

# Hayle Harbour Power Generation Scheme

Tidal power generation, Hayle Cornwall: Utilising  
redundant infrastructure to enhance commercial  
viability

**1 Wave Hub**  
**Total cost: £20 million**  
 Contact: Karen Clowes tel. 336767 & karen.clowes@penwith.gov.uk  
 Wave Hub is a groundbreaking renewable energy project that aims to create the UK's first offshore facility by 2008. Work is underway to ensure that Hayle will profit from the estimated 700 jobs and contribution of £27 million a year to the economy as a result of the creation of the new wave power industry.



**2 Hayle Harbour**  
**Total cost: £175 million**  
 Contact: Matt Barton tel. 336732 & matthew.barton@penwith.gov.uk  
 The current masterplan proposed by ING Real Estate will transform the harbour and surrounding area providing 1,000 new jobs and 870 homes over a 10 year period. The employment opportunities brought about by the development are focused on four industries; fishing, tourism, IT and renewable energy. A planning application is anticipated before the end of 2006.



**3 Hayle Surf Lifesaving Club**  
**Total cost: £9,870,000**  
 Contact: Dave Parker (Club Captain) tel. 755303 & www.hayleslc.org.uk  
 Members of Hayle Surf Life Saving Club showed tremendous commitment over the number of years it took them to secure funding for their new Club House which opened in 2005. The new facilities allow the club to offer a variety of opportunities to a wide age range.



**4 Harvey's Foundry**  
**Total cost: £4.6 million**  
 Contact: Caroline Sargent tel. 336689 & caroline.sargent@penwith.gov.uk  
 This partnership project refurbished derelict Grade 2\* John Harvey House, once the principal offices of the Foundry. Together with new offices at Downen House, Phase I has returned over 60 jobs to the site. Phase II has provided 17 craft workshops; including 3 live/workspaces run by The Guinness Trust.



**5 Townscape**  
**Total cost: £4.1 million**  
 Contact: Tony Walden tel. 756820 & tony.walden@penwith.gov.uk  
 A major heritage-led regeneration initiative to revitalise Hayle's economy and so help improve the quality of life for local people. The boost will be achieved by investing in the repair and enhancement of the town's important historic character (including the White's Warehouse pictured) making it a more attractive place to live, work and visit.



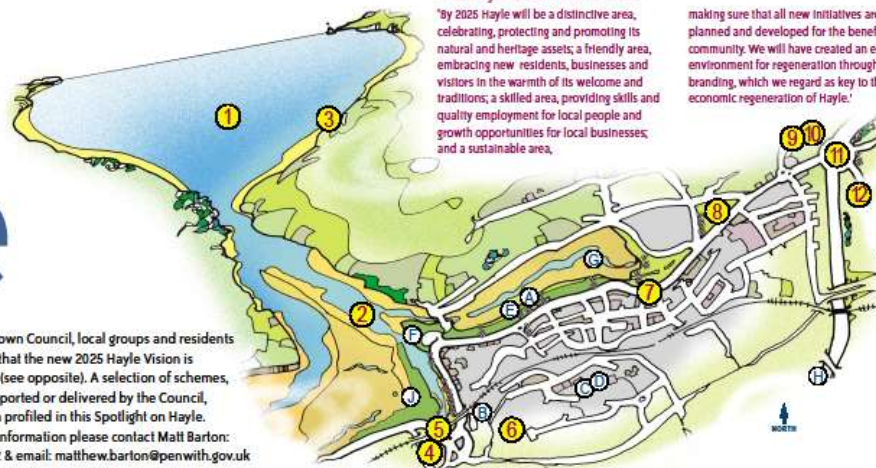
**6 Ellis Park Bowling Green**  
**Total cost: £120,000**  
 Contact: Brian Hosken tel. 336621 & brian.hosken@penwith.gov.uk  
 Local residents worked with environmental charity Groundwork, Penwith District Council, Hayle Town Council and Hayle & District Bowling Club to create a brand new outdoor astro-turf bowling green that will host matches in the local Lawn Bowling Leagues and encourage new players of all ages.



# Spotlight on Hayle

Hayle has a unique and exciting combination of historic and environmental assets which are helping to drive regeneration for the town and, more recently, have contributed towards Cornwall being chosen by UNESCO as a World Heritage Site. Hayle is the top priority for Penwith Council and, through the Council's Hayle Regeneration Management Group, the District Councillors are working

with the Town Council, local groups and residents to ensure that the new 2025 Hayle Vision is delivered (see opposite). A selection of schemes, either supported or delivered by the Council, have been profiled in this Spotlight on Hayle. For more information please contact Matt Barton: tel. 336732 & email: matthew.barton@penwith.gov.uk



## The Hayle Area Plan Vision:

"By 2025 Hayle will be a distinctive area, celebrating, protecting and promoting its natural and heritage assets; a friendly area, embracing new residents, businesses and visitors in the warmth of its welcome and traditions; a skilled area, providing skills and quality employment for local people and growth opportunities for local businesses; and a sustainable area,

making sure that all new initiatives are planned and developed for the benefit of the community. We will have created an effective environment for regeneration through branding, which we regard as key to the economic regeneration of Hayle."

