) are allocated for employment use and, therefore, are appropriate in policy terms to deliver energy transition uses within a wider energy transition zone, depending on potential availability constraints. Both, however, are located well away from South Harbour and as a result would not satisfy the core requirements of proximity and level access.

4.9 Sites 2c (Doonies Farm) and Site 2f (Former Ness Landfill), are subject to relatively restrictive policy allocations for Green Belt and Green Space Network. However, it is suggested that there could be scope to include Doonies Farm within a wider energy transition zone - that does not require proximity to the harbour, perhaps connecting any future energy-related uses to the existing materials recycling facility to the south . However, it was acknowledged that any future development of the Site 2f (Former Ness Landfill) could be problematic, and potentially costly, given its topography and its status as a former landfill, although no formal assessment on this has been undertaken as part of this study.

4.10 It was therefore acknowledged that Site 2f (Former Ness Landfill) should be excluded from the strategy going forward.

4.11 The proximity of the Scottish Water site (Site 2e) to South Harbour makes this site hugely desirability. If a technical relocation could be delivered (potentially further upstream in East Tullos) then it would be worth progressing this discussion further (See below).

4.12 The Scottish Water facility has been the subject / cause of significant angst locally with the smell (allegedly emanating from the plant) leading to much objection. If the existing Scottish Water facility could be relocated, this would provide a solution to this problem and give something back to the people of Torry. If this could be achieved, it would also create an important development site with road and rail access to South Harbour.

FIGURE 9: CATEGORY 2 SITES

Category 3 Sites

4.13 The Category 3 sites are supported in Planning/Policy terms as they comprise land within the existing industrial estates already allocated for business and industrial (Sites 3a and 3b) or safeguarded for transport improvements (Site 3c) within the LDP. In line with Altens North, a churn of 2.7% of the available site area is anticipated within a 10 year plan period (reflecting recent take up rates). The key constraint to potentially overcome would be to ensure that the existing Common Good Titles and/or complex leases would not impede their delivery.

4.14 Moreover, East Tullos (Site 3b) in particular could be another fundamentally important site to assist in the creation of an energy transition core zone including R&D and other supply chain companies. This is subject to the access solution to St Fitticks extending direct level access from the harbour, through St Fitticks (Site 2b) into East Tullos via the preferred STAG Road options (which could include either a tunnel or bridge over/under the railway). Then, East Tullos offers the potential land area required for one or several offshore renewables manufacturing facilities. Inclusion of this site significantly increases desirability within East Tullos for energy transition related uses – providing far greater opportunities for offshore renewables, including the potential for offshore renewables manufacturing opportunities, as long direct access to South Harbour can be established to East Tullos. However, land assembly and regeneration will require time and resource to be delivered.

FIGURE 10: CATEGORY 3 SITES

Category 4 Sites

4.15 Overall, Category 4 sites did not score highly within the site assessment nor the technical workshops with key stakeholders. Development of Site 4a (South of Balnagask Golf Course) would be challenging in policy terms and for the local community but also landscape and visual terms. Despite this, the south-western corner of this site could potentially accommodate some future uses as it is far lower and less prominent that other parts of this site. The eastern part of this site could also be amalgamated with Site 1b (Girdleness) should this site be taken forward for temporary uses. The sites on land to the east of Coast Road (Sites 4b, 4c and 4d) are significantly constrained in policy, landscape/ visual and coastal environment terms. Restricted width accesses over/under the railway also result in significant accessibility constraints. The sites could however be utilised to replace open space/landscape enhancement as part of these proposals. Scope should also be given to consider if these sites could accommodate any relocation of Doonies Farm, should this be required.

4.16 Therefore, the majority of these sites do not offer scope for development as part of an energy transition zone, but instead contribute to the wider landscape setting for recreational uses. However, the south-western and north-eastern corners of Site 4a could potentially be amalgamated with Site 1d (North of Greyhope Road) and Site 1b (Girdleness) respectively given that these parts of the site are flatter and potentially less prominent that the remainder of Site 4a.

FIGURE 11: CATEGORY 4 SITES

Developing Scenarios

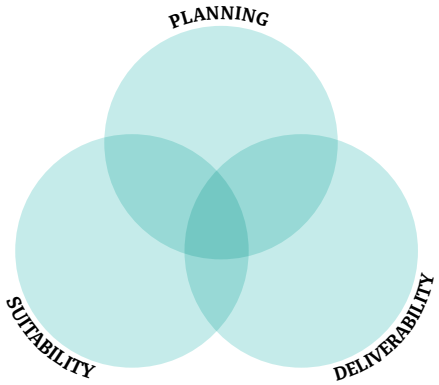
Scenario Testing

4.17 This report seeks to inform the emerging LDP. Planning by its nature needs to take into account the many economic, commercial and technical aspects of the project but it also needs to recognise the broader environmental and local community considerations.

4.18 As such, a series of scenarios were prepared to assess how the respective site assessments could be considered in the round. Very broadly, six scenarios were considered and discussed/developed through the technical workshops.

4.19 They were based on:

1) Planning-Led Scenarios - Two scenarios to identify sites based on the least planning/ policy constraints;
2) Suitability-led Scenarios - Two scenarios to identify sites that would be the most suitable in meeting technical end user requirements; and
3) Deliverability- Led Scenarios - Two scenarios to identify sites that would have the least technical constraints impeding their delivery.



05

SCENARIO 1 - Policy Compliant

5.1 This Scenario seeks to consider the grouping of sites that would be the most obviously 'compliant' in 'Planning/Policy' terms if considered today. This would effectively provide an energy transition zone that would generally accord with the current planning policy context and in particular ACC's adopted LDP).

5.2 Should this scenario be implemented, there would be a limited number of study sites that could be taken forward given the relatively restrictive planning policy context within the study area. In particular, restrictions associated with the existing Green Belt and Green Space Network LDP policy allocations within the Bay of Nigg.

SCENARIO 1 - Potential Sites

5.3 Therefore, this policy compliant scenario could include the following sites:

1) Sites 1a, 1b, 1c and 1d - Sites with extant planning approval and with Opportunity Site Status (OP 62) within the adopted LDP
    - » This includes sites covered by the planning approval for South Harbour - relating to temporary construction sites at St Fitticks, Girdleness/Walker Park and Gregness.
2) Sites 2a, 3a, 3b and 3c - Altens and East Tullos – A small percentage of sites within the existing industrial areas allocated within the LDP for business and industrial land (Policy B1).
    - » This study is not necessarily seeking to identify sites already allocated for business and industry that provide policy support for energy transition uses.
    - » However, it is acknowledged that take up for energy transition uses within respective industrial estates could potentially provide some capacity to accommodate future energy transition uses. Therefore, for this scenario, it has been assumed that a 2.7% take up rate be applied to reflect potential windfall employment sites that could deliver energy transition uses. This rate reflects the most recent take up rate identified by ACC within ACC's Employment Land Audit 2018.

Potential Developable Areas

5.4 Given the above, it has been calculated that the following total and developable areas could be provided if Scenario 1 was implemented (based on a conservative estimate using a rate of 66% for the developable site area).

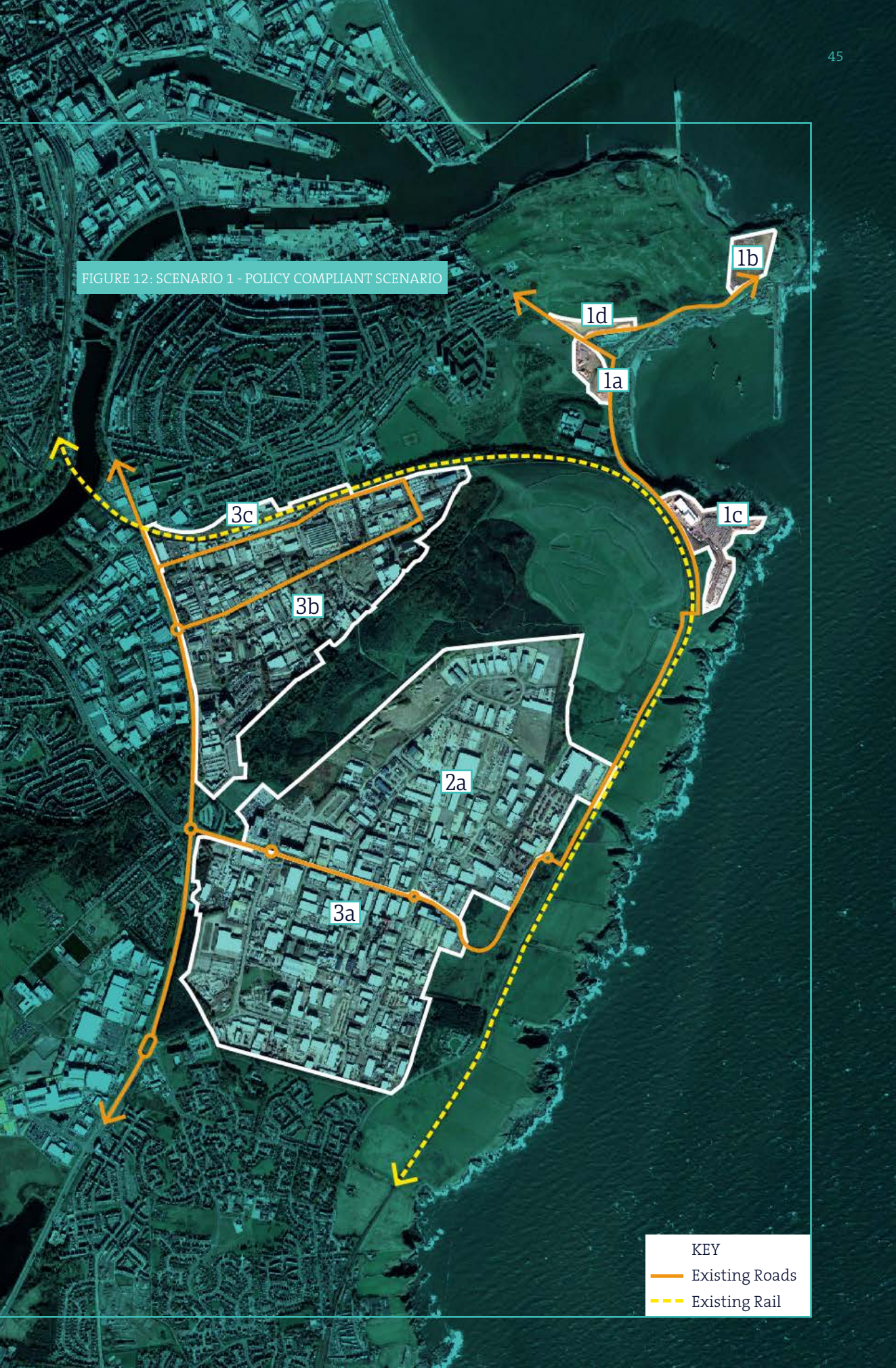
SCENARIO 1	Area (ha)
Potential Developable Area	C.14.5ha
Total Area	C.22ha

SCENARIO 1 - Outcome

5.5 As outlined above, if Scenario 1 was taken forward the overall developable area would fall well below the required 30ha net deliverable land requirement to accommodate a future energy transition zone within Aberdeen. Indeed, probably half of the land area that is required is provided for. Nor does the policy compliant scenario avoid conflict or challenge. The inclusion of Site 1b (Girdlesness/Walker Park) would be undoubtedly challenging with both local politicians and communities raising concerns over its development.

5.6 Similarly, the suitability of Gregness (Site 1c) is questionable for large scale development. Throughout the technical workshops the policy acceptable use identified for this site was for research, innovation and centre of excellence type facility.

FIGURE 12: SCENARIO 1 - POLICY COMPLIANT SCENARIO



SCENARIO 2 – BNDF Baseline Options

5.7 As the study progressed ACC confirmed that the BNDF had been adopted as Supplementary Guidance ('SG') in September 2017. Therefore, there is an expectation from ACC that its objectives will be translated into the emerging LDP.

5.8 With respect to the consideration of potential sites, the BNDF Baseline Report included a series of options that considered the potential release and future development of sites within the study area. As outlined previously, this included land within St Fitticks Park (generally on land to the east of any new link road to East Tullos) and on land around Doonies Farm, amongst other sites.

5.9 Accordingly, this Scenario is based on selected options outlined within the BNDF Baseline Report. It is acknowledged that identification of individual sites was not taken forward within the adopted BNDF. However, numerous policy objectives/interventions within the adopted BNDF outline that consideration of potential land release through emerging LDPs should be undertaken. This policy approach was intended to relate to these future development sites.

SCENARIO 2 - Potential Sites

5.10 As per the scenario drawing, this BNDF Baseline Options scenario could include the following sites:

1) Sites 1a, 1b, 1c, 1d - Sites with extant planning approval and with Opportunity Site Status (OP 62) within the adopted LDP.
2) Sites 2a, 3b, 3b and 3c - Altens and East Tullos - A small percentage of sites within the existing industrial areas allocated within the LDP for business and industrial land (Policy B1).
3) Part of Site 2b (St Fitticks Park) and
4) Site 2c (Doonies Farm)
    - » As both sites are identified as potential development sites/options through the BNDF (Baseline Report) Process.

5.11 The same assumptions apply with regards to take up at industrial sites (i.e. 2.7%) and also developable areas (i.e. 66% site area).

5.12 The difference between Scenario 1 and Scenario 2 is that latter now includes Sites 2b (St Fitticks Park) and Site 2c (Doonies Farm).

Potential Developable Areas

5.13 Based on the above, it has therefore been calculated that the following total and developable area could be provided if Scenario 2 was implemented.

SCENARIO 2	Area (ha)
Potential Developable Area	C.31.4ha
Total Area	C.47.6ha

SCENARIO TWO - Outcome

5.14 If Scenario 2 was taken forward it would mean that a developable area closer to the 30ha target would be possible.

5.15 There would likely be some community sensitivity relating to this approach, particularly towards the inclusion of Sites 2b (St Fitticks Park) and Sites 2c (Doonies). Specifically, that the BNDF Baseline Options (which showed them as potential development sites) has not been translated into the adopted BNDF. That said, their future development has been contemplated by ACC. Please refer to the BNDF Engagement Report for further details.

