BUSINESS, ENTERPRISE & ECONOMY DELIVERY GROUP

Minutes of meeting held on Monday 11 January 2010 at Passmore Edwards Institute

PRESENT

John Nunn (Chair HAP BEE, Delivery Group), Guy Lavender (Manager Hayle Wave Hub SWRDA), Jim Wright (Hap Delivery Group) Barrie Mills, John Acru, Peter George, Elizabeth George, John Foster, Sally Foster, J D Daniel, B R F Daniel, John Browne (HHUA), David Mungles (Jewsons), Bob Amos (HTC), Rob Jewell (HDCC), Ray Wyse, Derek Treloar, Dominic Williams, Gareth Critchley (HBPGC), Rachel Bromley, Guy Botterill, J Colliver (Chair HAP T&T Delivery Group), Peter Hilditch, Cpt L A Thomm, Cllr Mrs Jacqui Head, Cllr Harry Blakeley, Bob Mims, John Bennett (Chair HAP HCE Delivery Group) John Bostock, Jude Robinson (Labour Party), Dave Jarvis (BDMLR), Dan Jarvis (National Seal Sanctuary) Sue Sayor (Cornwall Seal Group), Sally Galsworth, Robert Jones, Lynette Forsdyke-Crofts (Innocom Ltd), Michael Kilby (MCTi St Ives) Claire Casey (HAP) and 6 others.

1. APOLOGIES FOR ABSENCE

None noted.

2. CHAIRMAN'S WELCOME

John Nunn opened the meeting and expressed surprise and thanks for the number of people who were present. John then invited Guy Lavender to speak on the progress of the Hayle Wave Hub.

3. WAVE HUB UPDATE

Guy stated that he was responsible for making sure that the site is built and developed on time; finding the commercial developers to utilize the facilities; and ensuring that the project team runs properly. The points to be referenced were: Why do this project? Why Hayle? Where is at? What are the challenges?

- **Why?**
  - Fossil fuels are going to run out so alternative energy becomes absolutely critical and so does reducing carbon emissions. The Wave Hub is a very small part of that particular package.
  - Reliance upon power, electricity, in the future means that there must be security of supplies. The ocean provides an ideal mechanism for doing that.
  - The cost of fossil fuels, and in particular oil, is going to continue to rise quite steeply and, therefore, investing in renewable energy is absolutely critical for the future.
  - EU has a 2020 target of 20% renewable generation much of which will be wind, there are not any figures for wave at present.

- **Why Hayle?**
  - The wave conditions for ocean energy are absolutely superb. It is difficult to find a site in an European maritime country that has as good facilities for developing and utilizing the ocean as here. Here there is expertise of marine sector, the fishing industry and the associated industries around the sea. There is a very strong research base into renewables and marine renewables that takes place both here in Cornwall and Devon, utilizing the Universities of Plymouth and Exeter.
  - It is a £ 42m project, about half of that is funded by European Development money the other component by the Regional Development Agency, the Department of Energy and Climate Change and the Department for Business, Innovation and Skills. It is a big project and the Regional Development Agency recognise that the Wave Hub has the potential to act as a real focus for increasing jobs, skills and employment opportunities in regeneration of the local area.

Aspirations for building a marine energy sector have got to be for the long term. Wave Energy

Converters are really in the infancy of their development. Wave Hub is designed to allow the full scale testing of not just one device but arrays of devices that are joined up in the sea and is going to finally prove the concept for utilities companies to use this commercially. It is needed, deliverable and will build on the future but it is going to take a long time.

Within the consented area of sea (10 miles out and 8 square kilometres) wave energy devices that are owned by commercial companies will be plugged into the Wave Hub (simplest terms a giant electrical extension lead) which will plug into the sub-station here in Hayle. It will allow them to commercially test their devices whilst also putting power into the national grid.

In the North East there is an organisation called NaRAC (New and Renewable Energy Centre), a research base for the design development of initial prototypes, but this is tank and not sea testing. Scotland has invested very heavily in renewable energy and EMEC (European Marine Energy Centre) in Orkney is a site that tests not only wave but tidal devices at prototype stage. So scale models of prototype devices tend to go to EMEC and be utilized there.

