Future ports: Barrow

Delivering growth capacity for a new economy

ASSOCIATED BRITISH PORTS

v1.0 September 2024

The Port of Barrow today

Total acreage (land & water)	492 acres
Total acreage (land)	138 acres
Devonshire Dock ABP frontage	550 m
Buccleuch Dock ABP frontage	955 m
Ramsden Dock frontage	3250 m

1. BAE Systems
2. Devonshire Dock
3. Buccleuch Dock
4. Former Gas Condensate Storage Terminal (now BAE Systems ownership)
5. Ramsden Dock
6. Cavendish Dock
7. NTS Barrow Marine Terminal
8. Anchor Line Basin
9. Ramsden Dock Lock
10. Ramsden Dock Basin
11. Deep Water Berth
12. Barrow and Walney 1 & 2 O&M Base (Ørsted)
13. Ormonde OWF O&M Base (Vattenfall)
14. West of Duddon Sands O&M Base (Ørsted)
15. Walney 3 & 4 OWF O&M Base (Ørsted)
16. Walney Channel
17. Ramsey Island
18. Barrow Marina Village
19. BAE Systems Resolution Building
20. Rampside Gas Terminals

Foreword

Barrow-in-Furness finds itself in a time of extraordinary opportunity. The town's development finds itself underpinned by two macro trends which will drive significant development: the need for new submarine construction capacity, and the need for UK energy security.

These trends will create a big wave of investment which will run to 2040 and beyond. They create an exciting challenge for both public and private sectors. Working together, we need to create an economy which can successfully absorb the scale of investment which is coming. This co-operation is all the more important because investments are going to hit the town, and the sub-regional economy, at roughly same time. If we fail to create the necessary growth capacity, we risk seeing opportunities bounce off the local economy and go elsewhere – frequently abroad.

These are great challenges to have. And this is where we see a unique opportunity for the port. We believe that the Port of Barrow ('the port') can play a big role in ensuring that the local economy can respond to these demand pressures with speed and agility.

As this masterplan shows, we can help bring new industrial growth capacity online rapidly. We have already released an 18-acre site to BAE Systems for a new submarine construction facility, allowing a rapid expansion in advanced manufacturing. We will help overcome energy bottlenecks to industrial growth by supplying BAE Systems and other partners with energy from what could be the UK's largest floating solar facility.

Then, there is the port's contribution to the wider energy security and net zero agenda. We hope to play a big role in providing port facilities for the £11 billion investment in the offshore wind energy construction in the East Irish Sea, along with new operations and maintenance facilities. We also hope to provide new berths for the hydrogen import and carbon storage projects which will use the Rampside Gas Terminals.

We aim to provide this additional capacity at the same time as continuing to build a sustainable local economy – by working with our port customers, communities, and stakeholders to ensure that Barrow's growth is balanced with respect for its remarkable natural environment.

As you will see, this masterplan is not just about ABP. While we focus on the port in this masterplan, we know we are a component part of a wider, interdependent local economic system in which success for one element means success for all. That's why we are keen to ensure that housing growth which is so important to Barrow's future is carefully designed, so it can sit happily alongside what is going to be an increasingly busy industrial port.

So, at ABP, we are looking forward to a big role alongside "Team Barrow". Together, we are playing to win big investments, new growth, better environments and stronger communities for the town.

We hope you find our plans interesting. But it would be even better if you found them useful. And if you want to know more, please get in touch.

Julian Walker

Chief Commercial Officer and Director, ABP Wales and Short Sea Ports

Bryan Davies

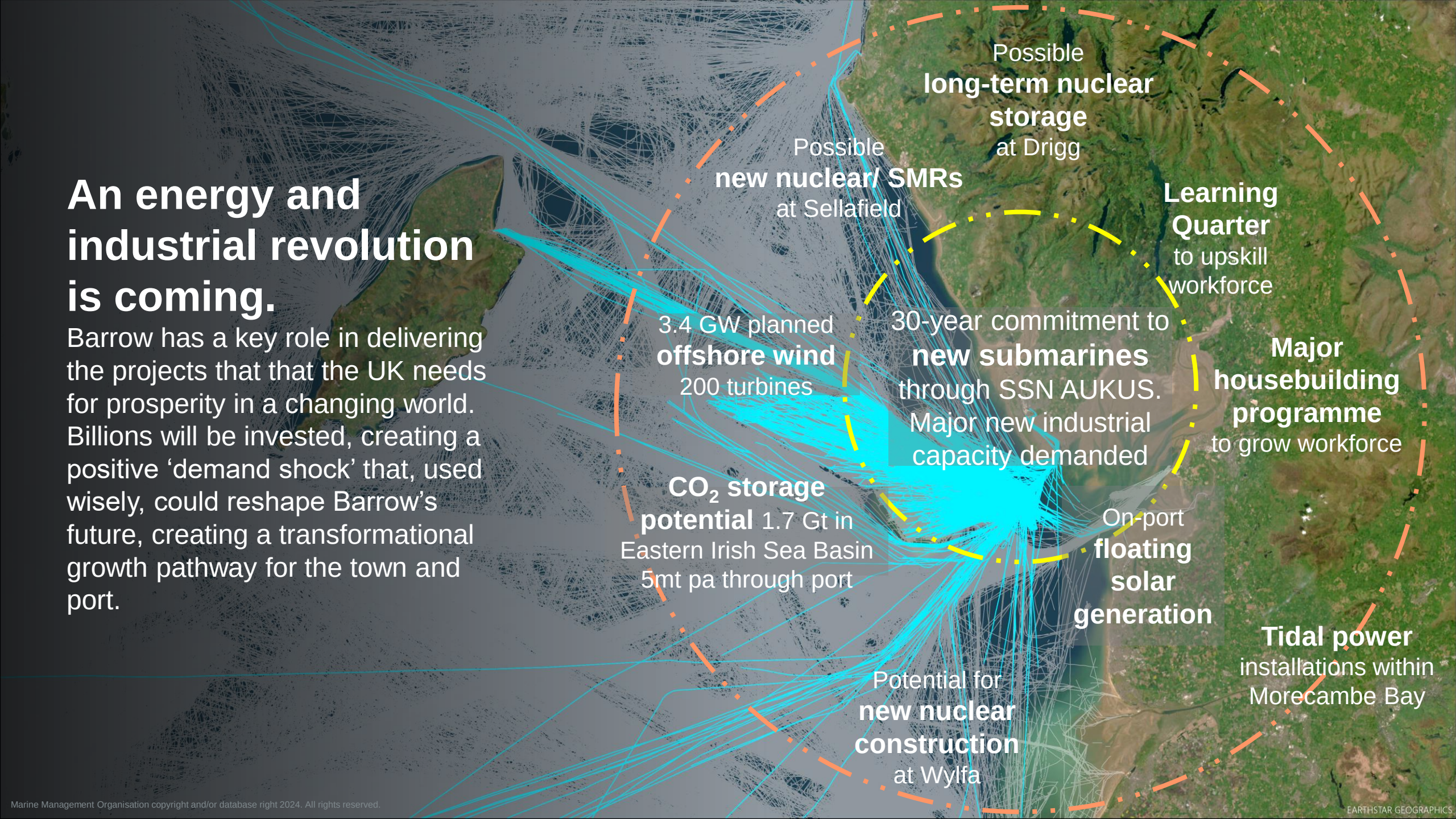
Divisional Port Manager, Divisional Port Manager North West And Scotland Ports