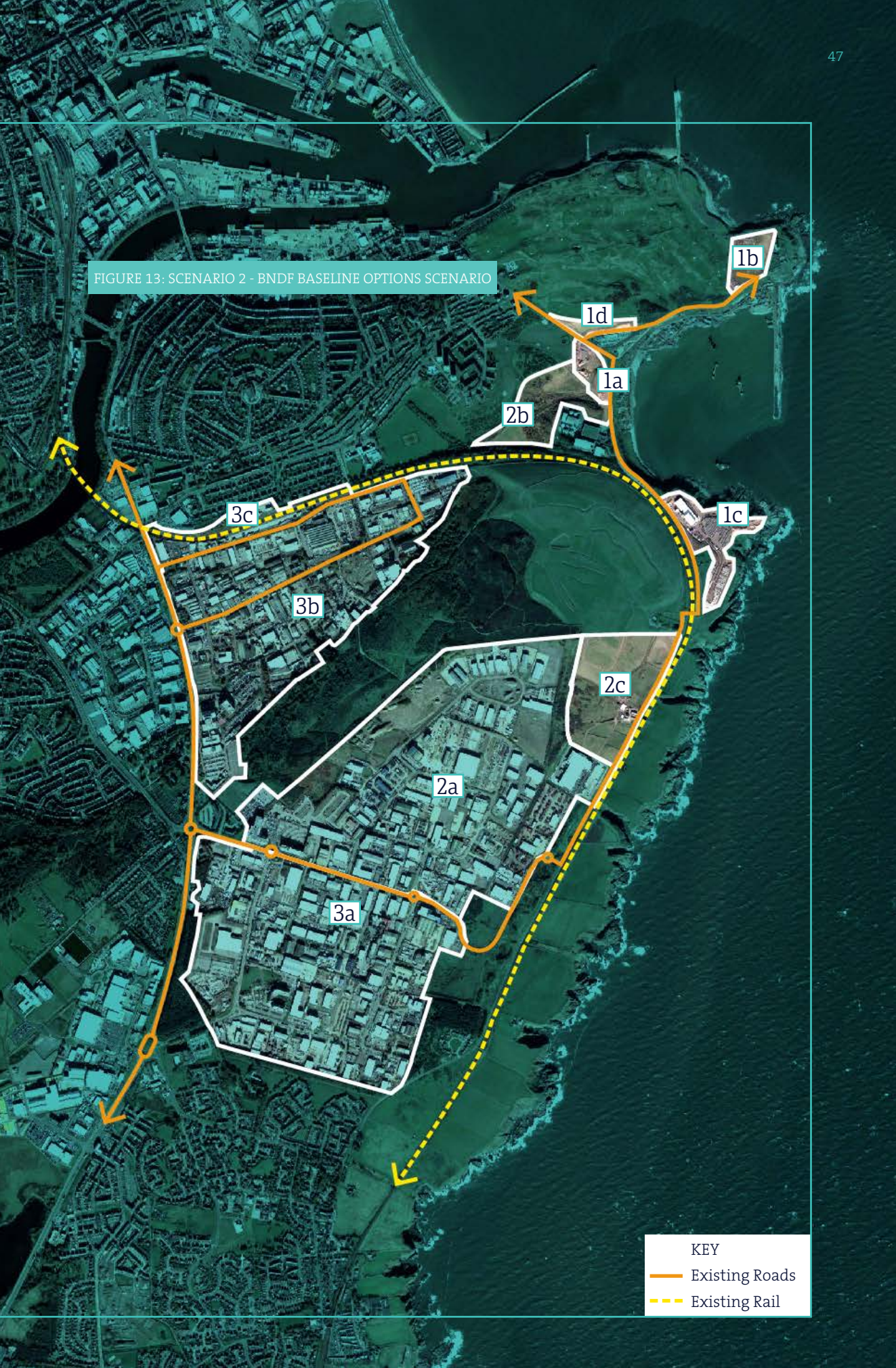


FIGURE 13: SCENARIO 2 - BNDF BASELINE OPTIONS SCENARIO

SCENARIO THREE – End User Requirements

5.17 This Scenario seeks to consider the inclusion of sites that would best meet the requirements of potential end users. The stakeholder discussions highlighted that proximity to the harbour, level access requirements and sizable lay down space were key factors influencing site selection from an end user perspective.

5.18 Accordingly, it includes sites that are directly adjacent to the harbour which could provide direct/flat access and could be combined to form one larger site, if required. It avoids sites that are adjacent or nearby the harbour but where topography constraints are likely to render the site unsuitable for large-scale energy transition related uses (i.e. off-shore renewables assembly etc). For example, sites on the either headland.

SCENARIO 3 - Potential Sites

5.19 Therefore, this scenario could include the following sites:

1) Sites directly adjacent to the harbour with level access including:
    - » Site 1a (St Fitticks - Lease Option);
    - » Site 1d (North of Greyhope Road); and southern part of Site 4a (Balnagask GC);
    - » Part of Site 2b (St Fitticks Park) excluding land closest to the nearby residential area; and
    - » Site 2e (Nigg WWTW)

5.20 The same assumptions apply with regards to take up (2.7%) and potential developable areas (i.e. 66% site area)

Potential Developable Areas

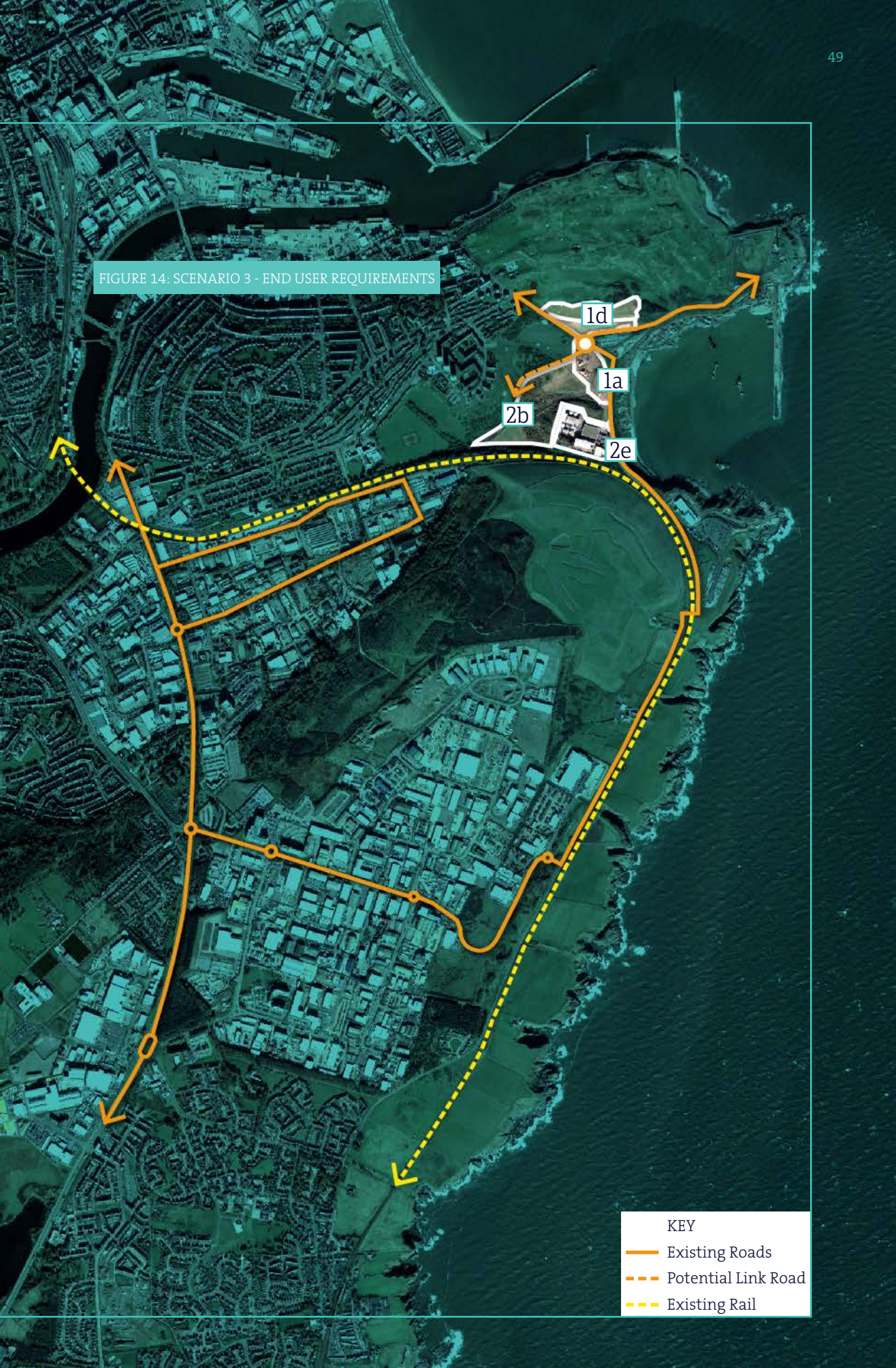
SCENARIO 3	Area (ha)
Potential Developable Area	C.12ha
Total Area	C.18ha

SCENARIO 3 - Outcome

5.21 Based on the above, it is clear that if Scenario 3 was taken forward it would result in a significant shortfall in developable land to accommodate any future energy transition zone and it could fail to achieve minimum end user requirements.

5.22 That said, the importance of proximity and level access would point to these sites forming the core of what end users would clearly require.

FIGURE 14: SCENARIO 3 - END USER REQUIREMENTS



SCENARIO 4 – End User Requirements - Variation

5.23 This Scenario is based on the above end user requirements and additional sites, beyond those solely requiring proximity and level access to South Harbour to generate greater flexibility for end users. This includes consideration of potential sites for temporary site cabins/offices research and development. It also assumes there could be a transition to sites in East Tullos if the STAG road is introduced connecting South Harbour to East Tullos.

SCENARIO 4 - Potential Sites

5.24 Therefore, this scenario could include the following sites:

1) Sites directly adjacent to the harbour with level access including:
    - Site 1a (St Fitticks - Lease Option); Site 1d (North of Greyhope Road); and Part of Site 2b (St Fitticks Park) excluding land closest to the nearby residential area.

2) Sites at Girdleness - to potentially provide temporary site cabins / site offices and open space enhancement including:
    - Site 1b (Girdleness/Walker Park) and part of Balnagask Golf Course (Part Site 4a);

3) Gregness - to potentially provide Research and Development / centre of excellence and open space/ landscape / accessibility enhancements.
    - Site 1c (Gregness);

4) Doonies Farm - potential expansion for wider energy transition zone, related to existing materials recycling facility in Altens North.
    - Site 2c (Doonies Farm);

5) East Tullos - A small percentage of sites within the existing industrial areas allocated within the LDP for business and industrial land (Policy B1). This would include a potential transition into East Tullos should the new STAG road connect East Tullos to the Harbour (albeit, take up rates conservatively nominated the same as other scenarios with scope to increase in later scenarios).
    - Site 3b (East Tullos) and Site 3c (Rail Halt & Sidings); and

6) Site 2e - Ness WWTW.

5.25 The same assumptions apply with regards to take up (2.7%) and potential developable areas (i.e. 66% site area).

Potential Developable Areas

SCENARIO 4	Area (ha)
Potential Developable Area	C. 32.7 ha C. 22.4 ha (excluding Doonies Farm)
Total Area	C. 50ha C. 33.5ha (excluding Doonies Farm)

SCENARIO 4 – Outcome

5.26 Should Scenario 4 be taken forward, it is suggested that this would result in a developable land requirement for an energy transition zone around the 30ha required. However, this outcome is deceptive and requires further interrogation. Specifically, the reason for such a reasonably high developable area relates to the inclusion of Doonies Farm (which comprises an extensive site area but would significantly reduce the total developable area if it was not included in the scenario calculation). Therefore, without the above site, the developable area would be well below the 30 net land requirement.

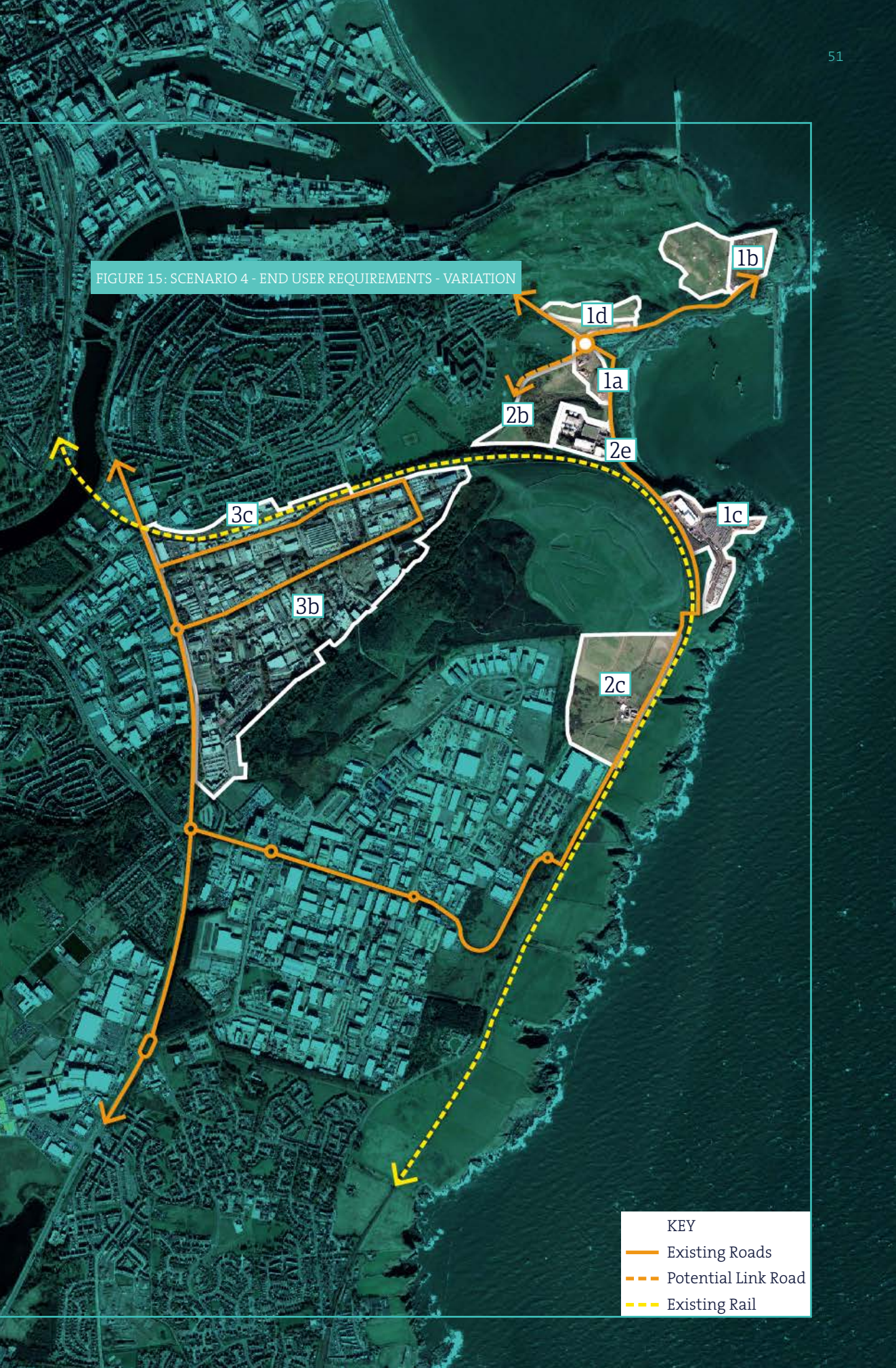


FIGURE 15: SCENARIO 4 - END USER REQUIREMENTS - VARIATION

SCENARIO 5 - Technical Deliverability

5.27 This Scenario is focused on the technical deliverability and sites with the least technical constraints to their delivery. This largely relates to sites within or adjacent to existing industrial areas – with potential for future connectivity to existing services/infrastructure. It also includes the temporary construction sites associated with South Harbour and St Fitticks Park – adjacent to South Harbour and with potentially fewer technical constraints that other sites. The Scottish Water WWTW has been excluded given that there would likely be significant technical constraints associated with any future development/relocation (if applicable). Doonies Farm can be included as it is also likely to have fewer technical constraints.