There are a couple of other facilities internationally, Portugal has a facility that has been up and running for some time and it is testing a major UK based product there. Also the United States is investing quite heavily. But there is nowhere that can deliver what is planned on Wave Hub within this time scale. The facility is extremely attractive to commercial users and to the industry as a whole. It fits into a series of investments not just here in Cornwall but across the country.

- **Where is it at?**
  - What is happening? Prior to Christmas we have been doing the drilling from the sub-station, through the dunes and onto the beach. That drilling has not been without its challenges principally due to the weather that we had before Christmas and the freezing weather that we have had now but we will get it done by the end of February. We are drilling through from the sub-station and that pipeline will effectively allow the main cable from the Wave Hub site to be taken into the sub-station and plugged in.

  - What is the time line? The next thing we are going to do after the drilling phase is to remove all the drilling equipment and the building contractors is then next on site. The electrical equipment will be installed only when the building is watertight – May onwards.

  - Offshore tenders are likely to be let in the next week. These are the bulk of where we are spending the money. The cable is being manufactured. These are the companies that are going to be responsible for laying it at the Wave Hub site from 10 miles out at sea and getting it to the sub-station and burying the it from the shore 7 miles out to sea from which point it is effectively complete it is a flat rock bed so that the cable can't be buried but rock is going to be dumped on top of it, or effectively concrete mattresses, which cover the cable up. The cable is laid where it is least likely to get snagged or moved and adequate protection will be put on to make sure that it doesn't get moved around by the weather.

  - Offshore installation will really take place the latter part of this year. The main structure programme for Wave Hub will be finished by the end of this year, there will be a cable into the sub-station and a Hub on the sea bed 10 miles out at sea. That is the first phase.

- **What are the challenges?**
  - First to build the Wave Hub and get it in. There is a lot of risk around the construction programme, it is not easy it is technically difficult. The issue around device developers needs to be addressed and it is problematic. At the moment is that there is one device developer is signed up to use the site, Ocean Power Technologies. They are a big company, extremely capable, have devices they are testing in their first scale testing up at EMEC and their intention is to use this site from the summer of 2011.

That is what is planned around the offshore work and development.

- Agreement has been reached for John Harvey House in Hayle to be used as the Wave Hub office from the summertime and the intention is to make that a focus for the project for people to come and find out what is going on, to use some of the displays that will be put in the windows, to tell people what we are doing in Hayle and to encourage them to find out about the project.

- The job is to make Wave Hub a success both in terms of building and then running it. The harbour redevelopment has been a huge issue for lots of local people, it is not Wave Hub's responsibility to deliver that, the interest is in the component part, a marine renewables park. Facilities and infrastructure will be needed for commercial developers that are going to utilize the Wave Hub site - space, hangers, lifting equipment, access to the sea, that is where effort is focussed and from some of the discussions with ING there is the potential to make some progress.

- The Cornish Fish Producers Organisation have appointed Jeff Bullus to represent the fishing industry and discussions are taking place about how the impact of Wave Hub can be mitigated on the fishing community.

The project is on track, the money is in place, drilling is progressing, offshore construction commences this summer and the site will be open and running from the summer of 2011.