Andrew Clarke

ABP Group Head of Masterplanning

Based in Buccleuch Dock, the Barrow Festival of the Seas features tall ships, historic vessels, entertainment, talks, sculptures and music

Part 1 – Opportunity | Approach


An energy and industrial revolution is coming.
Barrow has a key role in delivering the projects that that the UK needs for prosperity in a changing world. Billions will be invested, creating a positive ‘demand shock’ that, used wisely, could reshape Barrow’s future, creating a transformational growth pathway for the town and port.
Possible long-term nuclear storage at Drigg
Possible new nuclear/ SMRs at Sellafield
Learning Quarter to upskill workforce
3.4 GW planned offshore wind 200 turbines
30-year commitment to new submarines through SSN AUKUS. Major new industrial capacity demanded
Major housebuilding programme to grow workforce
CO2 storage potential 1.7 Gt in Eastern Irish Sea Basin 5mt pa through port
On-port floating solar generation
Tidal power installations within Morecambe Bay
Potential for new nuclear construction at Wylfa
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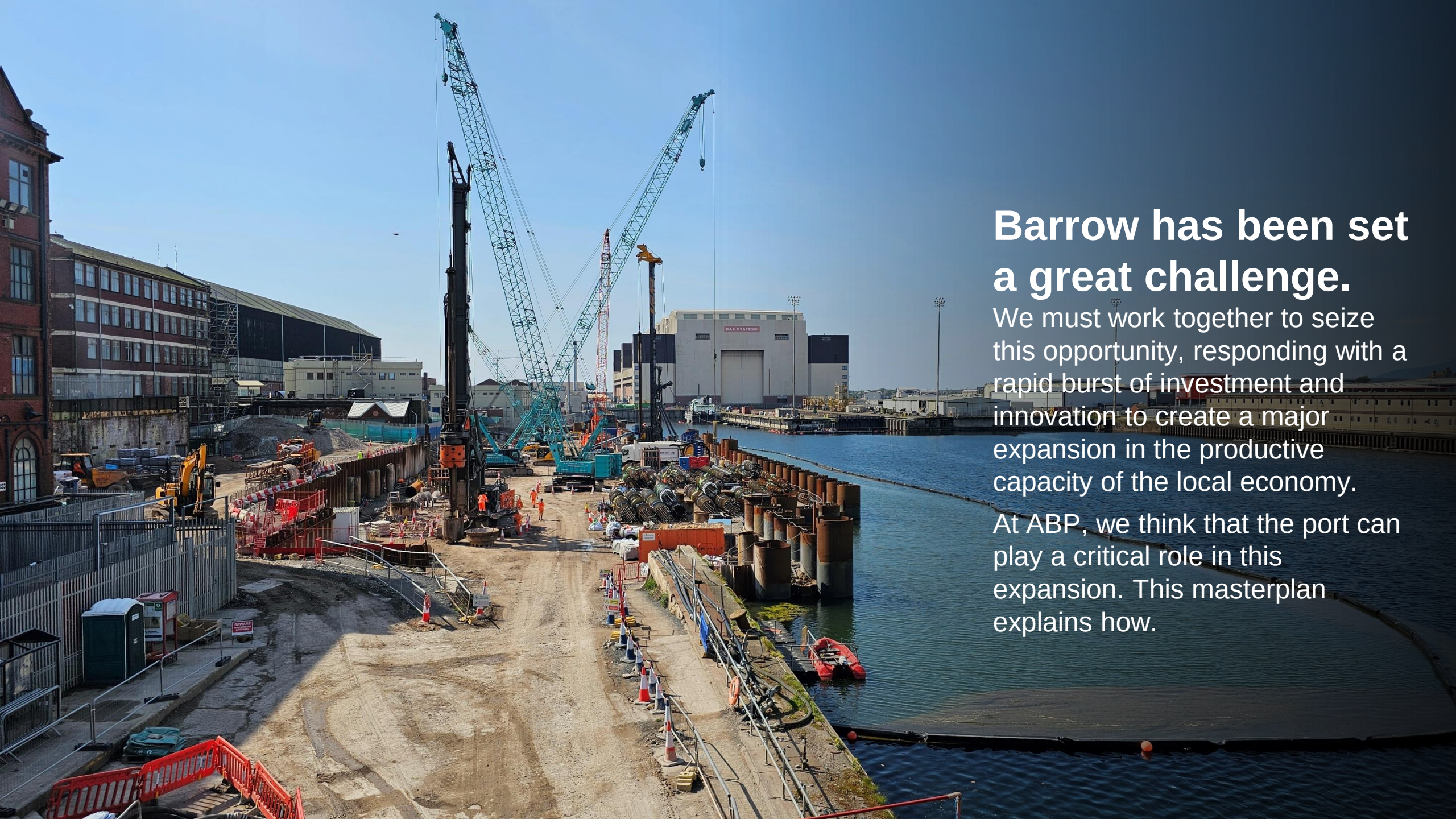
EARTHSTAR GEOGRAPHICS



Barrow has been set a great challenge.

We must work together to seize this opportunity, responding with a rapid burst of investment and innovation to create a major expansion in the productive capacity of the local economy.

At ABP, we think that the port can play a critical role in this expansion. This masterplan explains how.

Our approach

Barrow's economy is going to be very busy for the long term. That is because the town has a key role in helping deliver two long-term structural objectives for the UK: delivering on AUKUS obligations, and achieving net zero carbon emissions by 2050, along with the energy security that comes with it.

This is a great prospect for growth. But we have got to make it happen. Right now, there is a risk that it might not, because Barrow's economy does not operate at the scale and efficiency needed to absorb the opportunity in front of it. The risk is that supply-side constraints in port capacity, sites, built infrastructure, storage space, energy supply, skills, housing and transport capacity are allowed to choke Barrow's growth. This would mean that the benefits of growth are either experienced outside Barrow, or not at all.

It is clear what success will require. It will require a radical boost to Barrow's productive capacity – involving serious efforts to provide a very significant uplift to the economic infrastructure that underpins growth.