SCENARIO 5 - Potential Sites

5.28 Therefore, this scenario could include the following sites:

1) East Tullos Industrial Estate and Site 2d (adjacent to Altens Industrial Estate) - with opportunities for connection to existing services/infrastructure etc.
2) Temporary Construction Areas associated with South Harbour
3) St Fitticks Park – Adjacent to South Harbour services and with potentially fewer technical constraints that other sites

4) Site 2c - Doonies Farm

5.29 The same assumptions apply with regards to take up (2.7%) and potential developable areas (i.e. 66% site area).

Potential Developable Areas

SCENARIO 5	Area (ha)
Potential Developable Area	C.33ha C.22ha (without Doonies Farm)
Total Area	C.50ha C.33ha (without Doonies Farm)

SCENARIO 5 - Outcome

5.30 If Scenario 5 was taken forward, it would potentially allow for up to C.33ha of land developable land to accommodate energy transition uses meets the 30ha net land requirement.

5.31 However, this falls significantly below the required 30ha requirement should Doonies Farm be removed. Notwithstanding the above, this scenario does not fully address any other potential requirements beyond deliverability.

5.32 Furthermore, this scenario is not without constraints relative to the loss of open space and community sensitivity as per the previous scenarios.

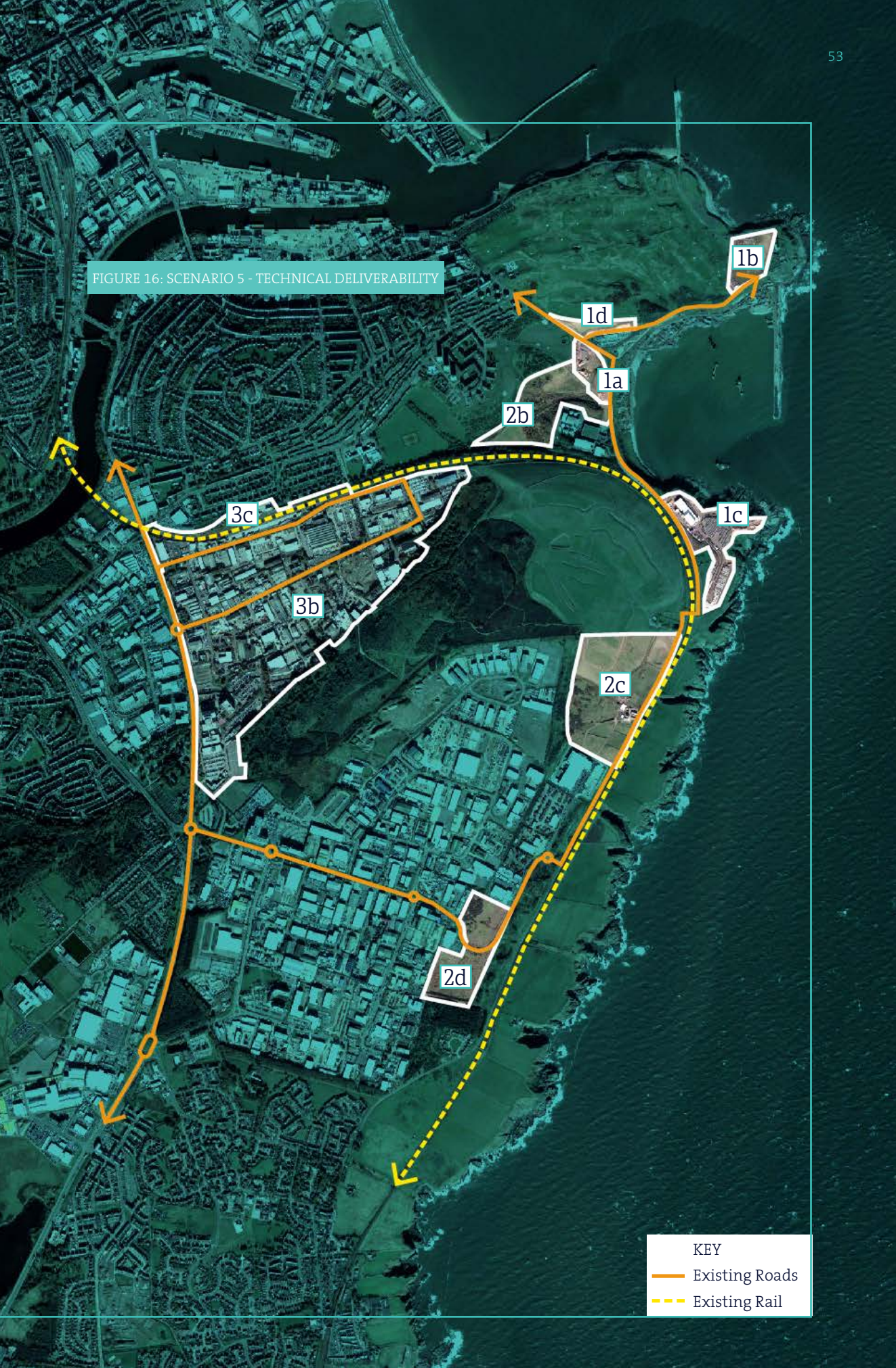


FIGURE 16: SCENARIO 5 - TECHNICAL DELIVERABILITY

SCENARIO 6 – Transition of East Tullos

5.33 This Scenario is based primarily on the transition of East Tullos brought about by the programmed delivery of the STAG road connecting South Harbour to Wellington Road, via East Tullos. It is assumed that a variety of sites within East Tullos would become much more desirable to the market for energy transition uses. Therefore sites within East Tullos could play an important role in delivering part of the energy transition core. This is specifically relevant where the future road would provide a link (we understand this is likely to be a tunnel or potentially a bridge) that could effectively extend level access into sites within East Tullos. This could substantially increase the quantum of land with excellent proximity and direct, level access to the harbour – significantly increasing opportunities to accommodate end user requirements, dependent on the of the design of that link.

5.34 It also considers the potential inclusion of sites where accessibility has been enhanced due to infrastructure improvements including: the potential STAG Road variant to facilitate future developability of Doonies Farm perhaps relating to energy/waster etc. Improvements to Harness Road/Roundabout identified within the BNDF SG could also unlock sites directly adjacent to Altens (Site 2d – West of Coast Road at Hareness).

SCENARIO 6 - Potential Sites

5.35 Therefore, this scenario could include the following sites:

1) Sites directly adjacent to the harbour with level access and other sites close to the harbour;
2) Site 3b and 3c - Expansion into East Tullos – assuming an enhanced take up rate within East Tullos of C.25%; and
3) Sites benefitting from infrastructure/road improvements including
   - » Site 2c (Doonies Farm) - Various STAG Route Options (including Option A3 - Variant 1, Option A4 and Option A5);
   - » Site 2d (West of Coast Road at Hareness) - BNDF SG Interventions / improvements at Hareness Road and Roundabout

5.36 An assumption of significantly increased take up rate for East Tullos is applied (25%) and the same developable area (i.e. 66% site area).

Potential Developable Areas

SCENARIO 6	Area (ha)
Potential Developable Area	C. 42.2ha (excluding Doonies Farm)
Total Area	C. 64ha (excluding Doonies Farm)

SCENARIO 6 - Outcome

5.37 If Scenario 6 was taken forward, it would allow for an extensive quantum of land to be provided to accommodate an energy transition zone within Aberdeen – at approximately 53.4ha.

5.38 An assessment considering the removal of Doonies Farm from this scenario has also been undertaken. This shows that the total developable land could be reduced to 43ha if Site 2c (Doonies Farm) is excluded. Despite this, the level of developable land would exceed the 30ha requirement for an energy transition and could therefore address respective requirements. However, this approach would not necessarily accord with other considerations (i.e. planning policy requirements etc).

FIGURE 17: SCENARIO 6 - TRANSITION OF EAST TULLOS

Review of Scenario Based Approach

Even putting aside the imperative for regeneration of the estate, generally, the scenarios that achieve the target 30ha requirement for flat, level access with proximity to the harbour usually involve the redevelopment of East Tullos.

5.39 As outlined above, the respective scenario testing provides a range of options that could potentially address a single thematic based requirement - for example policy compliance, end user requirements or technical delivery. While ordinarily this provides a reasonable benchmark to consider the suitability, availability and deliverability of respective sites, scenarios by their definition are extreme and intended for discussion only.

5.40 The emerging LDP will require a preferred strategy which considers, then prioritises, the most pertinent requirements and sites within each scenario.

5.41 It is important to note that Scenarios 3 - 6 have not been subject to any community engagement either as part of the BNDF nor any other studies to our knowledge. In terms of this study, there has also been limited input relating to landscape and environmental considerations bar statutory designations.

5.42 Scenario 1, however, was subject to consultation on the BNDF.

5.43 Scenario 2 - and the options considering the development of land around the harbour - was also subject to extensive consultation associated with the preparation of the draft BNDF through 2014.

Technical Workshops, Stakeholder Engagement and Feedback

5.44 In addition to the scenario creation, several technical workshops were also held with various stakeholder groups to provide a valuable insight into specific policy areas and/or technical matters. These technical workshops influenced the site assessment process and the outcome of the preferred strategy for the energy transition zone.

5.45 This included technical workshops/teleconferences with:

- ACC Local Development Plan Team and ACC's Masterplanning Team Technical Workshop;
- ACC Roads and ACC/Aberdeenshire Strategic Transportation Team Technical Workshop;
- End Users Requirements Technical Workshop (represented by ACC Hydrogen Team, Aberdeen Harbour Board and Opportunity North East);
- Scottish Water Telecon Technical Workshop;
- Scottish Enterprise Telecon Technical Workshop;
- Local Agents Telecon Technical Workshop;
- ACC's Hydrogen Team and their Energy Consultants Telecon Workshop;
- Peter Brett Associates Meeting to discuss potential STAG Route Options; and
- ACC City Growth and Invest Aberdeen - ongoing liaison.

Summary of Findings from Technical Workshops

5.46 The following provides a summary of the key findings received across all workshops (with further commentary on individual workshops provided within Appendix 3):

1. There is potential for:
   a) A central core within the energy transition zone which , by its nature, would be closely related to South Harbour; and
   b) A wider energy transition area – which could cover the majority of the study area.
2. The ongoing STAG road design process, harbour design process and the LDP process do not seem to have afforded a great deal of thought as to how South Harbour will inspire and drive development around it. This type of thinking is critical.
3. The potential for energy transition within this part of Scotland and within this part of Aberdeen is significant and critical for future growth within Aberdeen – particularly given that many oil and gas companies are themselves transitioning into new energy markets.
4. The supply chain that supports oil and gas is likely to be comparable to the supply chain that supports energy transition.
5. In terms of land, it is very likely the existing industrial estates (of Altens and East Tullos) will see an increase in energy transition related activity. within these industrial estates. However, turn over rates in these estates is low and land is not sufficient and is constrained in terms of availability.
6. Further, land, beyond these industrial estates, will need to be allocated within the study area - hence the 30ha requirement identified within the brief.
7. In discussions regarding end user requirements – it is clear that two considerations are most critical to such users. These include:
   a) Proximity to the harbour; and
   b) Level access to/from the harbour.

   This immediately implies that there are a number of sites that are more attractive to these types of end users and also points to a particular number of sites within our study area emerging as leading contenders for development.
8. Extremely large site areas are required to accommodate end user requirements. At least 12ha-20ha with direct, level access to a quayside is required for an offshore renewables 'assembly only' facility and a minimum site area of 20 - 32ha ha for an offshore renewables assembly and manufacturing facility.
9. The above does not preclude other

sites being included within an energy transition zone but it does identify a narrow set of sites when defining an energy transition core.

10. There is a need for a coming together of planning, land use planning and transport alongside careful engagement with local communities to support the LDP process. The future business cases for the energy transition zone will also need to consider strategies to improve access for local people to jobs and training opportunities.
11. Some of the land within the study area is currently allocated for Green Belt and Green Space Network. Therefore it is important that energy transition zone proposals include landscape and open space enhancements to mitigate any loss and to ensure that temporary uses (where possible) can be returned into public use (i.e. Walker Park etc).
12. There are other areas within this process which are required for temporary uses (for construction etc) that will facilitate energy transition related industries/ construction which will then need to be returned to open space further down the line.
13. The STAG Route options being prepared by Peter Brett Associates if taken forward could facilitate an energy transition zone core within South harbour - extending into (and transforming) East Tullos which could then provide large areas of flat land with level access directly accessible to South Harbour. However, the delivery timescale of 2026 requires further consideration and there is potentially a need for a first phase of land release on the St Fitticks side at this link.
14. Land to the north of East Tullos, close to the railway and the railway goods yard and land to the east of East Tullos, close to the potential road link should be the focus of a concerted programme of land assembly, infrastructure works, regeneration, marketing and redevelopment. Clarifying the position of land assembly is a matter of urgency for this study and the LDP.
15. The availability of land could be problematic within Altens and East Tullos given potentially restrictive ground leases etc for land owned and/or controlled by ACC, unless it can be confirmed that these would not impact future dveelopment of energy related uses.
16. Aberdeen is ideally placed, geographically, to lead on the Crown Estates Scotland's next offshore wind leasing round for the benefit of energy transition within the Scotland and beyond.

06 |

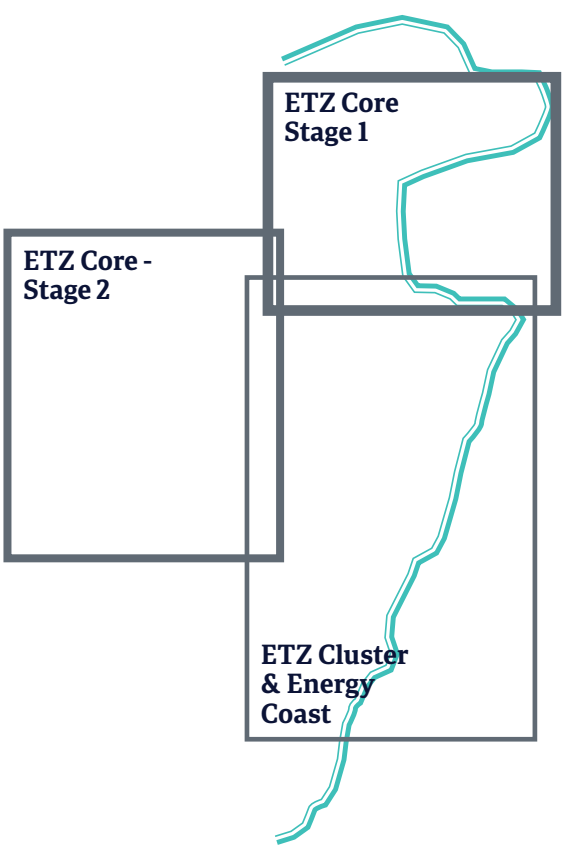
Strategy

Introduction

6.1 This preferred strategy has been developed based on the potential development of sites within the four discrete areas as follows:

1) ETZ Core Stage 1 - St Fitticks and New Link Road;
2) ETZ Core Stage 2 - East Tullos Transformation;
3) ETZ Cluster; and
4) The Energy Coast.