The Area Plan was published in September 2006 and is the result of two years work undertaken by a team initiated by the Hayle Area Forum, known as Revitalize! Hayle Coast and Country, funded by the Market and Coastal Town Initiative. Above all, the Plan seeks to give Hayle a clear identity, and a shared sense of purpose for the future, that can be understood and owned by everybody. A full copy of the Plan is available on the Penwith District Council and Hayle Town Council websites [www.penwith.gov.uk](http://www.penwith.gov.uk) and [www.hayletowncouncil.net](http://www.hayletowncouncil.net)

- A Tourist Information Centre and Library
- B Railway Station
- C Community Centre
- D Health Centre
- E King George V Memorial Walk
- F Sael Quay
- G Copperhouse Road
- H 100 Trees - Penwith
- I South Quay

**7 Copperhouse**  
**Total cost: £50,000**  
 Contact: Caroline Sargent tel. 336689 & caroline.sargent@penwith.gov.uk  
 New planting, street furniture, trees and lighting were introduced at Copperhouse, following Townscape research & consultation by the Area Forum's Streetscape Working Group. Existing planters were remodelled to make access easier and to create a distinctive feature using copperwork by a local craftsman.



**8 Hayle Skate Bowl**  
**Total cost: £225,000**  
 Contact: Neil Clark tel. 336727 & ndark@penwith.gov.uk  
 With Hayle Town Council and Hayle Skate Club, the Council has provided a high quality sunken concrete skate bowl on Hayle Recreation Ground – one of the best in the country! The project will enhance Recreation facilities by reinstating the pitch and putt area and the construction of a Boules court.



**9 Affordable Housing**  
**Total cost: £6.3 million in Hayle**  
 (incl. £1.8 million at Loggans Mill)  
 Contact: Anthony Ball tel. 336637 & anthony.ball@penwith.gov.uk  
 Completed in April 2006 the 19 houses and flats at Loggans Mill (pictured) were made possible by the Council's Affordable Housing Taskforce working in partnership with the Guinness Trust. The Taskforce is currently providing a further 67 affordable housing properties in Hayle.



**10 Loggans Mill**  
**Total cost: £3 million (estimated)**  
 Contact: Matt Barton tel. 336732 & matthew.barton@penwith.gov.uk  
 The Council is working with the private sector on schemes to create a sustainable future for the Grade 2 listed Mill and provide much needed employment space. The Council has placed scaffolding around the Mill to support the existing structure and help preserve this landmark listed building.



**11 Hayle in Bloom**  
**Total cost: £3,000**  
 Contact: Brian Hosken tel. 336621 & brian.hosken@penwith.gov.uk  
 Thanks to the excellent work of the Council's gardeners and the dedication of local volunteers, Hayle won a regional Gold in the 2006 Britain in Bloom competition and received the SW Tourism Cup for coming top in their group. Hayle also won the Abbess Cup for Loggan's roundabout (pictured) which was judged as the best council horticultural display.



**12 Hayle Retail Park**  
**Total cost: £20 million**  
 Contact: Matt Barton tel. 336732 & matthew.barton@penwith.gov.uk  
 Next and Boots have already opened new stores at the Retail Park on the edge of town with Marks and Spencer opening a full offer store early in 2007. The Retail Park has so far created 80 jobs and will hopefully be the catalyst for further investment in Hayle.



# Project aims and objectives

## **Aims**

- To describe tidal phenomenon
- Qualify and quantify market requirement for Tidal Electric energy.
- Establish that proven tidal electric technology exists that could be applied to the chosen site.
- To assesses the business case associated with other renewable energy technologies and utilise this data to analysis the commercial potential of a tidal electric scheme.
- To give an overview of environmental impacts associated with a tidal electric development during construction and operation.

## **Objectives**

- To identify potential energy within both Copperhouse and Carnsew Pools.
- To apply the business case of established renewable technologies to the development.
- To specify an operating system and the associated technological specification.
- To demonstrate integration into local area plan and UK government energy policy
- To assess the sustainability of the project in terms of carbon reduction potential.