The good news is that the Port of Barrow's marine connections are an indispensable part of building that productive capacity, and solving this challenge. The port has the ability to respond to new demand by bringing new resources onstream rapidly, and so reduce friction in the growth process. The result is that capacity bottlenecks will be overcome, and growth will happen without artificial constraint.

We believe that this supply-side focus is the best way to ensure that the town and sub-region is able to capture the long-term benefits of this remarkable period, by anchoring Barrow's ability to deliver innovative advanced engineering and net zero-related industries in the town.

Some of this new investment at the port will be led by ABP; at other times, other organisations will lead. In the broader sense, it does not matter too much, because the bigger objective is to ensure that stakeholders, customers and communities work together to increase the town's 'metabolic rate', and so improve Barrow's ability to innovate and change.

Working with partners, it is ABP's job to create a compelling investment proposition that delivers long-term transformational change in Barrow.

Part 2 – Vision | Objectives

Opportunity | Approach | **Vision | Objectives** | Delivery | Timeline

This is our Barrow vision for 2040 and beyond…

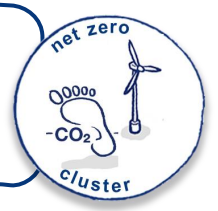
"A 'long boom' has started in Barrow, with the potential to last for two decades. **Our vision sees us play a key part in ensuring that Barrow can absorb this opportunity** and successfully convert it into long-term prosperity. ABP will **target Barrow's core clusters of advanced engineering** and **net zero energy** with investment in marine facilities, development sites, built infrastructure, construction facilities, renewable energy, and rail access. We will work with partners to create **an innovative, pro-growth investment location, building Barrow's communities and developing its remarkable natural environment."**

…and our vision generates our masterplan objectives.

Objective 1: delivering growth capacity for the advanced engineering cluster

Objective 2: delivering growth capacity for the net zero cluster

Objective 3: delivering growth capacity for local businesses, communities and environments



Objective 1: delivering growth capacity for the advanced engineering cluster

The AUKUS deal creates a new momentum and urgency behind the development of Barrow's advanced engineering cluster. The port will help to provide the land, marine, and energy capacity that BAE Systems needs to keep the Barrow cluster at the cutting edge of UK engineering – and it will do that in a way that meets broader sustainability and community development objectives.

The port has provided the space needed for BAE Systems' new advanced engineering facilities. This is ABP's impression of what might be possible at the site – but final decisions have yet to be made by BAE Systems

Project 1.1: Enabling new BAE Systems submarine construction facilities

The growth opportunity

Even before the announcement of the AUKUS deal, the BAE Systems Devonshire Dock complex was busy with the Astute and Dreadnought programmes. The AUKUS deal adds very substantial new demand to the existing boat order pipeline within Barrow. It is critical that the port helps put in place the facilities needed to cope with this growing demand.

What is the AUKUS deal?
Australia, the UK, and the US ('AUKUS') announced the creation of an "enhanced trilateral security partnership" in September 2021. The deal will help Australia acquire nuclear powered (but not nuclear armed) submarines, alongside wider defence and technology collaboration. In November 2023, the UK Government awarded BAE Systems a £4 billion contract to cover submarine development work to 2028. This allows detailed submarine design work to start, helping fund 5,000 jobs in Barrow in Furness.

How the port will create growth capacity

BAE Systems has bought the freehold to an 18-acre former gas condensate site from ABP. BAE Systems will be responsible for the redevelopment of the site, which will require removal of the redundant condensate facilities, re-grading the site, and creating covered shipbuilding sheds.

We expect that the new facilities will manufacture submarine cross-sections. Cross-sections will then travel by barge from the ABP's roll-on, roll-off ('ro-ro') quay to the main assembly site at Devonshire Dock. Marine connections are therefore critical to success.

As well as providing land and ro-ro berths, the port is ready to assist the BAE Systems growth process in the following ways in future.

1. ABP could assist the construction process by providing quayside construction yard space on the north side of the Anchorline basin, immediately east of the concrete batching plant. It will also be possible to bring construction materials by sea, direct to site.

2. ABP will work with BAE Systems to understand how additional port land can support further rounds of expansion in future. BAE Systems' Resolution Building is adjacent to port land, and an extended complex could be developed if desirable. This will involve other landowners, but we stand ready to help facilitate further expansion.

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The rapid growth of BAE Systems' advanced engineering facilities creates a jump in the demand for energy. The port can be a key part of the solution with the EnergyDock project, which provides a 32 MWp floating solar array at Cavendish Dock

Project 1.2: Barrow EnergyDock: providing new energy to support advanced manufacturing growth

The growth opportunity

Energy availability is an emerging constraint to BAE Systems' advanced engineering activities, and further growth adds a new layer of demand for green power. In line with corporate objectives, this energy should be preferably supplied from zero carbon sources.

ABP's port activities also create a substantial demand for green energy. Our 'Ready for Tomorrow' strategy creates a commitment to move to net zero by 2040, and to help our customers achieve this objective too.

This local expansion in green energy demand takes place in a wider UK context. With the coming 'electrification of everything', the UK's demands for energy are set to grow by 50% by 2035.[1]

How the port will create growth capacity

The Barrow EnergyDock floating solar project is ABP's response to the growth in demand for zero carbon energy at BAE Systems. Current plans suggest that this could extend up to around 48 acres at Cavendish Dock, and create 32 MWp. Located north of the baffle wall, a floating array of this size would be a major asset for Barrow, allowing the decarbonisation of a substantial part of BAE Systems' energy demand. This would be the largest floating solar scheme in the UK by a considerable margin, and put Barrow on the map as a green, forward-thinking industrial location.

We know that Cavendish Dock is a valuable local recreational and health resource – so we want to implement this critical industrial energy project at the same time as retaining Cavendish Dock for walkers, birdwatchers, and anglers, all while preserving a pleasant environmental setting for the planned Barrow Marina Village development. We do not expect there to be any meaningful impact from the solar array project on existing leisure activities once the array is operational, meaning that anglers and walkers will remain very welcome. We will also ensure that wildlife can coexist with the new array.

It may be possible to supply the Barrow Marina Village housing development with solar power, although this would require a licenced domestic energy supplier to interface with domestic retail users.

Delivery of these proposals requires ABP and the Council to work together. This is because, firstly, some of the land needed is currently in Council ownership, with parts of the site leased by the Council to Burlington Aggregates, who use to the site to load aggregates to rail wagons. Secondly, it will be necessary to use some of the Council-owned land west of Cavendish Dock (on the strip of land between Cavendish and Buccleuch Docks) for construction purposes and to have a small permanent onshore substation once operational. Thirdly, a cable wayleave is also required across Council land.