6.2 The BNDF (adopted as Supplementary Guidance in 2017) was a critical first step in ACC mapping out the potential next steps for the development of land around South Harbour. The BNDF was prepared following significant stakeholder and community engagement through 2014-15. So, while this matter remains sensitive, the emerging LDP process offers an opportunity to replicate these strategic ambitions within a new statutory planning policy document that covers this area



6.3 Whilst the adopted BNDF does not specifically identify the potential development sites/options within the BNDF Baseline Report, it includes policy objectives requiring the consideration of land release through respective LDPs. This approach outlines ACC's intention to consider potential development within these areas, and likely, within these sites.

6.4 Beyond this, there is a crossover between the requirement for the development around the harbour and the requirements of an energy transition zone. However, these two are not entirely the same. Aberdeen Harbour Board will have its own views on land requirements for cruise or other services, operational services and decommissioning. That it not the subject of this report. Indeed, a separate Masterplanning exercise is underway that details harbour expansion in and of itself.

6.5 This study, however, points to the requirement for a larger core area within the energy transition zone having immediate proximity to the harbour. Critically, this work also points to a need for as large an area as possible with relatively level access to South Harbour. However, it is also the case that many of the suggested energy transition uses have no such requirement and can comfortably sit elsewhere within the study area, in existing industrial estates. There are also other factors such as the need for ongoing regeneration in Torry and East Tullos as well as the desire to avoid an overwhelming impact on greenspace at Balnagask particularly the retention of community facilities at Walker Park.

6.6 Therefore, this study sets out a balanced view on how to accommodate the land requirements of the energy transition zone and across four broad stages of change.

6.7 It will be a core document that supports an updated policy position within the emerging LDP 2022, including justification for the allocation of land to deliver an energy transition zone within the study area.

ETZ CORE STAGE 1: ST FITTICKS AND NEW LINK ROAD

Sites & Potential Uses:

ETZ CORE STAGE 1 - ST FITTICKS AND NEW LINK ROAD	
Potential Sites	Site 1a - (St Fitticks - Lease Option) Site 1d - (North of Greyhope Rd) & Site 4a (Balnagask GC) - Part Site 2b - (St Fitticks Park) – Part Site 2e - (Nigg WWTW)
Potential ETZ Uses	Core ETZ uses / operations could include: • Class 5 Manufacturing and Class 6 Storage and Distribution; Examples of potential ETZ uses within an ETZ Core Stage 1 could include: • Offshore renewables - assembly; • Offshore renewables - laydown and storage areas; • Energy components/infrastructure - logistics and distribution; or • Supply Chain - accommodating associated uses/operations facilitating supply chain operators etc.

FIGURE 18: ETZ CORE STAGE 1 - ST FITTICKS AND NEW LINK ROAD

Total Developable Area

ETZ CORE STAGE 1 - ST FITTICKS AND NEW LINK ROAD	
Site 1a/Site 2b - Amended Site 1d - Amended Site 2e	C11.3ha C3.8ha C3.5ha 18.6ha - Total
ETZ CORE STAGE 1 - TOTAL DEVELOPABLE AREA	C.12.4HA (@ 66% DEVELOPABLE SITE AREA)

6.8 The ETZ Core Stage 1 would be focused on the following sites:

- Site 1a - (St Fitticks - Lease Option);
- Site 1d - (North of Greyhope Road) & Site 4a (Balnagask GC) – Part;
- Site 2b - (St Fitticks Park) – Part; and
- Site 2e - Nigg WWTW.

6.9 The following characteristics are applicable:

- Proximity to South Harbour - comprising sites directly adjacent to South Harbour with direct/level access.
- Sites would be immediately deliverable - with fewer potential technical and deliverability constraints.
- Sites would be less prominent in terms of landscape and visual impacts, with a Developed Coast LDP allocation, and potentially less problematic in planning policy terms than other Green Belt sites.

FIGURE 19: EAST TULLOS LINK ROAD OPTIONS - BNDF

Assessment against LDP Policy and BNDF SG & Baseline Report

6.10 The majority of this the study area (outwith the existing industrial estates) is covered by the Green Belt and Green Space Network policy allocations which generally seek to restrict future development. However, land Category 1 sites (i.e. Sites 1a, 1d and 2b [in part]) are also allocated as an Opportunity Site (OP 62) within the adopted LDP. This allocation supports opportunities on this land to accommodate further expansion associated with the harbour. Whilst this allocation does not specifically reference support for energy transition related development, this policy allocation acknowledges that principle of development for harbour-related operations and consideration should then turn to meeting the definition of harbour-related works rather than preventing future development per se.

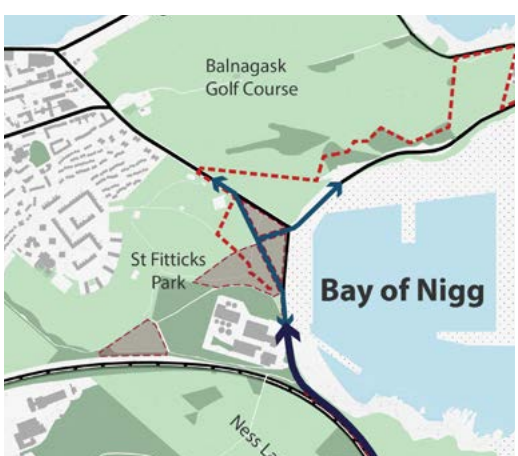


FIGURE 20: POTENTIAL DEVELOPMENT SITES WITHIN BNDF BASELINE REPORT (P.75)

6.11 In addition, the 'Vision For Nigg Bay' (p.75) within the BNDF Baseline Report shows potential development sites within St Fitticks Park (nominated in purple in the extract opposite). This covers Sites 1a (St Fitticks - Lease Option) and parts of Site 2b (St Fitticks Park) separated by the proposed link road.

6.12 Despite this, the adopted BNDF SG Report (P.37 - 'Development Table for Nigg Bay') outlines a clear requirement for the 'Consideration of new land through LDP Review'.

6.13 P.52 of the adopted BNDF SG Report also states that:

"... additional land release in the area as a result of either developer pressure or a need to cross fund infrastructure improvements should be considered in line with development plan review... these would likely take place at or adjacent to the new route into East Tullos from Bay of Nigg."

Commentary

6.14 Critically, sites within the ETZ Core Stage 1 are based on two requirements. Firstly, proximity to South Harbour and secondly the potential to accommodate for level access to South Harbour. Furthermore, the ability for site consolidation to create one large site capable of accommodating offshore renewables assembly, storage and distribution is an important feature.

6.15 The developable area for the ETZ Core Stage 1 (at c.12.4ha), exceeds the minimum 12ha contiguous land requirement for an offshore-renewables staging area. Therefore this stage could accommodate potential offshore renewables assembly, particularly as the combined area would have direct access to the quayside. It appears that ETZ Core Stage 1 would not be sufficient if an additional offshore manufacturing process was also required, as there would be insufficient land to accommodate this process – given that such processes generally require at least a 20ha site with direct, level access to the quayside.

ETZ CORE STAGE 2: EAST TULLOS TRANSFORMATION

6.17 ETZ Core Stage 2 would be focused on two sites including:

- Site 3b - (East Tullos); and
- Site 3c (Rail Halt & Sidings).

6.18 The following characteristics are applicable to Stage 2:

- Proximity to South Harbour - comprising comprise sites directly adjacent to South Harbour with direct/level access.
- Sites would be immediately deliverable.
- Sites would be less prominent in terms of landscape and visual impacts.

FIGURE 21: ETZ CORE STAGE 2 - EAST TULLOS TRANSFORMATION

- Contingent upon the implementation of a STAG Road option across St Fitticks Park to East Tullos that could transform the desirability/deliverability of sites within East Tullos.
    - » Therefore, an indicative take up rate of 25% has been applied.
- Potential to create a rail halt and/or rail spur connecting East Tullos to South Harbour.
- Policy compliant within East Tullos - increasing energy transition uses within an allocated business and industrial area.

Sites and Potential Uses

ETZ CORE STAGE 2 - EAST TULLOS TRANSFORMATION	
Potential Sites	Site 3b - East Tullos Site 3c - Rail Halt & Sidings
Potential ETZ Uses	Examples of ETZ developments within Area 2 could include: • Extension of ETZ Core uses requiring proximity ; » Includes: offshore renewables assembly/staging and potential offshore renewables manufacture; • Energy hub including potential hydrogen generation / storage; • Approved Energy From Waste Facility; • Energy related pipelines/infrastructure; • STAG Link Road (safeguarded within LDP 2022); » Bridge/Underpass design requirements to facilitate direct access; or • Other Class 4 Business; Class 5 Manufacturing; or Class 6 Storage and Distribution uses.

Total Developable Area

ETZ CORE STAGE 2 - EAST TULLOS TRANSFORMATION	
Site 3b - East Tullos Site 3c - Rail Halt & Sidings	14.7ha 2.h ha Both @ inflated 25% take up rate
ETZ CORE STAGE 2 - TOTAL DEVELOPABLE AREA	16.9HA (EAST TULLOS & RAIL HALT @ 25% TAKE UP RATE)

Assessment against LDP Policy and BNDF SG & Baseline Report

6.19 Sites within the ETZ Core Stage 2 (Sites 3b and 3c) are either allocated within the adopted LDP for business and industrial use or safeguarded for transport improvements. Accordingly, the future use of East Tullos (Site 3b) to accommodate an energy transition core and for the rail halt (Site 3c) to be developed to support potential rail improvements etc is fully supported in planning policy terms.

6.20 The adopted BNDF (and the corresponding Baseline Report) fully anticipated the provision of a new road over St Fitticks Park connecting East Tullos to South Harbour. A road in this location is therefore supported within this adopted Supplementary Guidance document and any future safeguarding within subsequent LDPs is fully contemplated.

Commentary - ETZ Core Stage 2 - East Tullos Transformation:

6.21 Sites within Stage 2 are already supported for future energy transition uses given that they are allocated within the LDP for business & industrial area or protected for transport improvements (i.e. Site 3c).

6.22 Any potential transformation of East Tullos would be related specifically to the STAG

FIGURE 22: BNDF ROAD LINK INTERVENTIONS

Link Road that connects Wellington Road to South Harbour, via East Tullos.

6.23 Implementation of this STAG Route would substantially increase the quantum of land adjacent to the harbour with direct level access. This would create increased opportunities for the growth of offshore renewables manufacture within the energy transition zone given that the ETZ Core (Stages 1 and 2 combined) would exceed the 20ha-30ha requirements for such processes.

6.24 As per the scenario testing, sites within East Tullos would therefore become more desirable given the provision of this vehicular link and their proximity to the harbour.

6.25 Accordingly, the future development of East Tullos relies upon existing sites being available or capable of being developed via future land assembly.

6.26 Provisionally, ACC's Estates team have confirmed that the majority of East Tullos is controlled by ACC under long-term Common Good Fund ground leases, particularly within its north-eastern corner and land parcels to the south of Greenbank Road.

6.27 However, ACC Estates outlined that such leases would not prescribe specific uses on the land. Therefore, any potential changes to energy transition related uses would not conflict with Common Good Fund requirements, subject to obtaining planning approval and agreeing appropriate commercial terms etc.

6.28 Therefore, to progress with the strategy identified within the ETZ Core Stage 2, further investigation of additional land assembly and mechanisms to deliver such sites would be required (alongside further interrogation of individual ground leases).

6.29 In addition to this, to deliver this strategy, the design specifications/requirements for any proposed underpass/bridge will be critical as any scope for direct, level access into East Tullos from South Harbour would be directly dependent on this design. We suspect that any route would need to start at the north-eastern corner of East Tullos then run along the western edge of St Fitticks Park (Site 2b). This would avoid potential landscape and visual impacts and contamination remediation associated with a route along the former Ness Landfill - which is more visually prominent (and potentially contaminated).

6.30 This strategy also considers scope for a rail spur from East Tullos to South Harbour – to accommodate direct distribution of large energy related components from potential renewables manufacturing areas in East Tullos to South Harbour.

6.31 Inclusion of the ETZ Core Stage 2 would allow for c.17ha of land to accommodate future ETZ relates uses based on an increased take up rate of 25%.

6.32 Technically (from a pure planning perspective) the land would site outwith the 30ha requirement associated with this Study as energy transition related uses are already supported in principle within East Tullos as an allocated Business and Industrial land within the adopted LDP.

ETZ Cluster

6.33 The ETZ Cluster would be focused on the following sites:

- Site 2c - (Doonies Farm)
- Site within/adjacent to Altens industrial including:
  - » 2a (Altens North)
  - » 3a (Altens South)
- 2d (West of Coast Road at Hareness)

6.34 The following characteristics are applicable to the ETZ Cluster:

- Delivery of sites that do not require proximity to the harbour.
- Inclusion Doonies Farm - to accommodate a future energy related hub potentially inked to the materials recycling facility in Altens North.