Question & Answer Session

Question	Answer
Can you describe it to us and it is a proven design that has been used elsewhere?	Ocean Power Technologies device uses the motion of the wave energy moving upwards and downwards to drive a buoy so it is effectively an enormous method of converting wave energy into a piston, it drives series of hydraulics and it creates electricity. Ocean Power Technologies is concerned they are a company that have a great track record in the development programme in the process of what they are doing so far
Does that exclude any alternative, if one of the other companies comes forward?	Absolutely not, no. We have four berths at Wave Hub. The original concept for the design was for four commercial developers to utilize the site. So as we have one commercial developer it obviously means that we won't activate other parts of the consented area of sea until we need to .
The equipment that is offshore will need maintenance. How much of that equipment will need shore based maintenance within easy striking distance?	It will need maintenance and it will need operational maintenance facilities. It depends on the device and it depends on the requirements of the developer but they will certainly need access to support vessels, expertise and technology being able to utilize those facilities in Hayle is the ideal solution. We won't get it all done here. When we get on to the big scale devices they will need major deep water port infrastructure to get into.
It is a profit making scheme, will you be charging the people who plug in or is it a Government project.?	It is a Government project. It is not designed to make a profit but it is not designed to make a loss. It is a huge investment from the public sector, we want the commercial developers to come in and pay to use those berths. My objective is to cover the costs of the project to the public purse from the time we open the facility. We are not going to do that, I would imagine, this year but that is the objective that we are trying to move towards.
What about the roadway going down to your site?	That is something that we are going to inevitably going to need to address in terms of the substation but we don't foresee the necessity at the moment for a lot of construction traffic to be utilizing it.
Two similar questions – when you are going through the construction stage now you will have employment opportunities. How many of those can be filled locally and subsequently and in	All the contracts are subject to all of the fair and open transparent procedures for people to advertise and apply for those services. Inevitably there are only a certain number of companies that can do the type of work that we are doing. So employment opportunities at the moment for the construction phase are quite low. The numbers of employment opportunities are going to be directly proportional to getting

the long term how many local jobs do you believe Wave Hub will produce for the people of Hayle?	commercial companies in to use the site. We are going to need support vessels, expertise around engineering, maritime operations, assets to check navigation marks, maintenance craft, liaison staff, staff to man an office in Hayle. Whilst it makes sense to utilize the services that are here with people that know the sea, know the local area and have the connections to make things happen the reality is we have got to get commercial developers down to the site and that scale of job opportunity and employment opportunity is going to take quite a long time to come through.
If there is a change of government where does that leave Hayle?	That is not going to have an impact on this particular project now.
Have you contacted the education departments such as Cornwall College about doing apprenticeships and such like for the young people?	We haven't as yet but that is a really useful suggestion and it would be really helpful if there are areas of linkages that we think that we need to make.
Have you done a thorough audit of all the business that are here in Hayle, there is an enormous range of skills?	We are doing that now.
Whereabouts is the Wave Hub socket going to be, do you have a grid reference for it?	I can give you a lat and long for that. If you want a map I can give you a map of exactly where the Wave Hub socket is going to be buried in the sea at a depth of 50 metres.
Within that 50 metre range is there any current technology as in propulsion underwater screws able to use this as a test bed also?	There is potentially, but when the original design for the site was developed there was no indication that it was going to be based on a tidal rota but that is certainly something that we are going to investigate further.
• Is there a height planning regulation on the horizon for buoys bouncing up and down? b) Basically from where we are here we see Trevose Head, 27 miles, this is about half way I was just wondering about the visual aspect of the Wave Hub, - I was visualizing an oil platform.?	a) I don't know. There is a huge area of regulation that is just developing around this sector but there isn't much around wave energy conversion at the moment. I am sure that there are for offshore wind, again I don't know but I can find out. b) Offshore wind is a different thing. You are not going to see any of the wave energy devices from the shore. The majority of the devices are below the water. The ones that are in a vertical plane, the majority of it is subsurface, not much of it is above. Look at Ocean Power Technologies web site where there is some very good film of some of the devices that they have ben testing and it gives you an idea and an interesting computer sequence of how it works.
Is there a set KVA on the cable	Yes, there is and we have rated it up for future use and to plug it into the grid so the technical data of the cable is well over specified for what we need at the moment and again I can get you the technical data if you are interested in that.
If you are producing energy it has got to go somewhere and it either heats up water because that is the resistance as they do in power stations now or you put it into the grid which then has a commercial value. The energy has a value so who actually gets the value?	The power purchase agreement goes to the wave energy conversion company that has put it in but we negotiate the lease so it doesn't go to anyone else or go back into the project funding. So we are negotiating those and looking at those power purchase agreements now but I don't think that the amount that it will generate through the site will make it something that you are going to find huge revenue returns on. It is principally a test bed facility to get these devices up to a stage where a commercial utility company will say right we will have some of those and will buy them and then will run them and that I when you start to make a return on them.
If this device is a success will there be an array of similar devices within the 8 sq km	Yes, that is the real concept behind Wave Hub because there is no where in the world where you can test arrays of devices. Utility companies want to see a number of devices linked up together as that is when you get a multiplier effect of generation of power. I have looked at the environmental impact of what was equated to be quite a small potential impact on surf heights, surf conditions but I just