1. Climate Change Committee (2022) Sixth Carbon Budget – Electricity Generation (52)

ABP will work with partners to look at the viability of new leisure facility on Council-owned land bordering Cavendish Dock. More work is needed, but if this concept was to be found safe and viable, it could help create a strong environment for the housing offer at the planned Barrow Marina Village project

Project 1.2: Barrow EnergyDock – separate possible add-on leisure project

We wish to push forward the delivery of the EnergyDock scheme at pace, so that the power is ready as BAE Systems develops its new facilities.

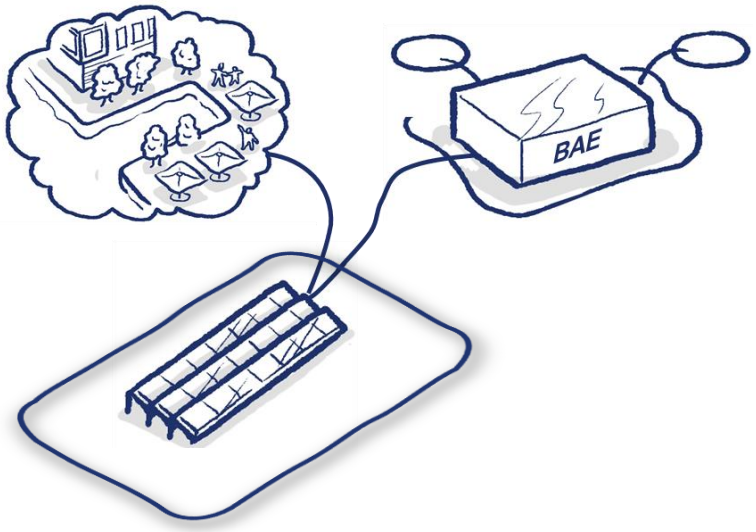
But there are additional, separate opportunities to further develop Cavendish Dock in future, after the delivery of the EnergyDock solar scheme.

We wish to work with partners to reinvigorate proposals from town masterplanning in 2006, which suggested that land to the immediate west of Cavendish Dock could be used to provide a watersports centre, with pontoons, canoe/windsurfing access, and associated parking. Open water swimming might also be provided, diverting people from unsafe swimming in the operational dock. We could also look to relocate Sea Cadets and Canoe Club activities to this site, out of Buccleuch Dock.

We caution that we cannot yet be certain about the deliverability of these proposals. Future work will be needed to understand a range of issues including health and safety for watersports uses, public liability responsibilities, associated insurance, and water quality. We also have questions about whether watersports users might disturb wildlife, particularly birds roosting on the baffle wall. And finally, external funding will be required for some elements of the leisure scheme facilities.

However, we think it is worth spending time to understand the possibilities of these improvements. ABP would be pleased to work with the Westmorland and Furness Council to explore how this scheme might be delivered.

These are issues we need to work out in the future. Clearly, the first step is to get the EnergyDock solar scheme in place without delay, because it is critical to Barrow's industrial development. Additional leisure projects have potential, but should be looked at separately.



ABP's multi-purpose vessel *Furness Abbey* is used for general survey work, buoy maintenance, and supporting dredging activities

Objective 2: delivering growth capacity for the net zero cluster

In future, Barrow will be at the centre of a network of expertise in the energy generation and carbon storage technologies needed to deliver energy security and net zero. The port will respond with new windfarm Operations & Maintenance facilities, windfarm construction infrastructure, and essential marine connections for a hydrogen import and carbon storage hub. Much of this investment positions the port for the longer term, too, by creating the capacity needed for future construction work along the nuclear coast.

Looking south-east, showing the potential new Walney Channel wind O&M base

Project 2.1: Growing Barrow's windfarm O&M cluster: a Walney Channel O&M base

The growth opportunity

Wind energy generation is now a core contributor to the UK's energy mix, and Barrow has established a position as the leading Operations & Maintenance (O&M) cluster on the west coast, already providing a home to five offshore O&M bases supporting five windfarm projects.

Further investments are planned. As part of the Crown Estate's Round 4 leasing process, 3.4 GW of additional generation capacity is planned in the eastern Irish Sea, led by the Morgan and Mona projects (from BP & EnBW) and the Morecambe project (from COBRA & Flotation Energy). There may also be a role for the port in future Isle of Man developments including Mooir Vannin.

We are looking to support further investments to consolidate this position, creating more jobs and growth for the town and Port. Our objective is to knit new sites into the existing cluster, and anchor this high skill industry in the town.

How the port will create growth capacity

We expect that Barrow will need new windfarm O&M bases to respond to the growth opportunity. As operations move further offshore, we also expect there will be a requirement to berth larger Service Operation Vessels (SOVs), with lengths of up to 90m.

Two new expansion projects are available. The first is the Walney Channel O&M base. We have identified approximately 4.7 acres of land adjacent to Ramsey Way which can be used to support future development. This site is large enough to combine warehousing, office, crew facilities and parking. The site benefits from direct access to Walney Channel and a natural deep-water pocket which will reduce dredging requirements and may extend the operational window for SOVs to about 16 hours each day.

At the Walney Channel site, two marine access points can be provided.

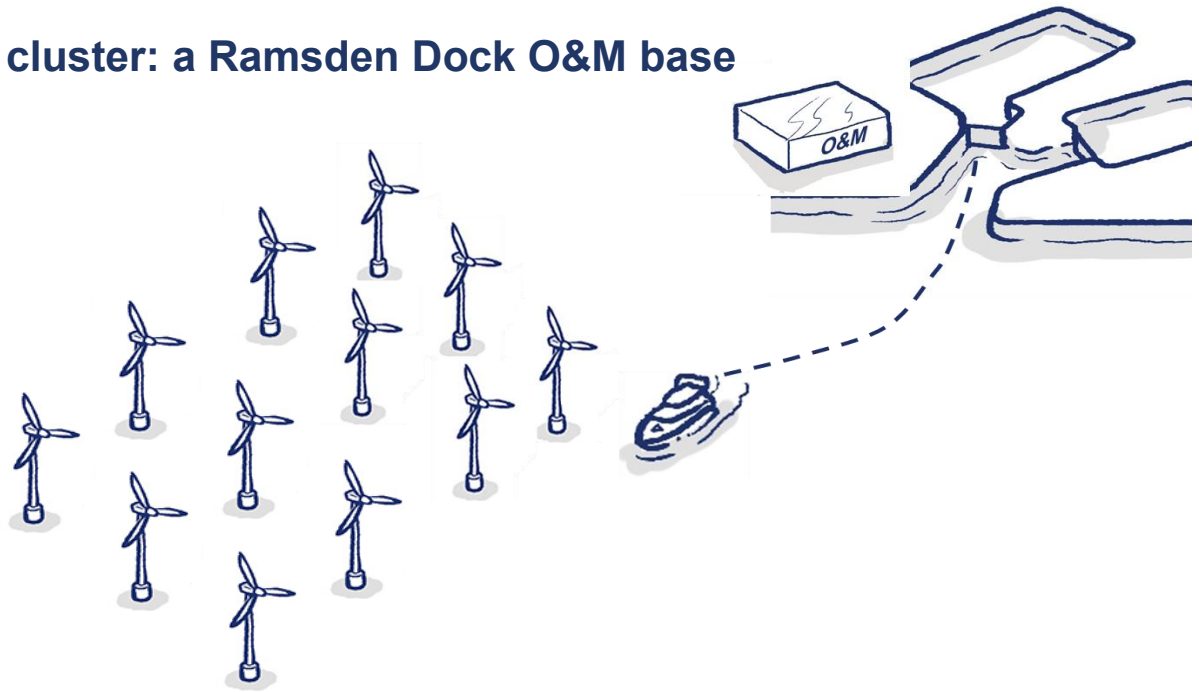
- **The first, to the north, is a retrofitted deep water berth** for larger Service Operation Vessels (SOVs), with a new piled deck able to handle 20ft containers and a davit crane.
- **The second (to the south) is a new berth which provides access to Crew Transfer Vessels (CTVs**). This berth reuses pontoons previously used at the deep water berth.