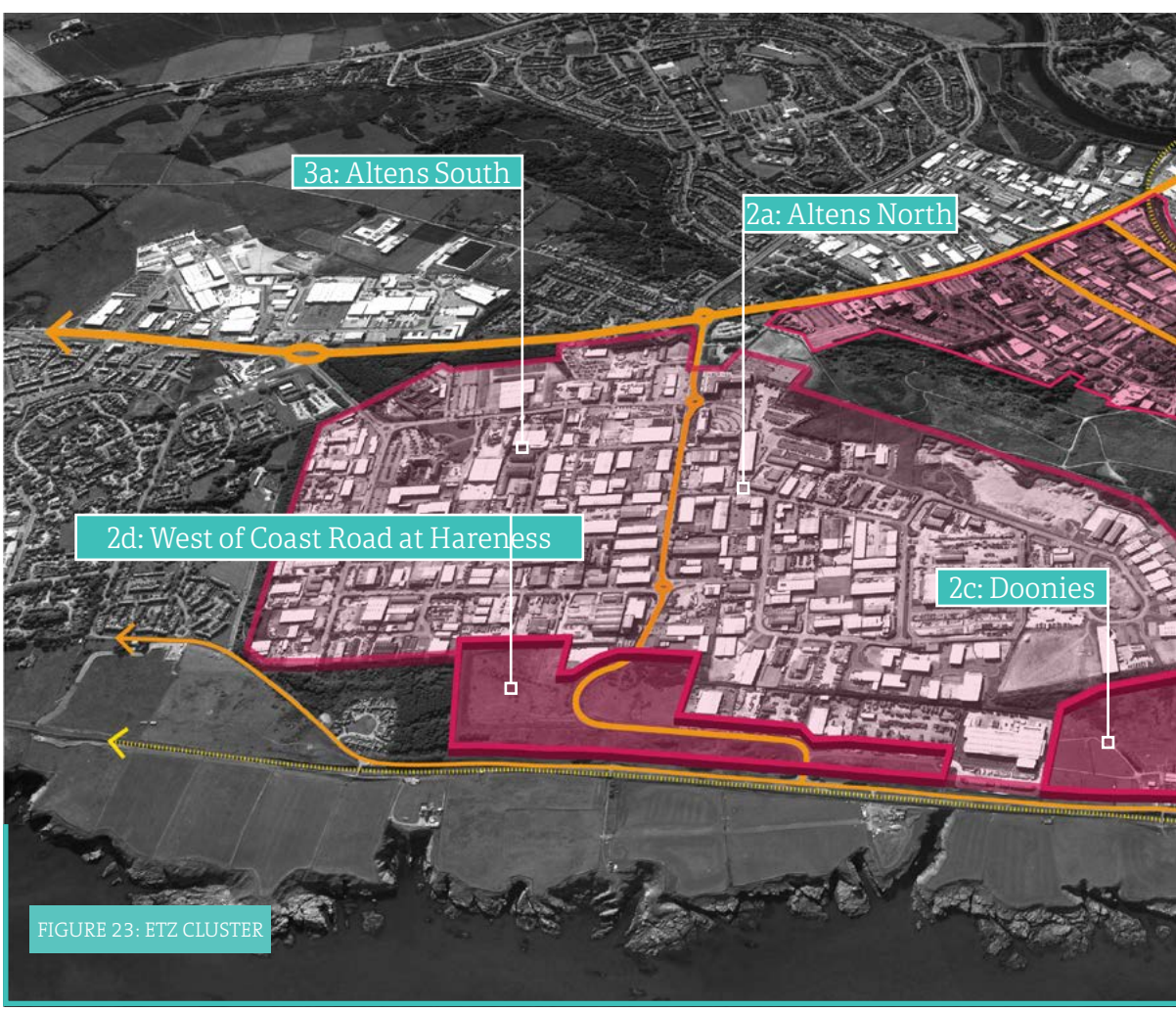
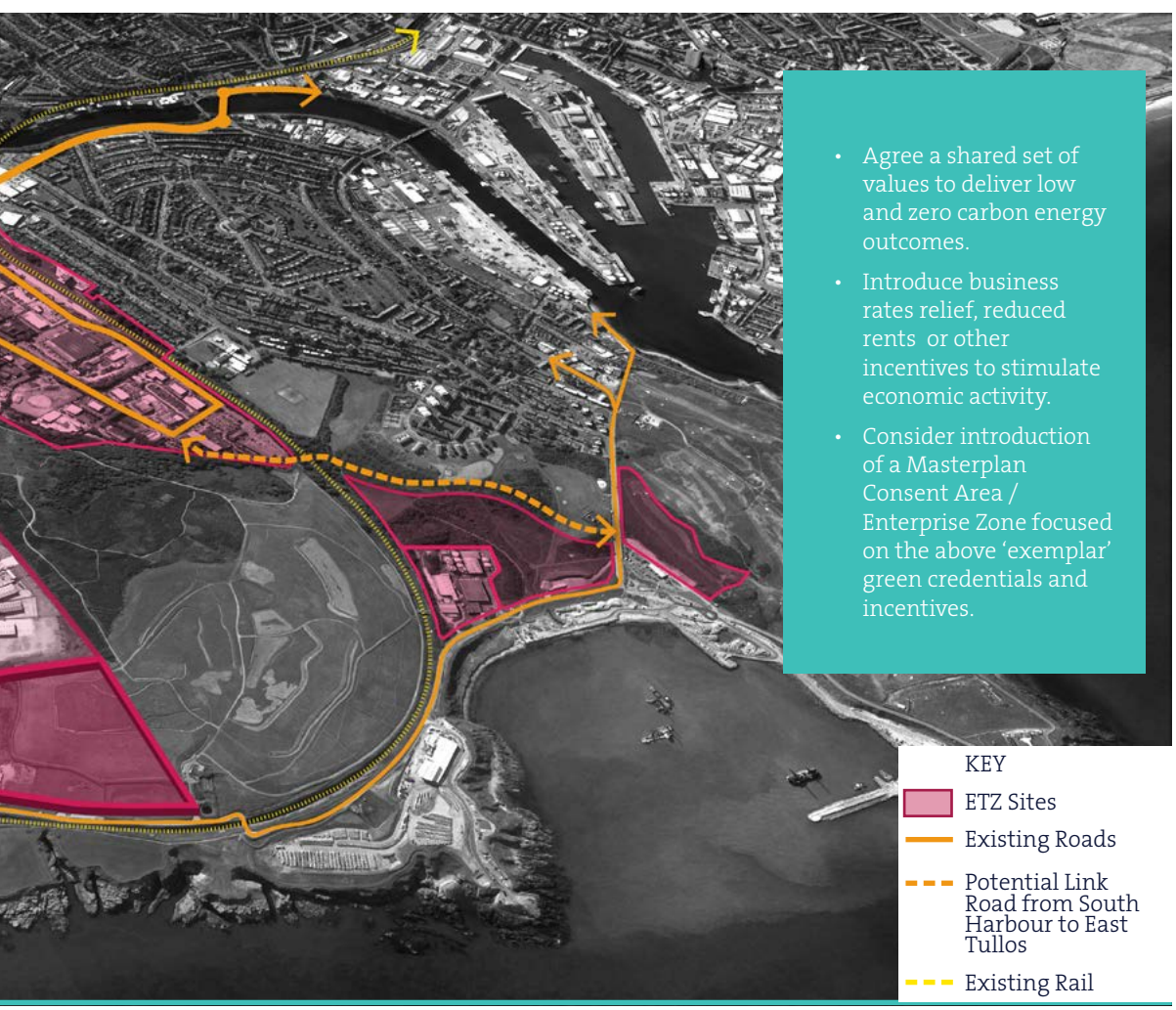


FIGURE 23: ETZ CLUSTER



- Agree a shared set of values to deliver low and zero carbon energy outcomes.
- Introduce business rates relief, reduced rents or other incentives to stimulate economic activity.
- Consider introduction of a Masterplan Consent Area / Enterprise Zone focused on the above 'exemplar' green credentials and incentives.

Sites & Potential Uses:

ETZ Cluster		
Potential Sites	Sites Off Coast Road: • 2c (Doonies Farm)	Sites Within/Adjacent to Altens: • 2a (Altens North) • 3a (Altens South) • 2d (West of Coast Road at Hareness)
Potential ETZ Uses	Sites Off Coast Road: Secondary ETZ related developments components could include: • Energy-related hub potentially inked to existing materials recycling facility at Altens North' • Energy Pipelines/Infrastructure; or • Energy generation/expansion related to existing materials recycling facility and proposed EfW facility. Sites within/Adjacent to Altens Industrial Estates: • Complementary industrial/employment related uses including: • Class 4 Business, Class 5 Manufacturing or Class 6 Storage and Distribution c. 5ha if 2.7% take up rate continues at Altens	

Total Developable Area

STAGE 3 - ETZ Cluster	
2c (Doonies Farm) 2d (West of Coast Road at Hareness)	Developable Land @ 66%: c.11.1ha c. 11.3ha
ETZ Cluster TOTAL DEVELOPABLE LAND	C.22.4HA – @ 66% DEVELOPABLE LAND (C.27.4HA IF ALTENS TAKE UP INCLUDED) C.11.3HA WITHOUT DOONIES FARM (C. 16.3HA WITHOUT DOONIES FARM AND IF ALTENS TAKE UP INCLUDED)

Assessment against LDP Policy and BNDF SG and Baseline Report

6.35 Sites within The ETZ Cluster have a varied policy position within the adopted LDP. Site 2c (Doonies Farm) is allocated as Green Belt and Green Space Network within the adopted LDP which significantly restricts future development. The majority of Site 2d (West of Coast Road at Hareness) is allocated for business and industrial use so future energy transition related uses are supported. The east of Site 2d has the same policy restrictions as the sites above. However, given the adjacent industrial context, it is considered that there could be less push back for future energy transition development on this land than other more prominent Green Belt sites.

6.36 Sites within the ETZ Cluster have a varied policy position within the adopted LDP and BNDF. Site 2c (Doonies Farm) is allocated as Green Belt and Green Space Network within the adopted LDP which significantly restricts future development.

6.37 However, the BNDF Baseline Report (p.77) includes a 'Vision for Altens' which identifies Doonies Farm as a potential development site (nominated purple within the extract below). It suggests that sites off Coast Road have the potential to accommodate future development, once transport improvements are undertaken within this area. Again, this site was not identified for development within the adopted BNDF. However, the inclusion of this option within the Baseline Report outlines the potential level of change considered by ACC for this area. The Development Table for Altens (p44.) of the adopted BNDF also includes a requirement to consider additional land through the LDP, contemplating the potential inclusion of this sites, and others, through emerging LDPs.

6.38 Similar to the ETZ Core (Stages 1 and 2), this position advocates ACC's thinking towards future development add to the sites future allocation (and development) within emerging LDPs. The majority of Site 2d (West of Coast Road at Hareness) is allocated for business and industrial use so future energy transition uses are supported. The east of the site has the same policy restrictions as the sites above, however, given the adjacent industrial context, it is considered that there could be less push back for future energy transition development on this land than other more prominent green belt sites.

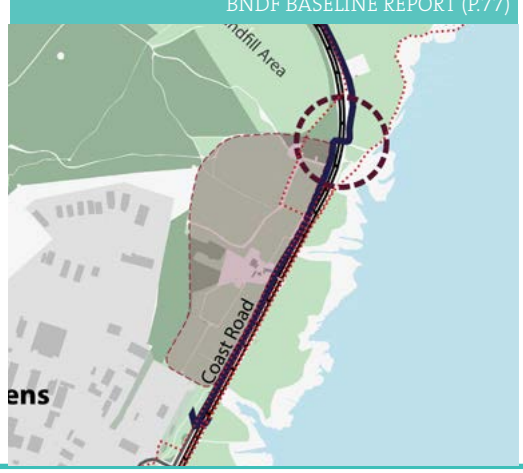
6.39 The adopted BNDF and its Baseline Report also advocate a range of transport interventions that would be applicable across the study area, but in particular to road infrastructure around Altens – including upgrades to Souterhead Roundabout, Hareness Roundabout and Hareness Road – as per the strategy drawings from the BNDF.

Commentary

6.40 The delivery of sites within The ETZ Cluster would facilitate future energy transition uses that do not require proximity to the harbour. This includes Doonies Farm, which has been included to potentially accommodate a future energy-related connected to the nearby materials recycling facility in Altens North.

6.41 It is anticipated that a small number of sites will become available within Altens that could accommodate future uses, but far less than East Tullos, so the recent average take up rate of 2.7% has been applied to any potential land figure. An extension east from Altens (using partly allocated industrial land and partly green belt allocated land) could also accommodate potential energy related uses that do not require proximity to the harbour.

FIGURE 24: POTENTIAL DEVELOPMENT SITES - BNDF BASELINE REPORT (P.77)



The Energy Coast:

6.42 The Energy Coast would be based on the following areas:

- Western edge of St Fitticks Park;
- Tullos Hill;
- Balnagask GC (part); and
- Sites to the east of Coast Road.

6.43 The following characteristics are applicable within the Energy Coast:

» Open space and landscape enhancements to complement energy transition related uses within other areas.

» Research and development opportunity within Girdleness.

» Potential temporary site compound/ offices and open space around Walker Park and Gregness.

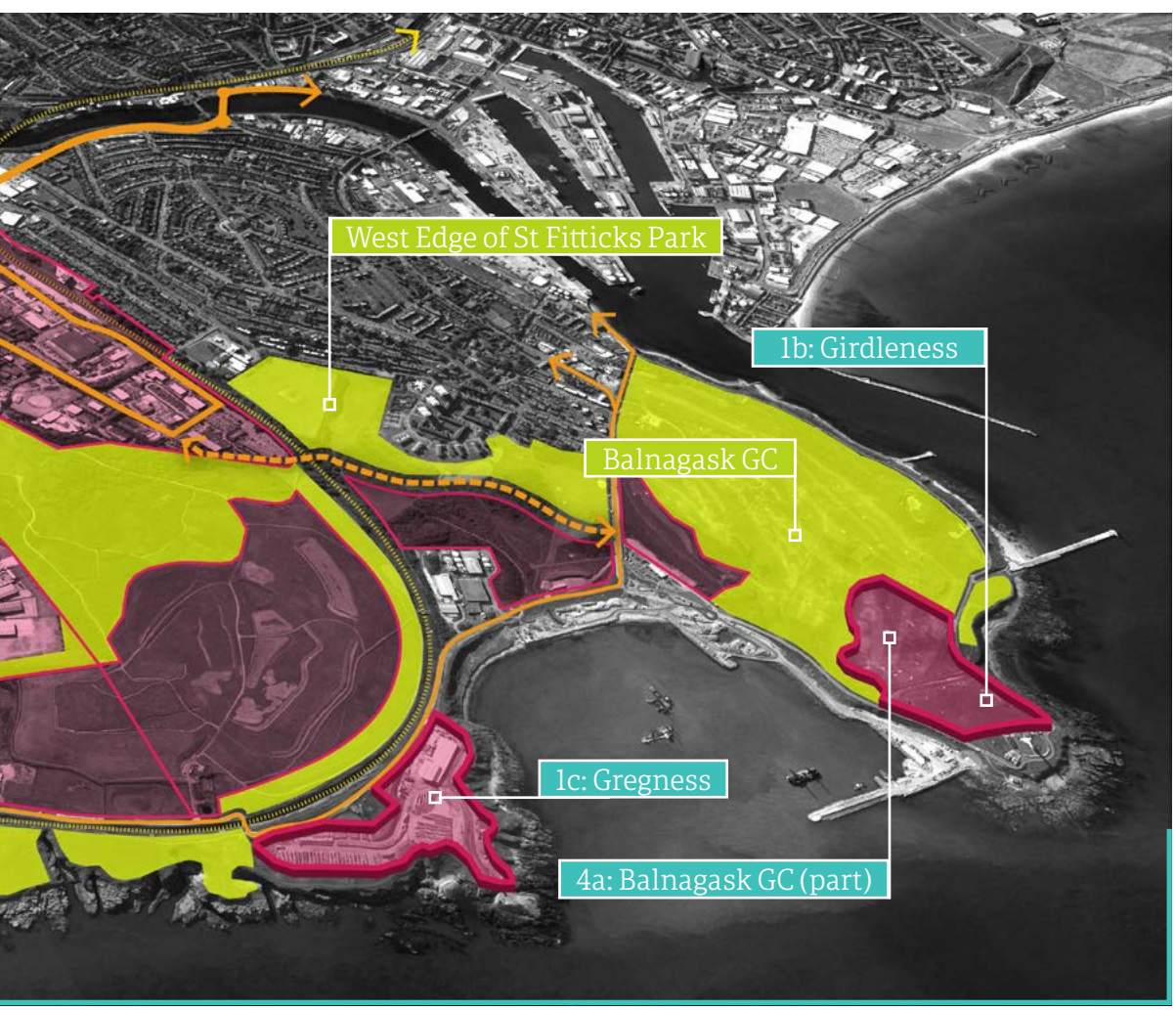
FIGURE 25: THE ENERGY COAST

Commentary – The Energy Coast

6.44 The Energy Coast provides extensive opportunities to provide landscape and open space enhancement to complement the associated energy transition zone uses in other preferred strategy areas.