	wondered whether it was an issue locally, whether people were talking about it.
A few years ago there was concern about the effect on surfing, Camborne School of Mines did a computer model with a possible 1 cm impact. http://www.hayle.net/council/wavehub.htmhttp://www.hayle.net/council/wavehub.htm	I don't know if there is a surfing association in Hayle if would be useful if anyone has a contact so that I might be able to speak to them.
Initially there were going to be long nodding ducks or whatever they call them – that is no longer an issue is it?	There are several different designs of wave energy device that we could use on the site all of the environmental impact analysis suggested that this wouldn't be a big issue for surf height or on conditions on the beach. We have got some more modelling to do and it is worthwhile saying that we have been and we will be putting test and research equipment in and around the wave hub site to measure the wave conditions. It is a huge area of research that has not really been able to be done before so we are starting to do that now and that will. Of course, give us a baseline and our data will start to improve once we start to use the site.
You talk about the time run into this of about 18 months before it starts to get going, is there any lifespan on this, due to either planning restraints or government funding, so that it will peter out in 10 years, 5 years, 20 years, 30 years?	I think that the life span is 20 – 25 years was the proposed project length the hub is designed to be survivable for that and a long way passed it. So I think that this is definitely a long term investment and I think there is a sense that if it was successful if the industry develops the way we think it is going to that it could become a major site for many years to come.
Should this be picked up and run commercially say in 10 years are there in place the facilities there to take commercial power	The answer is yes, no commercial developer would pick this project up now, because there is no return so it has got to be a public sector investment to get the facility up and running. In the long term, even in the medium term it is quite conceivable that we can get a commercial developer to come in and utilize and buy and run the site for us, that is quite possible.
If you are expecting the commercial developers to pay to use the site what assurances are they going to have that the ING problems are not going to affect the development of the Wave Hub.	The details of what they require are being mapped out in "berthing agreements", effectively the agreement of what we say we are going to deliver for them and what they expect on the site. Discussions with ING have been quite productive around supporting the Wave Hub project and getting the things that we need done, done. If we can make some progress on a marine renewable business park within part of the site it will be a really good first step.
You mentioned about support vessels, what had you in mind there, it's a questions of size and draught?	The honest answer is that I don't know what remote operated vehicles we need, what scale of shipping we need to support, I can't answer as yet, but we have a few months to map that out this year as we are not expecting to utilize that until next summer.
The marine renewable park is part of the infrastructure to operate it from, any idea when that is looking to be established eg in 18 months time or do you envisage early development work carrying on in portacabins or are you looking to have buildings and everything in place to service things?	If we are talking about building an industry you have got to provide facilities and places for people to use the site and that is where the public sector comes in, if we can deliver that when companies come in and they start to utilize it, if you create a marine business park, businesses come in, get established, create opportunities in the local job market so if there was one area outside of Wave Hub that I was particularly focussed on and trying to make a reality it is that. There is no site assigned yet but we are having some positive discussions to try and get that sorted
As far as Ocean Power Technologies are concerned when it gets initiated 18 months from now this will be a first in the world where a full sized commercial device has ever been deployed. Hitherto they	It will be the biggest site in the world, it has the biggest potential to generate from Wave Hub, it will take the largest devices, it will take arrays, but the world isn't standing still while we are planning all this out, that is the other factor that we have got to be very mindful of, other countries are going to be looking very closely at wave energy. The complexity of getting consents and even taking this project forward in any country are very difficult and so I think that we have done the really