Historically, we have investigated more radical Walney Channel options, including the creation of a CTV (or small vessel) harbour and potential infill areas. At the moment, we think that these projects are unlikely to be commercially viable, but these plans could be reviewed if additional demand became apparent.

Looking across Ramsden Dock Basin, showing the potential in-dock wind energy O&M berth

Project 2.2: Growing Barrow's windfarm O&M cluster: a Ramsden Dock O&M base

The second possible wind O&M project is a new Ramsden Dock O&M base. The port has the capacity to provide a new, lock-protected SOV berth in Ramsden Dock Basin, with adjacent backland (3.4 acres) which will provide space for component warehousing, offices, crew facilities and parking. There is potential to use an existing warehouse immediately adjacent to the site, and collaboration potential with the neighbouring facilities. The lock gates are open for 3.5 hours each tide, giving an access window of seven hours per 24-hour period, which continually rotates with the tide.



A new Walney Channel jetty for gas carrier vessels, with pipeline connection to the Spirit Rampside Gas Terminals

Project 2.3: Creating maritime connections for a hydrogen import and carbon storage hub

The growth opportunity

Carbon storage is going to be essential to get the UK to net zero. The reasons for this are two-fold: firstly, some industrial processes unavoidably create carbon dioxide that will need to be stored in geological formations; and secondly, carbon storage could support the pace of change required in decarbonising electricity generation while maintaining energy security.

Parts of the UK (such as southern England and south Wales) are not geologically suitable for CO_2 storage, meaning that CO_2 will need to be transported by medium-large and very large gas carrier vessels around the UK to locations where storage is possible.

Barrow's proximity to the gas fields of Morecambe Bay and the rest of the Irish Sea creates a key opportunity. The 2020s will see some fields move to legacy status. This will allow gas fields and extraction pipelines to be reused for geological storage of carbon dioxide. The Eastern Irish Sea Basin has very substantial carbon dioxide storage potential of 1.7 GT available, and we expect to see a UK and European market for carbon storage services emerge.

How the port will create growth capacity

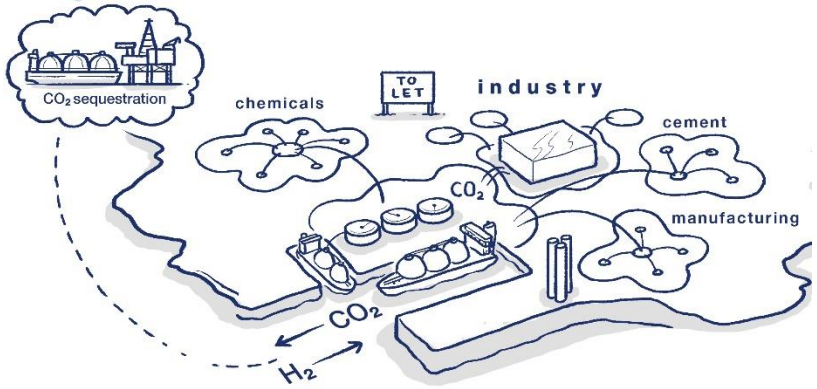
ABP has undertaken early feasibility studies on a new jetty capable of accommodating incoming gas carrier vessels of up to 200m length and 25,000 cubic metre capacity. From the jetty, a 5km pipeline would run to the Spirit Rampside Gas Terminals. From chosen Terminal, CO_2 would be pumped to storage in redundant gas fields under the Irish Sea.

Clearly, the carbon storage process is itself a significant energy user. The port has an opportunity to help minimise this impact. We can see opportunities to use this berth to import green hydrogen in ammonia form, which could be used to power the CCS process and create a fully decarbonised solution.

The Government's decarbonisation roadmap suggests that this project could be in place by the early 2030s. A supportive policy environment will be essential, as well as Government intervention in markets. This is because costs are likely to be very significant, and will be in the order of hundreds of millions of pounds.

The development will be in designated RAMSAR and SSSI areas, and so will need to be carefully screened for environmental impacts. We will be working with stakeholders on a permitting and consenting route that allows the project to proceed without undue delay.

We are beginning the process of bird and environmental surveys to ensure that our biodiversity responsibilities can be addressed at the same time as delivering on the UK's climate change targets.



Looking across the entrance lock, showing one of the Net Zero Construction/ Critical Component Hub areas to the south of Ramsden Dock Basin

Project 2.4: Creating a Net Zero Construction Hub

The growth opportunity

Over the next couple of decades, the UK is going to see a major upswing in investment in net zero infrastructure. We expect that Barrow is going to be at the heart of a net zero construction boom given the town's importance in delivering those elements of nationally critical infrastructure. We will be creating the capacity to move materials in and out of the town, and to provide the essential storage space that allows materials to be managed and delivered to site in an efficient way.

We want the port to provide developers with the construction facilities needed to deliver the following markets.