6.45 There is also scope to consider a future energy transition zone research and development facility / centre of excellence for energy transition within Gregness, alongside suitable open space enhancements etc.

6.46 Temporary uses associated with site compounds/cabins could also be included around Walker and Gregness to facilitate a need to be close to energy transition use operations but not directly adjacent to them.



Sites & Potential Uses:

THE ENERGY COAST	
Sites	Potential Enhancements
Site to the west of the ETZ Core including • Western edge of St Fitticks Park • Tullos Hill • Balnagask Golf Course (Southern and Western areas)	• Open space and landscape enhancements
Site to the east of Coast Road including • Sites 4b, 4c, 4d	Increased linear connections including • Improved footpath, cycling, open spaces and landscape enhancements.
Sites east of Coast Road including: • Sites 4b or 4c	• Potential to accommodate a relocated Doonies Farm

Total Developable Area

THE ENERGY COAST	
Open Space and Landscape Enhancements	Extensive areas
Site 1c – Gregness	Research and Development / Innovation Centre Centres of Excellence - relating to Floating Offshore Wind or Hydrogen - with open space and landscape enhancements 4.7ha @ 66% Developable
Site 1b and 4a (part) - Girdleness & Balnagask GC (Part) .	Temporary site compound/offices and open space enhancements 5.8ha @ 66 % Developable

Recommended ETZ Allocation within the LDP 2022 Proposed Plan

6.47 In order to support an energy transition zone within the study area, it is recommended that the strategy above is translated into the emerging LDP 2022 Proposed Plan.

6.48 Accordingly, it is recommended that the preferred sites within this chapter are allocated for an energy transition zone within the LDP 2022 Proposed Plan - where energy related developments would be supported.

6.49 This includes allocation of the following sites within the LDP 2022:

- ETZ Core Stage 1 - St Fitticks (Figure 18):
  - Sites 1a St Fitticks - Lease Option;
  - Site 1d Greyhope Road;
  - Site 2b - St Fitticks;
  - Site 4a - Balnagask Golf Course (Part - South Western Corner);
  - Site 2e - Nigg WWTW
- ETZ Core Stage 2 (Figure 21):
  - Site 3b - East Tullos
  - Site 3c - Rail Halt & Sidings
- ETZ Cluster (Figure 23):
  - Site 2a - Altens North
  - Site 2c - Doonies Farm
  - Site 2d - West of Coast Road at Hareness
  - Site 3a - Altens South
- The Energy Coast (Figure 25) - Sites:
  - Site 1c - Gregness
  - Site 4a - Balnagask Golf Course (Part - north-eastern corner)
  - Landscape and Open Space enhancements at: St Fitticks Park, Balnagask Golf Course (part), Tullos Hill and Land to the east of Coast Road.

Study Parameters

6.50 As outlined previously, this report provides a strategic assessment of potential sites to accommodate energy transition within Aberdeen based on the available information at this time.

6.51 As with any study, there are a various matters that have not been investigated in extensive detail (largely due to information availability and the expedient study timescales).

6.52 Moreover, some assumptions have been applied, largely conservative, to consider the potential delivery of study sites within the preferred strategy. There may be additional requirements to update these assumptions should additional information become available following publication of this report.

6.53 Despite the above, this report provides a comprehensive assessment of potential sites within the study area and a robust rationale to justify the preferred strategy for the delivery an energy transition zone within this area.

Short Term Planning Strategy

Next Steps

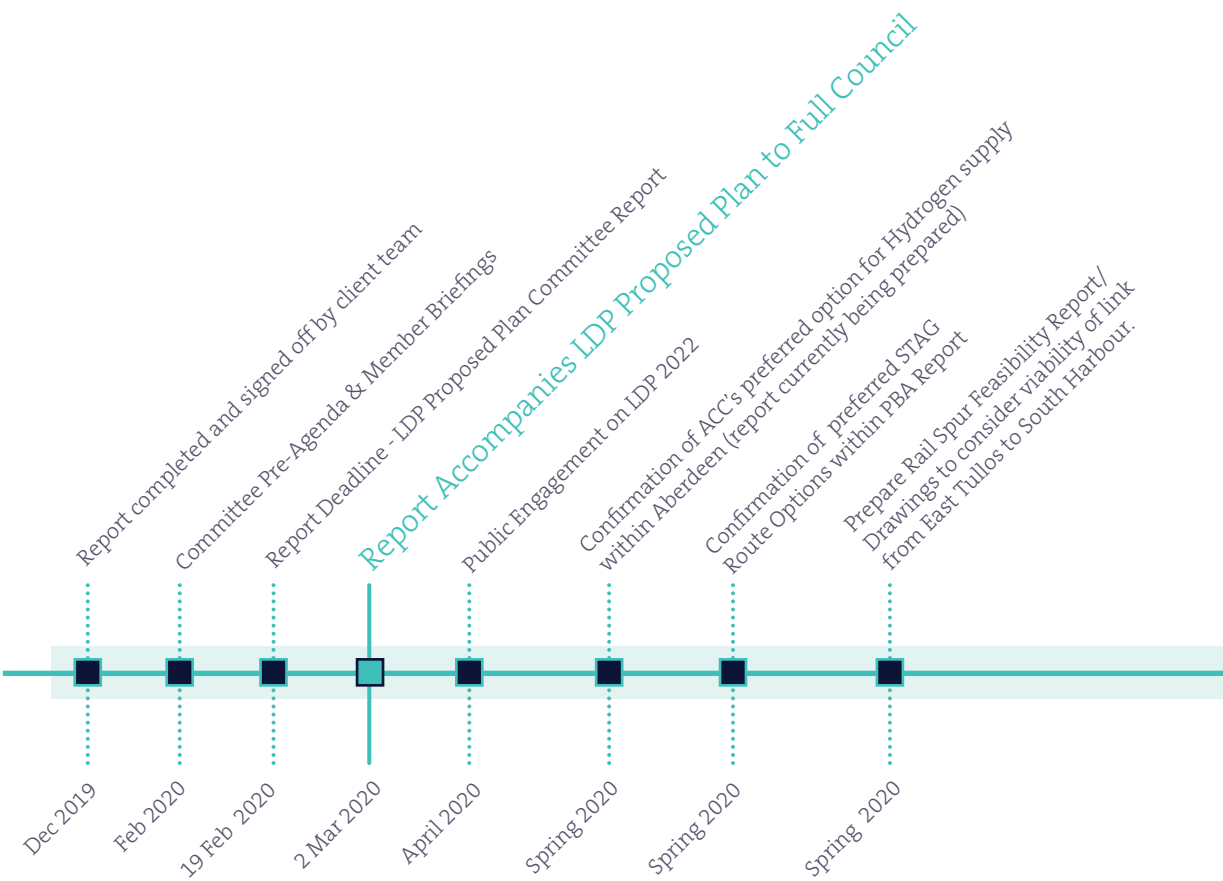
7.1 This Feasibility Report has been prepared within an extremely limited timescale to allow for its production in assisting with (and coinciding with) the preparation of ACC's emerging LDP 2022.

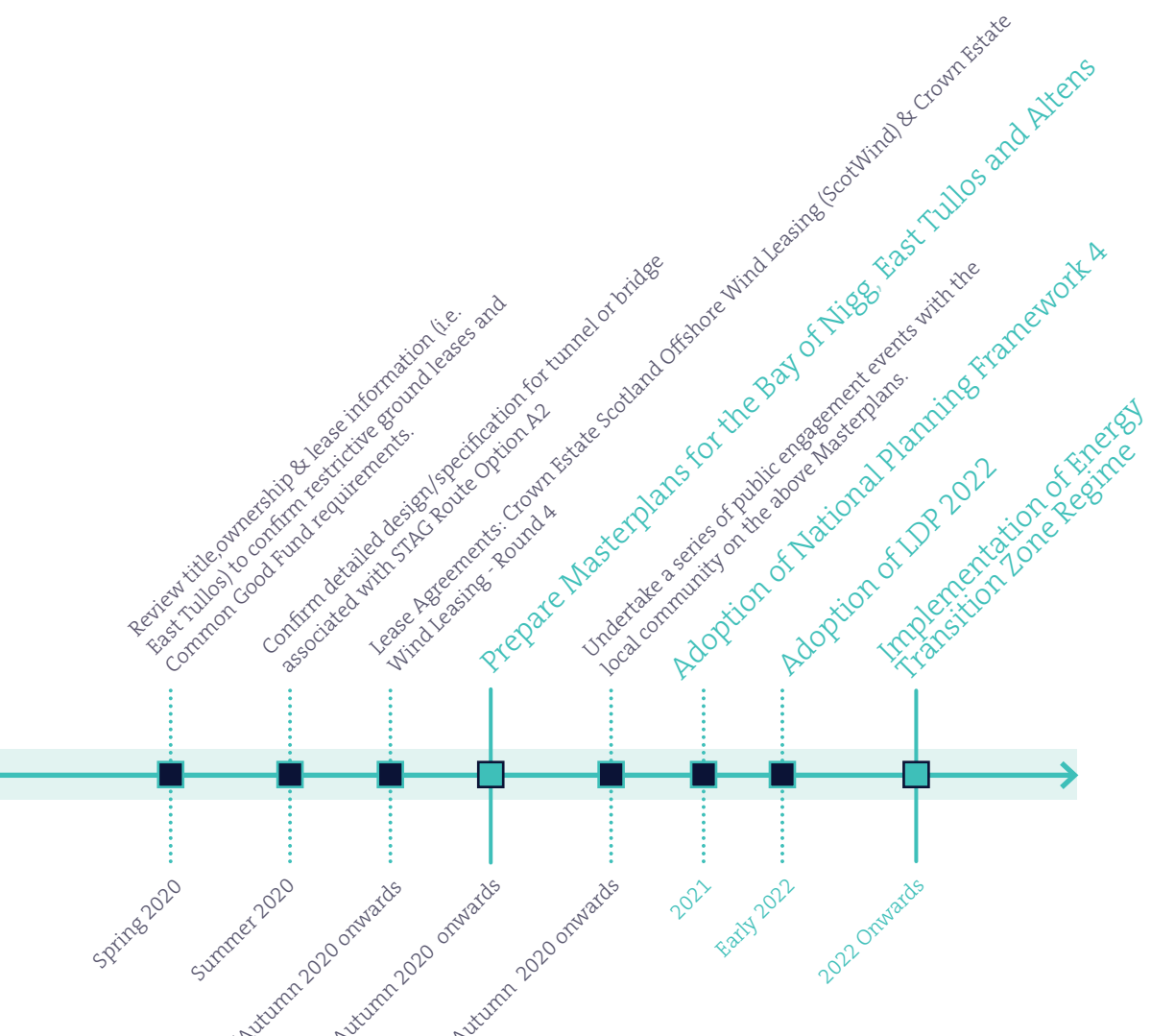
07

Timeline of change

7.2 Therefore, to be able to ensure that an energy transition zone within the study area is supported/allocated within the emerging LDP, a range of outputs will be required.

7.3 The following outlines a planning strategy and respective timeline of change for various actions required to support the allocation of an energy transition zone within the emerging LDP 2022 and the delivery of an energy transition zone within the study area.




Review title,ownership & lease information (i.e. East Tullos) to confirm restrictive ground leases and Common Good Fund requirements.
Confirm detailed design/specification for tunnel or bridge associated with STAG Route Option A2
Lease Agreements: Crown Estate Scotland Offshore Wind Leasing (ScotWind) & Crown Estate Wind Leasing - Round 4
Prepare Masterplans for the Bay of Nigg, East Tullos and Altens
Undertake a series of public engagement events with the local community on the above Masterplans.
Adoption of National Planning Framework 4
Adoption of LDP 2022
Implementation of Energy Transition Zone Regime
Spring 2020
Summer 2020
Summer/Autumn 2020 onwards
Autumn 2020 onwards
Autumn 2020 onwards
2021
Early 2022
2022 Onwards

ABERDEEN ENERGY TRANSITION ZONE FEASIBILITY STUDY

REPORT APPENDICES

February 2020

BARTON WILLMORE INVEST ABERDEEN ONE OPPORTUNITY NORTH EAST

APPENDIX 1: SITE ASSESSMENT SCORING CRITERIA

1. PLANNING & POLICY ASSESSMENT	Red	Amber	Green
LDP Designations: - Policy NE 2 - Green Belt; - Policy NE1 - Green Network Policy - Policy B5 - Aberdeen Harbour; - Opportunity Site - OP 62 & OP 64 - Policy B1 - Business & Industrial Land; - Policy NE 7 - Develop/Undeveloped Coast; and - Core Paths.	Significant policy constraints contrary to development of future ETZ uses.	Some policy constraints that are contrary to the development of future ETZ uses.	Policy support for future ETZ uses.
Planning / Development History: - Review of recent planning decisions - Review of site / aerials etc	No planning history and/or not previously developed.		Relevant planning and/or previously developed.
Flood Risk: - SEPA Flood Mapping categories	High Flood Risk	Medium Flood Risk	No known Flood Risk
Natural Environment Designations: - SNH Site Link designations (SSSI, SAC etc) and ACC's local designations (i.e. LNR etc)	Significant policy constraints	Some policy constraints	Policy support
Proximity to Heritage Assets: - HES Search: Listed Buildings, Scheduled Monuments, Conservation Areas etc	Likely impact to setting of heritage asset	Some impacts to setting of heritage assets	No potential impacts to setting of heritage assets
Landscape & Visual Impacts: - Landscape Characteristics - Landscape Character Study	Development would intrude significantly into surrounding landscape	Potential to intrude slightly into surrounding landscape	Unobtrusive in surrounding landscape

2. ROADS & TRANSPORTATION	Red	Amber	Green
Vehicular Access to/from site: - Review existing context	Significant constraints to existing (or new potential) vehicular access for ETZ uses.	Existing access with some potential constraints	Existing or potential to provide access with no significant constraints
Road Capacity (ACC Roads): - Commentary from ACC Roads workshops	Significant capacity constraints	Some capacity constraints	No significant capacity constraints
PBA STAG 1/2 Appraisal Results: External Transport Links to South Harbour - Commentary PBA Workshop	No STAG road option		STAG route option could benefit road capacity and future ETZ uses.
Pedestrian Access Requirements: - Review existing context	No available footpath/cycle path connections	Limited footpaths/cycle paths	Existing footpaths / cycle path connections