# Hayle Estuary an Aerial overview

Required navigable channel

Former coal fired power station  
location with 132kVA national grid  
connection

Carnsew pool and proposed  
turbine house position

Copperhouse pool and proposed  
turbine house position



# Carnsew pool

Currently

- Area 14,600 square metres
- Volume 338,922 cubic metres

Recommendations

- Dredge current area to a fill volume of 750,00 cubic metres due to excessive silting.
- Pre-constructed turbine house containing 1.5 MW Turbo –Generator
- Double effect pump augmented operating regime.
- Annual Energy production 2.9 GWh
- Lifecycle operating saving of 186.9 Kilo tonnes of carbon (120 years)





# Copperhouse pool

## Currently

- Area 19,500 square metres
- Volume 287,125 cubic metres

## Recommendations

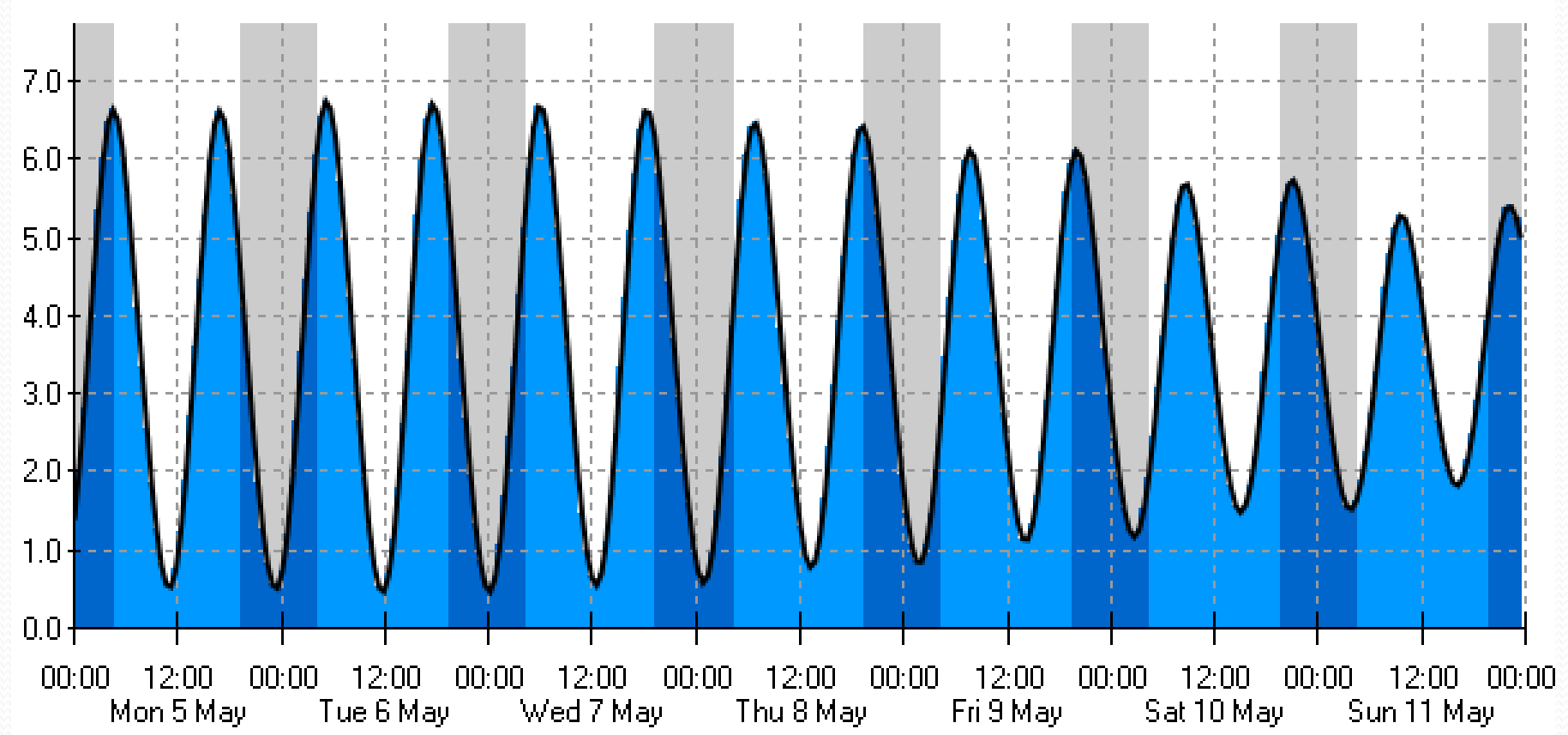
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# Tidal Range for Hayle Cornwall

Height (m)

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# Conclusions

It is the UK government has signed up to an EU target to obtain 20% of all energy from renewable sources by 2012 and “close to” 60% by 2050.

Within the UK no existing tidal range developments have been operated to date, major existing worldwide developments are limited to less than ten in number.

The opportunity exists to produce a low cost operational tidal range project that can both be commercially successful; be utilised as an innovation and demonstration tool for the larger proposed schemes like the Severn barrage to align with the EU targets

The Hayle Harbour Power Generation scheme fits within the Hayle Area Plan and fulfils an objective of Harbour owners ING Real Estate with the recommencement of sluicing to establish and maintain a navigable water way.

Calculations for production and carbon savings have been produced for a dredged maximum pools potential. Cost for producing the potential of energy of the site has been quantified in terms of current renewable energy costs between £27 and 54 million for the 120 year lifecycle of the project.