- **Wind energy construction:** the next round of investment (R4) in Eastern Irish Sea wind turbines. Round 4 is likely to need 200 more turbines and around £17 billion of investment. Whilst Barrow is in a competitive market in offering these services, it has a very strong offer to windfarm developers. The port's role in construction support could be to provide a range of construction support services including component and material storage (such as rock or mattressing for scour and cable protection).
- **Wind energy Critical Component Hubs:** turbine service down-time can cause major loss of income and drive up insurance premiums for developers, so shortening component supply chains with in-region storage of critical components (blades, cable reels, nacelle parts, anodes, and moorings) could become very attractive to the industry. A Barrow hub could serve the west coast, taking around 3-5 acres of quayside-adjacent space with a mix of open storage, warehousing and office space.
- **Carbon Capture and Storage construction:** as set out above, we aim to offer CCS facilities at the port. The wider construction process, which will also involve construction process at the storage site, could create a new layer of construction demand through the late 2020s/early 2030s.
- **Construction of Small Modular Reactors at Sellafield and/or Wylfa.** Barrow has a rail connection direct to Sellafield, along with project cargo quays. These allow transport of construction materials and major components to site. The port may also have a construction role for any future Wylfa project.
- **Nuclear materials storage facility construction.** Construction logistics demand may arise from the construction of Low-Level Waste Repository works at Drigg and possibilities of very major investment in a long-term nuclear waste repository at Sellafield. This project is under consideration, although a decision is unlikely until the mid-2030s. But if Sellafield was chosen, the project would have a construction cost running into multiple billions, and could be serviced from the port.

The port would ensure that bottlenecks in the availability of construction materials do not slow progress on these projects. While we cannot be certain of precisely how construction industry demand will translate into demand for port space, we have developed an overview of how demand is likely to be timed.

Net Zero Construction Hub (cont.)

How the port will create growth capacity

The opportunity will evolve over time, and we are able to reuse space for different projects to maximise efficiency. We have three focus areas, as follows.

Project 2.4a: Ramsey Construction and Critical Component Hub: the existing c.20-acre site provides access to 10,000 dwt vessels up to 10m draught, and provides landing facilities for marine aggregates and other heavy materials both into and off the Port. The site has been used successfully by Orsted as part of their numerous offshore windfarm construction campaigns during the period 2010 – 2017. Further extension of the site is possible in three ways, as follows:

1. **Ramsey Island remodelling:** there are four acres of additional space that could be converted to construction hub use if Ramsey Island was to be remodelled, levelled and incorporated into the Construction Hub South area. (Ramsey Island was levelled in the early 1990s for dock entrance works, so this is a process we have seen before). This project would be likely to involve environmental offsets to ensure that the existing habitats were replaced.
2. **New quayside:** we will look at the viability of bringing additional heavy lift capacity to the site by constructing up to 200m of additional quayside, with dredged pockets alongside. The new quayside would replace the existing revetment and two “strong point” jetties that were built to load out monopiles.
3. **Rail line expansion:** the existing railway line runs to NTS, but a relatively short rail line extension (approximately 300m) would see rail access to the construction hub reinstated, and see the construction hub site reconnected to the railway. Such a facility could be delivered as a discrete project, or partnered to the new quayside discussed above. This would be particularly useful for shifting aggregates by rail, and may be particularly attractive if significant volumes of future aggregates or cement were required by a major future construction project (such as new nuclear at Sellafield, or nuclear materials storage projects). As such, we believe that this may be a medium to longer-term opportunity.

Project 2.4b: Anchorline North Construction Hub: in total, around 3.5 acres of available space sits alongside the northern side of Anchorline Basin, with a heavy lift quayside and a 6.5m draft berth. The site is adjacent to a 1.5 acre concrete batching facility which uses the port to bring Scottish aggregates to the batching plant. We expect that this site will be used initially as part of the construction space needed for the new BAE Systems quay at the neighbouring ex-condensate site, and will then be useful for wider construction uses for offshore wind and carbon storage construction projects.

Project 2.4c: Anchorline South Construction Hub: this site sits on a three-acre triangular site between the Anchorline basin and Ramsey Dock Lock and can be used for open storage or construction processes.

Objective 3: delivering growth capacity for local businesses, communities and environments

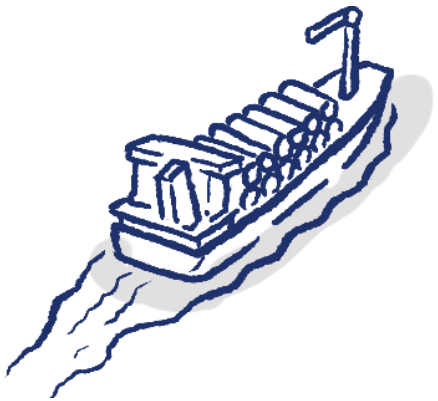
Sustainable growth is development that delivers economic, social and environmental development at the same time. This is a cross-cutting objective that is embedded in our work above on Objectives 1 and 2. In Objective 3, we set out specific plans to reinforce the local economy while moving to net zero, building biodiversity, and strengthening our communities.

Project 3.1: maintaining classic port services

The growth opportunity

While this masterplan contemplates a significant change at the port, we know that some sectors will need to stay the same. Our expectation is that the cargo handling, nuclear material shipments and cruise businesses will be relatively stable over time – and so not subject to the major upswings we have discussed elsewhere in this paper.

Whilst they are therefore unlikely to be the subject of major port investment, they are important components of the port and the local economy. We will continue to work closely with customers to incrementally maintain and improve our service.



How the port will create growth capacity

Our approach to our existing sectors is set out below.

- **Classic cargo handing:** Each year, around 110,000 tonnes of cargo are handled by the Port. These comprise an array of different products, including construction aggregates and paper pulp for Kimberly Clark's Barrow mill. These cargo handling operations will largely be focused on Anchor Line Basin, with the five berths each capable of accommodating vessels up to approximately 6,000 DWT. Larger vessels of approximately 10,000 DWT will continue to be accommodated in Ramsden Dock Basin.
- **Project Cargoes.** Barrow also has a long history of handling heavy, out-of-gauge or unusual project cargoes. Project cargoes can readily be handled from No.3 Berth heavy lift quay (in Ramsden Dock Basin), as well as No.6 & 8 Berths and ro/ro berth in Anchorline Basin. The north side of the port also has a designated heavy/abnormal load route to the M6 motorway. Future housing developments at the Marina Village will need to allow the continuation of this important sub-regional service.
- **Nuclear material shipments:** nuclear material has been moving through the port for nearly 50 years. From their dedicated marine terminal in Ramsden Dock, International Nuclear Services (now part of Nuclear Transport Solutions) use specialist vessels to transport a range of materials including uranium, mixed oxide fuel, and irradiated fuel to global customers. This terminal has direct rail links to Sellafield enabling safe, secure and reliable material transportation. ABP will continue to safeguard these nationally and internationally important operations, ensuring unencumbered marine access.
- **Cruise vessel calls:** Barrow offers a gateway to the Lake District National Park UNESCO World Heritage Site, and we are keen to support Westmorland and Furness Council and Cumbria Tourism with efforts to promote the area. However, we caution that the difficulties of scheduling cruise vessel visit timings to match tidal and weather windows can be significant, meaning that cruise is likely to remain a relatively modest part of the port's business. A suitable berth in the Walney Channel and an extended access window may allow more cruise vessel visits. This may come as a spin-off from future offshore wind or carbon storage investment, but is unlikely to be economically viable in its own terms – meaning that Barrow's prosperity may be best secured through focusing on the engineering and net zero clusters discussed in this document.
- **Construction materials.** We expect a major housing, skills facility and industrial construction programme in coming years. The port will continue to provide materials to the local building industry.