3. END USER REQUIREMENTS	Red	Amber	Green
Proximity to Aberdeen South Harbour with potential for direct, level access.	No potential for connectivity to South Harbour	Close to South Harbour with potential for connectivity	Directly adjacent and accessible to South Harbour with potential for direct, level access.
Size (Ha)	Small site area with no potential combine with other ETZ sites to form larger site	Medium site able to accommodate some ETZ uses.	Large Site able to accommodate ETZ use or smaller site with potential to combine with other ETZ sites
Current Use	Existing use not compatible with ETZ use		Employment/Industrial Use compatible with ETZ use
Topography	Steep Slope >1 in 10	Slope < 1 in 10	Relatively Flat
Ground Conditions	Contamination identified and potential remediation required.	Ground conditions / contamination cannot be confirmed	No contamination confirmed
Nearby Land Uses to Consider	Significant conflict with nearby uses	Some potential conflict with adjacent uses	No expected conflict with potential uses.
Potential Development Area (Ha) Plot Rations (i.e. 40%)	Development Area Nominated		

4. DELIVERABILITY / AVAILABILITY	Red	Amber	Green
Ownership / Accessibility constraints - Liaison CEC Estates	Significant known ownership constraints	Some know ownership constraints	No known ownership constraints or owned/controlled by ACC
Likely Infrastructure Constraints	Significant known infrastructure constraints	Infrastructure constraints cannot be confirmed	Confirmation that no known infrastructure constraints
Existing Drainage / Servicing (TBC)	No known services		Existing services

APPENDIX 2: INDIVIDUAL SITE ASSESSMENTS

	1A St Fitticks		1B Girdlenes
1. PLANNING & POLICY ASSESSMENT			
LDP Designations	Green Belt and Green Space Network		Green Belt and Green Space Netv
	Developed Coastal Management Area		Undeveloped Coastal Managemer
	Opportunity Site 62 - Nigg Bay		Opportunity Site 62 - Nigg Bay
	Eastern part of site identified as potential development site within BNDF Baseline Report		
Planning Workshop Summary	Restrictive Green Belt and Green Space Network LDP policy allocations similar to the majority of the study area (outwith industrial estates). However, this is set against the site's Opportunity Site allocation in the LDP. Potential logical extension to South Harbour to facilitate any future ETZ uses should a new policy position be considered within this location.		As per Site 1a. Also, future long t development could be problemati community interest and local inte be returned to open space. Scop uses could be explored (i.e. to fu space/leisure enhancements else however, further details would be
Planning / Development History	PPP & AMSC Approvals for South Harbour (National Development)		PPP & AMSC Approvals for South (National Development)
Flood Risk	Potential for surface water flooding within northern part of site.		No issues identified within SEPA F
Natural Environment Designations	No statutory designations noted.		No statutory designations noted.
Proximity to Heritage Assets	St Fitticks Scheduled Monument adjacent to site. 50m &100m buffers within north western part of site.		Category 'A' Listed Building close
Likely Landscape & Visual Impact	Med/low visibility		Headland / highly visible
2. ROADS & TRANSPORTATION			
Vehicular Access to/from site	2 x existing access off St Fitticks Road		Existing access off Greyhope Roa
Road Capacity (ACC Roads)			
PBA STAG 1/2 Appraisal Results: External Transport Links to South Harbour	Benefits from Option A2, A3, A4 & A5. Option A2 adjacent to Site, significantly enhancing accessibility to/from the site via East Tullos and Wellington Road.		Benefits from Option A4 & A5 - E Coast Road.
Pedestrian Access Requirements	Core Path along eastern boundary		Public park with pacesetting foot
3. END USER REQUIREMENTS			
Proximity to Aberdeen South Harbour	Directly adjacent to South Harbour		Directly adjacent to South Harbou temporary construction area.
Size (Ha)	**2.45**		**3.40**
Current Use	Temporary Construction Site		Walker Park / Storage
Topography	Relatively flat		Relatively flat
Ground Conditions	Unknown		Unknown
Nearby Land Uses to Consider	Waste Water Treatment Plant and South Harbour.		Balnagask Golf Course, Listed Lig Residential cottages.
Potential Development Area (Ha)	with 100m heritage buffer **1.54** with 50m heritage buffer **2.08**		**2.53**
4. DELIVERABILITY / AVAILABILITY			
Ownership / Accessibility	ACC owned/controlled land.		ACC owned/controlled land.
Likely Infrastructure Constraints	Infrastructure constraints cannot be confirmed.		Infrastructure constraints cannot
Existing Drainage / Servicing	Cannot be confirmed. Assumed only temporary drainage and servicing is available to facilitate the existing temporary construction areas.		Cannot be confirmed. Assumed o drainage and servicing is availabl existing temporary construction a

	1C	1D
s	Gregness	North of Greyhope Road
work	Green Belt and Green Space Network	Green Belt and Green Space Network
nt Area	Developed Coastal Management Area (north)	Undeveloped Coastal Management Area
	Undeveloped Coastal Management Area (South)	
	Local Nature Conservation Site	
	Opportunity Site 62 - Nigg Bay	Opportunity Site 62 - Nigg Bay
term ic given erest for site to e for short term nd open where), e required.	Visually prominent. Potential for an R&D/university/research base of an appropriate scale could potentially more suitable in lieu of industrial related uses should a new policy position be explored within this area.	Logical extension to harbour or potential ETZ uses should the policy position within this area be considered.
Harbour	PPP & AMSC Approvals for South Harbour (National Development)	PPP & AMSC Approvals for South Harbour (National Development)
Flood Map.	No issues identified within SEPA Flood Map.	No issues identified within SEPA Flood Map.
	Adjacent to Nigg Bay SSSI. Local Nature Conservation Site. Undeveloped Coastal Management Area.	No statutory designations noted.
to Site.	No nearby heritage assets.	St Fitticks Scheduled Monument close to Site.
	Highly visible	Med/low visibility
d	Existing access off Coast Road	Potential access off St Fitticks Road and/or newly aligned Greyhope Road
nhancement to	Benefits from Option A4 & A5 - Enhancement to Coast Road.	
paths	Core Path sweeps/bisects site	Core Path along southern boundary
ur, containing	Adjacent to South Harbour, containing temporary construction area.	Directly adjacent to South Harbour.
	7.12	**1.64**
	Temporary Construction Site	green space
	Relatively flat	c.1:8 slope between newly constructed road and northern
	Unknown	Unknown
hthouse,	South Harbour	South Harbour
	7.12	with 100m heritage buffer **0.88** with 50m heritage buffer **1.23**
	ACC owned/controlled land.	ACC owned/controlled land.
be confirmed.	Infrastructure constraints cannot be confirmed.	Infrastructure constraints cannot be confirmed.
nly temporary e to facilitate the reas.	Cannot be confirmed. Assumed only temporary drainage and servicing is available to facilitate the existing temporary construction areas.	Cannot be confirmed. Assumed only temporary drainage and servicing is available to facilitate the existing temporary construction areas.

	2a Altens North		
1. PLANNING & POLICY ASSESSMENT			
LDP Designations	Primarily Business and Industrial Allocation		Green Belt and G
	Areas of Green Belt		13.90ha of Develo
	Areas of Local Nature Conservation Site		Eastern part of si Report.
Planning Workshop Summary	Policy support is already in place within the LDP to support future ETZ related uses within this allocated business and industrial site.		Partial developme position is anticip and proximity to forward, the west landscape enhanc
Planning / Development History	Various industrial-related approvals		None
Flood Risk	Minor areas of potential surface water flooding		Potential surface
Natural Environment Designations	No statutory designations noted.		No statutory desi
Proximity to Heritage Assets	4 x Scheduled Monuments to the north of the site, however, located in Tullos Hill within a different context to the existing industrial estate.		St Fitticks Schedu
Likely Landscape & Visual Impact	Low - set within existing industrial estate.		Med visibility - ea residential uses. H part of the site w etc.
2. ROADS & TRANSPORTATION			
Vehicular Access to/from site	3 x existing accesses off Hareness Road		Potential access c
Road Capacity (ACC Roads)			
PBA STAG 1/2 Appraisal Results: External Transport Links to South Harbour	Benefits from Option A4 (Hareness Rd & Coast Rd Improvements)		Benefits from All enhancing access
Pedestrian Access Requirements	Various adopted footpaths, outwith potential development areas		Pedestrian conne of the Site which of a link road as p
3. END USER REQUIREMENTS			
Proximity to Aberdeen South Harbour	Significant separation from South Harbour		Parts of site direc
Size (Ha)	**101.94**		
Current Use	Brownfield		St Fitticks Commu
Topography	Undulating land.		Undulating land /
Ground Conditions	Unknown		Unknown
Nearby Land Uses to Consider	Industrial		Waste Water Trea
Potential Development Area (Ha)	Area 1 **9.19** Area 2 **1.74** Area 3 **0.75** Area 4 **3.26**		Area 1 Area 2 Area 3 Area 4
4. DELIVERABILITY / AVAILABILITY			
Ownership / Accessibility	Mainly private ownership. Selected parcels under ACC ownership / control. Potential ACC Common Good Fund restrictive ground lease(s).		ACC owned/contr
Likely Infrastructure Constraints	Existing infrastructure in place within existing industrial estate. Potential impacts associated with required road infrastructure improvements to Hareness Road/Roundabout as per BNDF to address congestion etc.		Infrastructure cor
Existing Drainage / Servicing	Existing drainage and services available within existing industrial estate.		No known drainag

2b St Fitticks Park		2c Doonies Farm	
reen Space Network		Green Belt and Green Space Network	
oped Coastal Management Area		Identified as potential development site within BNDF Baseline Report	
te identified as potential development site within the BNDF Baseline			
ent of the site for ETZ uses could be explored if a new policy ated within this area. Consideration of potential amenity impacts residential areas will be a key test. If this is approach is taken tern part of site would likely accommodate open space and/or cements for the local community.		Potentially it could be easier for development to be accepted on this site in planning policy terms than other locations with more problematic constraints, should the policy position be updated for this area. However, and critically, there is extensive local/community interest in the current use of the site (as Donnie's Farm).	
		Associated works to Doonies Farm / Education Facility.	
water flooding, predominantly to the north of the site.		Small areas of potential surface water flooding	
gnations noted, albeit, Developed Coastal Management Area		No statutory designations noted, albeit, Developed Coastal	
led Monument close to Site		Scheduled Monument abutting outer edge of Site	
stern part of site. Western parts of site more prominent, closer to However, no development is proposed within the (higher) western hich would likely include a buffer and landscaped enhancements		Highly visible from Coast Road, albeit, with Industrial backdrop	
off Coast Road		Existing access off Coast Road at Doonies Farm	
STAG Options. However, Option A2 adjacent to Site, significantly sibility to/from the site via East Tullos and Wellington Road etc.		Benefits from Option A4 & A5 - Enhancement to Coast Road	
ctivity to east of the site. A Core Path also runs through the centre may require realignment (dependant on the potential introduction per STAG Route Options A2 referenced above).		Pedestrian connectivity to east of site.	
tly adjacent to South Harbour		Close to South Harbour but not adjacent. Close proximity to access roads.	
17.62		**16.83**	
unity Park		Doonies Farm	
up to c.1:10 slope between Balnagask flats and Core Path		Generally land falls from the north-west down to the east / steeper slopes c.1:7 toward northern corner of Site	
		Unknown	
atment Plan / South Harbour / Residential / Rail Line		Industrial	
3.85 **2.16** **0.96** **3.01**		**11.03**	
olled land.		ACC owned/controlled land. Confirmation of any potential ground lease requirements needs to be investigated.	
nstraints cannot be confirmed.		Infrastructure constraints cannot be confirmed.	
ge/servicing.		No confirmed drainage/services but given existing farm/farm shop provision anticipated within the developed part developed part of the site for a farm shop etc	

	2d West of Coast Road at Hareness		
1. PLANNING & POLICY ASSESSMENT			
LDP Designations	Western part of site Business and Industrial Land		Green Belt and Green
	Easter part of site Green Belt and Green Space Network		Developed Coastal M
Planning Workshop Summary	Reallocation/Development of the western part of this site would be acceptable in planning terms as this site is partially allocated for business/industry. Land outwith business and industrial allocation could potentially form a logical extension to the adjacent industrial area as the existing EfW facility 'breaks' the previous landscape line running north-south from Doonies to Hareness Road.		Support in planning p redeveloped/allocate represent the redeve
Planning / Development History	Landfall sub station & underground cable (withdrawn)		Existing WWTW. Stru
Flood Risk	Small areas of potential surface water flooding		Areas of potential su
Natural Environment Designations	No statutory designations noted.		No statutory designa
Proximity to Heritage Assets	No nearby heritage assets.		No nearby heritage a
Likely Landscape & Visual Impact	Highly visible from Coast Road, albeit, with an industrial backdrop		Visually contained no Existing WWTF also i
2. ROADS & TRANSPORTATION			
Vehicular Access to/from site	Existing access off Coast Road and Hareness Road		Existing access off C
Road Capacity (ACC Roads)			
PBA STAG 1/2 Appraisal Results: External Transport Links to South Harbour	Benefits from Option A4 & A5 - Enhancement to Coast Road		benefits from Option
Pedestrian Access Requirements	pedestrian footpath along Hareness Road. Also Core Path running through southern section of the Site		Core Path to south a
3. END USER REQUIREMENTS			
Proximity to Aberdeen South Harbour	Dislocated from South Harbour, but close to road infrastructure		Directly opposite/adj
Size (Ha)	**17.22**		
Current Use	Green Space		Waste Water Treatm
Topography	Modest falls from west to east. Greater falls within south-western corner of the site		Development platfor
Ground Conditions	Unknown		Unknown
Nearby Land Uses to Consider	Industrial		South Harbour and S
Potential Development Area (Ha)	Area 1 **3.24**		
	Area 2 **5.2**		
	Area 3 **2.15**		
	Area 4 **3.01**		
	Area 5 **1.8**		
4. DELIVERABILITY / AVAILABILITY			
Ownership / Accessibility	Private Ownership.		ACC ownership/contr Water (Kelda) have a potential accessibility agreement.
Likely Infrastructure Constraints	Infrastructure constraints cannot be confirmed.		Existing infrastructur relocated/amended/r potentially resulting i
Existing Drainage / Servicing	No known drainage/services. Site located directly adjacent to Altens industrial estate so future connectivity could be possible.		Existing drainage and

2e		2f	
Nigg WWTP		**Former Ness Landfill**	
n Space Network		Green Belt and Green Space Network	
lanagement Area		Opportunity Site (OP64)	
policy terms should this site be d for ETZ uses, given that it would elopment of a brownfield site.		Reasonable scope for future development in planning policy terms given its previous development (landfill) and Opportunity Site status. Scope to consider potential energy storage uses, soil scrubbing uses etc could be considered, given scope utilise existing landfill areas. However, significant contamination and remediation requirements are likely potentially restricting the future use of this site for ETZ uses.	
uctural works to existing WWTW		Previous use as landfill	
rface water flooding		Areas of potential surface water flooding	
tions noted.		Adjacent to Tullos Hill LNCS	
assets.		Scheduled Monument abutting outer edge of site	
orth, south and west by landscaping. influences built form context.		Land rises steeply and is highly visible	
oast Road		Existing access off Coast Road	
A5 - Enhancement to Coast Road		Significant benefits from Option A3 & A3A - which unlock this site	
nd east		Limited pedestrian access to majority of site	
acent to South Harbour		Railway disconnects site from South Harbour. Some of the potential STAG route options increase connectivity, albeit, may not be taken forward as the preferred option.	
3.50		**42.56**	
ent Plant		Green space	
m exists		Headland dropping from 62m AOD to 12m AOD / c.1:5 slopes along north eastern boundary	
		Significantly constrained - Previous landfill	
St Fitticks Park		Industrial and South Harbour	
3.5		**32.04**	
rol, however, understood that Scottish an extended lease over this site. Therefore constraints without lease holder's		ACC owned/controlled land.	
e provision would need to be removed prior to any future development, in significant constraints.		Significant constraints relating to former landfill. Majority of the site is also constrained by a lack of road infrastructure to provide access / movement through the site.	
d services available within existing WWTP.		No known services. Any drainage (if available) only likely to relate to the control of runoff from the former landfall etc.	

	3a		
	Altens South		
1. PLANNING & POLICY ASSESSMENT			
LDP Designations	Business and Industrial Land		Business and In
Planning Workshop Summary	Policy support already in place within the LDP to support development for ETZ related uses.		Policy support a related uses.
Planning / Development History	Various industrial-related approvals		Various industri
Flood Risk	Small areas of potential surface water flooding		Area of potentia
Natural Environment Designations	No statutory designations noted.		No statutory de
Proximity to Heritage Assets	No nearby heritage assets.		No nearby herit
Likely Landscape & Visual Impact	Set within existing developed area.		Set within existi
2. ROADS & TRANSPORTATION			
Vehicular Access to/from site	Existing access off Hareness Road and Souter Head Road.		2 x existing acc
Road Capacity (ACC Roads)			
PBA STAG 1/2 Appraisal Results: External Transport Links to South Harbour	Benefits Option A4 (Hareness/Coast Road) & Option A5 (Souterhead)		Significant bene unlock site
Pedestrian Access Requirements	Core Path to south of Site		Core Path runs underpass
3. END USER REQUIREMENTS			
Proximity to Aberdeen South Harbour	Disconnected from South Harbour		Severely discon Link is not imple
Size (Ha)	**82.07**		
Current Use	Industrial		Industrial
Topography	Development platforms exists / gently undulating		Development pl
Ground Conditions	Unknown		Unknown
Nearby Land Uses to Consider	Industrial		Industrial
Potential Development Area (Ha)	**Varied**		Area 1 Area 2
4. DELIVERABILITY / AVAILABILITY			
Ownership / Accessibility	Largely private ownership therefore potential accessibility constraints. Despite this, isolated sites under ACC ownership / control, albeit, potentially subject to restrictive ground leases in favour of ACC Common Good Fund.		Majority of sites potentially restr Estates confirm ETZ-related use be required alo
Likely Infrastructure Constraints	Infrastructure constraints relating to Hareness Road / roundabout capacity and BNDF interventions required to increase development within Altens South.		Infrastructure c from East Tullos would be requir Harbour.
Existing Drainage / Servicing	Existing drainage and services available within existing industrial estate.		Existing drainag

3b		3c	
East Tullos		**Provision of a rail halt & sidings**	
ndustrial Land		Primarily Land for Transport	
		Areas of Business and Industrial Land	
lready in place within the LDP to support development for ETZ		Policy support already in place within the LDP to support development for ETZ related industrial uses.	
al-related approvals		Rail-related approval	
l surface water flooding to north-east of Site		No issues identified within SEPA Flood Map.	
signations noted.		No statutory designations noted.	
age assets.		No nearby heritage assets.	
ng developed area		Set within existing developed area	
ess off Wellington Road		Existing access off Girdleness Road and Greenwell Road	
efits from Options A2 & A3 (E.Tullos Link) - Options required to		Benefits from Options A2 & A3 - (E.Tullos link)	
through centre of Site, connecting northern part of site to rail		Rail underpass and Core Path to east of Site	
nected from South Harbour if STAG route option A3 (E. Tullos emented).		Disconnected from South Harbour without STAG options.	
58.96		**8.61**	
		Rail, Retail and Industrial	
atforms exists / gently undulating		Development platforms exists / gently undulating	
		Unknown	
		Industrial and Residential	
1.01 **2.14**		Area 1 **1.35** Area 2 **0.79**	
s owned/controlled by ACC, albeit, likely to be subject to rictive ground leases in favour of ACC Common Good Fund. ACC ed Common Good Fund ground leases would not restrict future es. Therefore review of specific ground Lease requirements will ngside likely land assembly etc facilitate future development.		Suspected private ownership / Network Rail. Potential accessibility constraints will require consolidation and/or land assembly etc.	
onstraint relating to requirement for improved vehicular access s to South Harbour - Implementation of STAG Route option A3 red to provide road infrastructure and direct level access to South		Infrastructure constraints cannot be confirmed.	
ge and services available within existing industrial estate.		Existing drainage and services available within existing land industrial/rail related land uses.	

	4a South Balnagask Golf Course		4b East of Coast Road (
1. PLANNING & POLICY ASSESSMENT			
LDP Designations	Green Belt and Green Space Network		Green Belt and Green Space Network
	Undeveloped Coastal Management Area		10.41ha Local Nature Conservation Site
			Undeveloped Coastal Management Area
Planning Workshop Summary	Extremely problematic in terms of land use planning, accessibility and landscape and visibility terms for ETZ uses.		Problematic in terms of land use planning / local consideration to be considered.
Planning / Development History	None.		None.
Flood Risk	Areas of potential surface water flooding		No issues identified within SEPA Flood Map.
Natural Environment Designations			Balnagask to Cove LNCS
Proximity to Heritage Assets	St Fitticks Scheduled Monument close to Site		No nearby heritage assets.
Likely Landscape & Visual Impact	Headland / highly visible		Highly visible coastal area
2. ROADS & TRANSPORTATION			
Vehicular Access to/from site	Potential access off Greyhope Road and St Fitticks Road		2 x rail underpass access off Coast Road. Site 4b northern underpass c.5m road / southern
Road Capacity (ACC Roads)			
PBA STAG 1/2 Appraisal Results: External Transport Links to South Harbour	Benefits from Option A4 & A5 Coast Road bridge & improvements		Benefits from Option A5 (Souter Head Rd) Impro
Pedestrian Access Requirements	Core Path along southern boundary		No adopted footpath, albeit, Coastal Path/Core P bisects southern section of the site
3. END USER REQUIREMENTS			
Proximity to Aberdeen South Harbour	Close to harbour		disconnected from harbour
Size (Ha)	**21.45**		**17.0**
Current Use	Golf Course		Agriculture
Topography	Headland dropping from 34m AOD to 12m AOD /gently undulating		c.1:9 slope
Ground Conditions	Unknown		Unknown
Nearby Land Uses to Consider	Golf Course and South Harbour		Agriculture
Potential Development Area (Ha)	**21.45**		Area 1 Area 2 Area 3
4. DELIVERABILITY / AVAILABILITY			
Ownership / Accessibility	ACC owned/controlled land.		ACC owned/controlled land.
Likely Infrastructure Constraints	Infrastructure constraints cannot be confirmed.		Future access infrastructure likely to be required
Existing Drainage / Servicing	No known drainage/services. Site located close to temporary construction area and lighthouse/residential uses so possibility to connect to nearby services.		No known drainage/services. Site also located re

p Opp Doonies Farm)		4c East of Coast Rd (Opp Hareness Rd Junction)		4d Land to East of Coast Rd (Opp Langdykes Rd)	
		Green Belt and Green Space Network		Green Belt and Green Space Network	
		5.73ha Local Nature Conservation Site		5.78ha Local Nature Conservation Site	
		Undeveloped Coastal Management Area		Undeveloped Coastal Management Area	
community. Also landscape and visibility		Extremely problematic in terms of land use planning, accessibility and landscape and visibility terms for ETZ uses.		Extremely problematic in terms of land use planning, accessibility and landscape and visibility terms for ETZ uses.	
		None.		None.	
		No issues identified within SEPA Flood Map.		No issues identified within SEPA Flood Map.	
		Balnagask to Cove LNCS		Balnagask to Cove LNCS	
		No nearby heritage assets.		No nearby heritage assets.	
		Highly visible coastal area		Highly visible coastal area	
n underpass c.4m road		Existing bridge access off Coast Road. Site 4c bridge - 8m total width including 5m road		Existing bridge access off Coast Road Site 4d bridge - 4m total width including 2.5m road	
ovements		Benefits from Option A5 (Souter Head Rd) Improvements		Benefits from Option A5 (Souter Head Rd) Improvements	
ath runs along eastern edge of Site and		No adopted footpath, albeit Coastal Path/Core Path runs along eastern edge of Site		No adopted footpath, albeit Coastal Path/Core Path runs along eastern edge of Site	
		Disconnected from South harbour		Disconnected from South harbour	
01		**14.25**		**7.50**	
		Agriculture		Agriculture	
		c.1:10 slope		c.1:10 slope	
		Unknown		Unknown	
		Agriculture		Agriculture	
1.22 **7.7** **5.87**		**13.56**		**7.26**	
		ACC owned/controlled land.		ACC owned/controlled land.	
to unlock this site for ETZ Uses.		Future access infrastructure likely to be required to unlock this site for ETZ Uses.		Future access infrastructure likely to be required to unlock this site for ETZ Uses.	
latively far from existing developed sites.		No known drainage/services. Site also located relatively far from existing developed sites.		No known drainage/services. Site also located relatively far from existing developed sites.	

APPENDIX 3: STAKEHOLDER TECHNICAL WORKSHOPS SUMMARY

Stakeholder Technical Workshops Feedback Summary

1.1 Several workshops/teleconferences were held with various groups. These sessions provided valuable insight into specific policy areas and/or technical matters and have influenced the site assessment process, the scenario formulation and the preferred strategy for the energy transition zone. The following summarises the key comments received during each workshop:.

ACC Local Development Plan Team and ACC's Masterplanning Team Workshop

- It was accepted that, policy aside, a selected number of sites adjacent to South Harbour could form a logical extension to operations associated with South Harbour and a future energy transition zone.
- Overcoming the green belt /green network policy allocations etc would be critical to proceed with any future energy transition zone.
- There would be strong reservations from the Local community regarding the potential development of Walker Park given and potentially Doonies Farm.
- Support for energy transition zone uses within Altens, East Tullos and other sites already allocated for industrial use within the LDP was supported as such uses were already supported by this policy allocation.
- Category 4 sites were noted as being extremely constrained and their future development for energy transition uses would be difficult to accept, notwithstanding that future open space or landscape improvements could be supported within these sites.

ACC Roads and ACC/Aberdeenshire Strategic Transportation Team Workshop

- It was outlined that the study area was subject to a range of strategic transportation constraints that could impact provision of an energy transition zone. However, various studies had been commissioned by ACC to consider these issues and to identify options to overcome them.
- Any potential road link from East Tullos to South Harbour would significantly enhance accessibility within the study area and was strongly welcomed.
- Opportunities for a rail freight crossover to allow disembarking at East Tullos would create a significant benefit. There would also be potential benefits in creating a rail spur/link from East Tullos to increase potential freight to/from South Harbour - albeit this need to be justified through future appraisal work.
- Strategic traffic congestion within the wider study area was acknowledged but attendees of the workshop outlined that no additional site-specific transport constraints were applicable to the majority of sites (excluding the Category 4 sites which were identified as having significant accessibility constraints related to restricted accesses over/under the existing railway line).

End Users Requirements Workshop (represented by ACC Hydrogen Team, Aberdeen Harbour Board and Opportunity North East

- It was outlined that end users (in particular for the offshore renewables industry) would require proximity to South Harbour, directly adjacent to the harbour with direct, level access.
- It was suggested to accommodate an offshore renewables 'assembly only' facility, a staging land area of at least 12ha-20ha would be required with direct, level access to the quayside.
- To accommodate an offshore renewables assembly and manufacturing industry a minimum land area of 20ha would be required. This increases to 28ha-32ha where two offshore manufacturing insutries are involved.
- These figures were considered to represent industry standard net operational land requirements - sourced from the Strategic Review of UK East

Coast Staging and Construction Facilities Report prepared by the Offshore Wind Industry Council.

- These sites were required to facilitate potential large-scale components etc associated with offshore renewables assembly/staging and offshore wind manufacture.
- Additional areas close to the harbour (but not directly adjoining) would also be important to accommodate the supply chain activities and other industrial activities.
- Temporary site offices near/overlooking the harbour would also be important to accommodate project support teams in temporary cabins/offices working on temporary renewables projects that need to be close but not directly adjacent to the harbour (i.e. for up to 5 years at a time).
- The potential to provide accommodate rail freight and a potential spur to/ from the harbour was also seen to be important, depending on the sector and the import/export model.

Scottish Water Telecon Workshop;

- It was outlined by Scottish Water that its removal/relocation could cost tens of millions of pounds, however, Scottish Water are interested in considering how the existing Nigg WWTW could be enhanced/expanded to accommodate the Combined Heat and Power Plant approved within East Tullos.

Scottish Enterprise Telecon Workshop

- It was suggested that the oil and gas supply chain was already present within Aberdeen for and could change to accommodate to accommodate energy transition should the opportunities arise.
- Scope to include exemplar green credential within an energy transition zone would be viewed positively by the market.

Local Agents Telecon Workshop

- It was suggested that there was a critical lack of operational facilities/sites/ accommodation within Aberdeen to accommodate renewables projects.
- Land around South Harbour would be critical to accommodate growth within the renewables sector and to diversify the existing offer..
- The STAG Route connecting South Harbour to St East Tullos would transform its desirability for energy use.
- ACC have a series of complicated ground leases within East Tullos and some parts of Altens related to the common good fund which would need to be further investigated to consider any requirements for land assembly etc. This would take time and therefore a first phase of land release would be required.

ACC's Hydrogen Team and their Energy Consultants Telecon Workshop

- It was outlined that a larger-scale off-site hydrogen production facility could be taken forward for hydrogen production within Aberdeen – with a max site area of approx. 1ha allowing for on-site production/generation.
- Alternatively, a series of smaller c. 0.1ha sites (located close to users) would be considered.

ACC Estates Team Feedback

- It was confirmed by ACC's Estates Team that large parts of the study area are owned or controlled by ACC under the Common Good Fund. This included the majority of East Tullos (particularly land within its north-eastern corner and land parcels to the south of Greenbank Road).
- It was also confirmed that many of these sites (within East Tullos) are likely to have long-term ground leases (c. 50 years). However, it was confirmed outlined that these leases would not have envisaged a specific use being discussed. Therefore, any change to energy transition related uses would not conflict with Common Good Fund requirements, subject to obtaining planning approval and agreeing appropriate commercial terms etc.