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Project 3.2: shifting port operations to net zero

The growth opportunity

ABP's *Ready for Tomorrow* corporate sustainability strategy commits us to achieving net zero emissions from ABP's own operations by 2040. We will also be supporting our marine customers to make the shift to net zero operations. Vessel fuelling technology pathways are still unclear – marine fuels used could be methanol, hydrogen, ammonia, biofuels, battery, or a combination. Whatever the future holds, we want to be able to help our customers make these important sustainability improvements.

We will also be keeping a watching brief on the environmental credentials of our built estate, and will be reviewing the development of the Net Zero Carbon Building Standard (NZCBS).

How the port will create growth capacity

To deliver our *Ready for Tomorrow* objectives, ABP will replace diesel-burning vessels, cranes, handling equipment and vehicles with electric or hydrogen-powered alternatives, with the use of biodiesel as an interim solution only. We have made an early start with electric vehicles and LED lighting, but there is still a long way to go. Together with the existing Energy Performance Certificate regulations, this emerging building standard may oblige us to make a series of changes to the built fabric of the port.

With partners and customers, we aim to pilot new vessel fuels, cutting our carbon footprint whilst building the attractiveness of the port to long-term, forward-thinking investors. On-port hydrogen facilities would also enable us to switch trucks and other port vehicles to zero carbon technology. To deliver this, we will look at fuel storage locations and methods with our partners; work with partners looking at supplying the port with hydrogen; and review findings from ABP Southampton on shore power for hybrid or battery vessels.

These concepts need development. But we can plan for change in the meantime: for example, we will aim to build multipurpose manifolds and ductwork into new infrastructure at in advance of new fuelling systems being available. This will allow us to make the switch to new fuels with the minimum of disruption.

Working with partners, it may be possible to create new habitats. One example at a Grand Union Canal feeder reservoir has seen reed beds introduced to previously heavily engineered reservoir edges, benefiting both wildlife and visitors

Project 3.3: maintaining and building biodiversity

The growth opportunity

Rethinking the port gives us an opportunity to work with partners to create habitats with greater biodiversity value, both within the port estate and across the wider area. Parts of the port are adjacent to, and partly within, areas of very high nature conservation value. Cavendish Dock and Roosecote Sands are part of the Morecambe Bay RAMSAR area and are also afforded protection under Special Protection Area (SPA) status.

Our optimal scenario is one in which the economic potential of the port is unconstrained, while we create new, thriving environments. Where we can, we aim to ensure that we translate those biodiversity benefits into benefits for local people, creating sustainable development which creates economic, social and environmental gains.

How the port will create growth capacity

Development proposals in the Special Area of Conservation (SAC), SPA and RAMSAR sites need to be screened under the Habitat Regulations to understand the extent of impacts on the protected area.

We will develop a biodiversity strategy to respond. This will likely include a strategic overview of the potential cumulative impacts of planned change on the environment which could potentially require offsite land acquisition to offset environmental impacts.

To develop a strategy for success we will be working closely with stakeholders, seeking not just to comply with environmental legislation but find win-win opportunities. Collaboration will be an important part of developing an innovative package that fully realises the biodiversity and wellbeing potential of the port, whilst allowing development to proceed at the pace required.

This strategy will be pursued across the port. But for example, longer-term plans at Cavendish Dock might include:

- **Installation of artificial habitats:** this would potentially benefit both algae, mussels and sponge, and provide a food resource for fish species.
- **Vegetated terraces/reed beds at the dock edge, and on floating planters:** the idea of planting reed beds has been suggested by Barrow Angling Association. This might provide a nursery for juvenile fish to hide and grow, away from predators, and improve water quality.
- **Seabird nesting rafts and roosting habitats:** these might also be possible, where consistent with effective operation of planned EnergyDock floating solar panels.

We caution that these add-on projects are likely to go beyond the environmental offset measures required for new developments such as the Barrow EnergyDock: where this is the case, these concepts must not be allowed to delay critical infrastructure development for Barrow.

Clearly, though, we will be keen to separately progress these ideas with partners, balancing the trade-offs between new habitat creation, leisure uses, sluice operation, costs and revenues.

Project 3.4: supporting wider social, economic and community development

The growth opportunity

We wish to contribute to stakeholders' wider efforts to make Barrow a more attractive place to live and work. There is innate value to these efforts, and also a harder economic edge, too: they will help attract and retain the skilled workers that will be critical to the creation of the growth capacity that Barrow needs for future success.

How the port will create growth capacity

Barrow has a clear need to upgrade its housing offer to meet the new demands of a growing workforce. BAE Systems alone is expected to increase jobs numbers by more than 50%, creating 6,000 new jobs in 15 years, and then maintaining that level of operation into the following decade. Those new workers will need homes, and the Barrow Marina Village project responds to that need, with aspirational family housing proposed with connectivity to green and blue infrastructure.

ABP supports these objectives for the town. But there is an important caveat. At times, round-the-clock, tide-dependent port operations can be noisy and dusty, and we want to ensure that this increasingly busy industrial port can happily co-exist with new homes. Intelligent design, location, and orientation of new homes is likely to be very important in ensuring that new homes are popular with their intended market. We are also working with the Council to ensure that port access for 'high and heavy' project cargoes is maintained, and that defence-sensitive operations are not unduly constrained.

Working with partners, the University of Cumbria is developing a new 'Skills Quarter' for the town. This will be located to the north of the port boundary. We will seek to support those proposals wherever we can.

We will also seek to maintain our wider community work. ABP is one of the main sponsors of the Annual Barrow Tall Ships event. This is an important date in the community calendar, attracting 20,000 visitors to Barrow at the beginning of August every year. We will also look to maintain our successful Water Safety training days, attended by 270 young people every year.

Part 3 – Delivery | Timeline

Opportunity | Approach → Vision | Objectives → **Delivery | Timeline**

Delivering the port growth strategy

At ABP, we are at the start of a multi-year journey to upgrade port facilities to create the growth capacity that Barrow needs. Here, we set out the high-level changes we want to see.

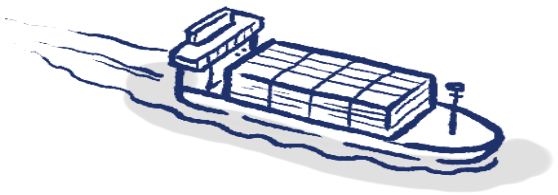
This plan has re-emphasised the importance of teamwork. We hope to use this masterplan to work more closely with our customers, stakeholders, supply chain, and communities – including BAE Systems, Westmorland and Furness Council, and Natural England. Delivering AUKUS and net zero generates a need for urgent activity; we know that de-risked activity will happen sooner and happen faster, so we will look to work alongside public sector investors to identify gaps and market failures.

The first concrete step is likely to be a delivery strategy. As we set out in this paper, we need to be nimble and responsive, proactively anticipating issues and resolving them before they become a bottleneck to growth. We will be:

- **Integrating our plans with Barrow's wider growth ambitions and 'Team Barrow' group** (including the Learning Quarter and Town Deal projects). Our work aligns well with the Barrow Clean Growth Prospectus and Cumbria LEP's new Clean Energy Strategy - and we want to work with the partners to help deliver the infrastructure that goes with it.
- **Working alongside partners in Team Barrow to create a delivery strategy** that sequences actions that are consciously designed to build on one another to create a reinforcing feedback loop, and are co-ordinated in time and place to get maximum impact for Barrow, creating points of leverage. This will include an integrated view on what changes are required at the port; which changes are most important; when changes need to happen; and how change is funded.
- **Undertaking pro-active port planning and marine licensing alongside site and infrastructure development**. We think it likely that we will front-load planning and permitting activity.
- **Adopting a new approach to project delivery,** implementing the masterplan using best-in-class project management techniques to create a structured, multi-year change programme.

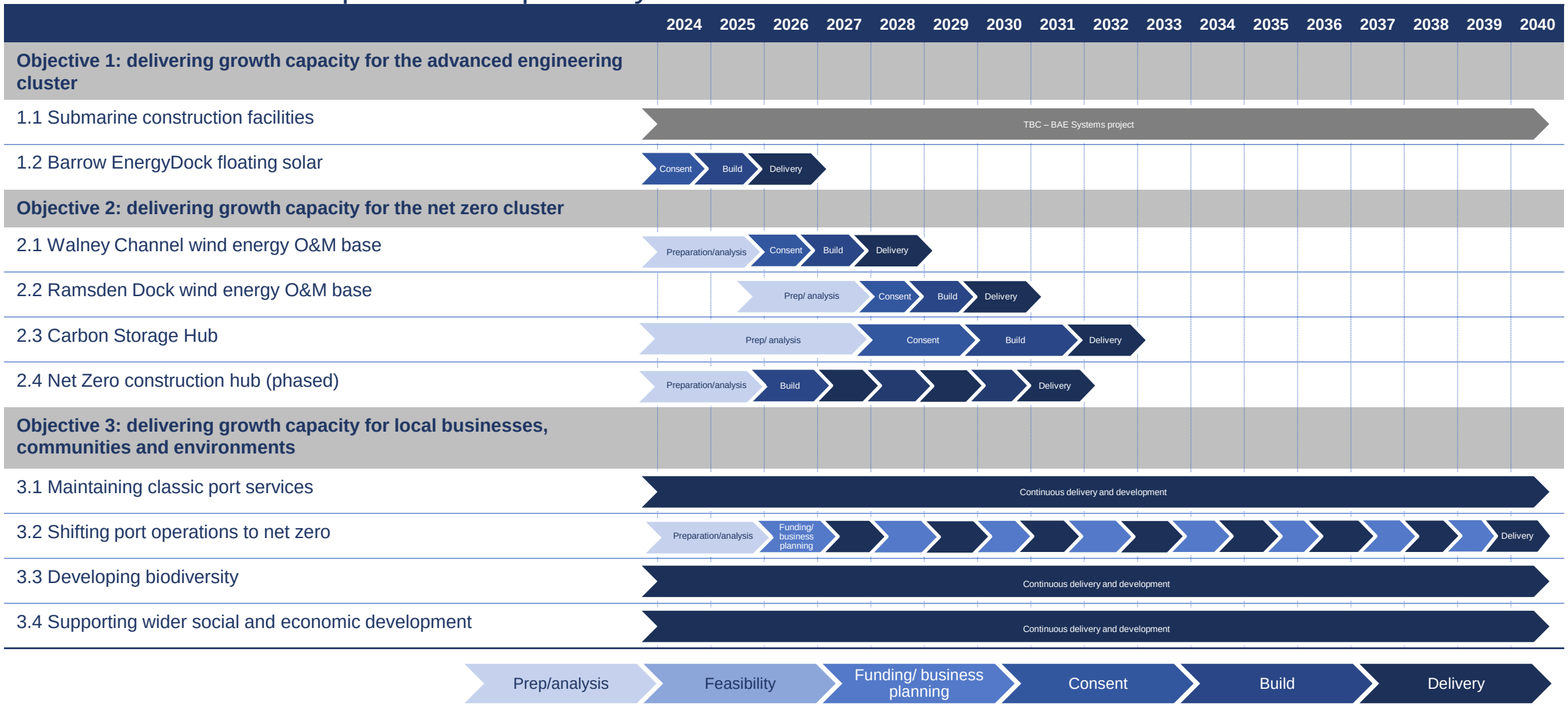
On the next page, we set out some early ideas on our view of the right development sequence. We do not expect the future to be as neatly sequenced as suggested here, but the high-level programme helps us arrive at a rough order of the tasks needed to deliver across the three objectives developed in this masterplan. Much more detail will develop as we iterate and collaborate with partners.

We know that timelines will flex, some projects will change, and new projects may come or out of the plan, but – depending on resource availability and wider carbon policy shifts - we aim to make some big moves inside the next five years, get more done within ten years, and have the process completed by 2040.



The investment programme to 2040: the optimal scenario

Timings are approximate and subject to viability, but we aim to make some big moves within five years, and have the modernisation process completed by 2040



Barrow 2040

A spatial view of new port development in its wider setting

Objective 1: growth capacity for the advanced engineering cluster

1.1 Submarine construction facilities (BAE Systems)
1.2 Cavendish Dock (a. EnergyDock floating solar; b. Leisure add-on project)

Objective 2: delivering growth capacity for the net zero cluster

2.1 Walney Channel wind energy O&M base
2.2 Ramsden Dock wind energy O&M base
2.3 Carbon storage & hydrogen import hub
2.4 Net zero construction hub (a. Ramsey; b. Anchorline North; c. Anchorline South)

Objective 3: delivering growth capacity for local businesses, communities and environments

3.1 Maintaining classic port services
3.2 Shifting port operations to net zero
3.3 Developing biodiversity
3.4 Supporting wider social and economic development (a. Marine Village housing; b. Learning Quarter)

What do you think?

The best visions evolve and adapt: we present this paper as a work in progress which is intended to start an ongoing conversation. We welcome your comments, ideas and improvements. Please get in touch via email at barrow@abports.co.uk

ASSOCIATED BRITISH PORTS