only been using models, not full scale models, it is quite a pioneering first.	important bit and made a start and we have now got to get it in and delivered and get it used.
Ocean Power Technologies look as if they are the only ones on the horizon at the moment who are going to use it, how many people exactly do you envision, the team of people that they will need to bring to Hayle to support it.	I think that OPT have an internal deployment test team and they will then need to utilize a lot of local resources to deploy and secure these devices. I don't know what the actual figure is but I can ask them for you. It is a significant number of people required to do the installation work. Once developers are here and they start to build up their infrastructure it is very difficult to move so there is a sense that if we were looking at other areas of the market, getting some developers in that perhaps are not at the right scale of commercial advancement still could be a very positive thing to do because once you have established your supply chain and market you don't really want to up sticks and move anywhere else so it is very important that we get the commercial partners in place.
Knowing that the plug is 10 miles out at see why use Hayle?	What Hayle has is a deep water test facility with wave conditions that really allow you to test out whether your concepts are going to work. There is some logic in using an offshore site but, of course, it makes the logistical support, the maintenance that much more complex and difficult to do so when I talk to you about what we might be able to use some of these options are on the table but only a certain amount of people are going to want to utilize this site.
I understand that the copper cable is being made in Halifax, isn't there a company in Cornwall that could manufacture it. Surely somewhere in the south west could do it.	The way that these procurement contracts work in public sector procurement is to give fair and equal competition to businesses not just in the UK but all over Europe. It is tendered in a particular way, the bids are assessed on a number of different criteria and they choose the most cost effective solution and one that we reckon can deliver what is needed. There are not many companies in the world that can do this and the one that has been selected is getting it done. It is a fair point, it is really difficult to talk about projects, about redevelopment and regeneration if you don't invest in the local labour market and the local supply chain.
Aesthetically once the tunnels filled and cable are plugged in what will the beach look like?	There will be nothing to see. The cable is buried around 3 to 4 metres underneath the lowest level of sand on the beach so that it is completely buried and there will be nothing visible. During the construction phase that will be slightly different, there will be a small amount of disruption on the beach during the summer period inevitably.
Is the power cable being injected in from day one or dredged.	It will come from the Wave Hub site to shore and then there will be a tunnel and it will be laid in it and then filled.
On the seaward side away from the beach as it the shore end comes ashore is it going to be buried as it comes in or is it going to be laid and then buried?	It will be laid and then buried. we effectively drag it up to the substation and winch it up to the substation through the pipe and then bury it.
Is the sand dredging to accommodate the supply ships?	No knowledge at present answer to be sought.
You referred earlier to the armouring where the cable falls on hard ground, it would be armoured with rocks. There is a swell on the bottom of the sea here and it can move some surprisingly large objects, would that affect the armouring on the cable?	No, marine engineering company J P Canning have been working in the field of offshore pipelines for many years and are very mindful that a cable can't be moving on the sea bed so the rock dumping and effectively the concrete mattress laid across it are designed to ensure that whatever the sea conditions out in the ocean the cable does not shift.
Would the cable be a single length or might there be unions in it?	It is a single run.

John Nunn thanked Guy and commented on the very interesting points raised some of which could not be immediately answered, as the project moved on there were likely to be more questions and

more information available so it would be appropriate for Guy to be invited to return to a future meeting.

4. ANY OTHER BUSINESS

It was announced that the meeting in February is for retail training and any retailers present were invited to ask for details.

5. DATE OF THE NEXT MEETING

The next scheduled will be on second Monday in March, 8 March commencing at 7.30 pm.

Meeting closed 8.40 pm

ACTION

GUY

- **Find out what the plans are for improving the infrastructure, particularly with regard to the roadway going down to the site.**
- **Local Job opportunites – send figures when to hand (figures from when looked at the investment)**
- **Lat and long and map of where the Wave Hub socket is going to be**
- **Find out about planning height restrictions for offshore wind turbines etc**
- **Details on support vessels, size and draught and number to be given whenknown**
- **Details of land possibly to be acquired from ING to be given when appropriate**
- **Ascertain and supply figure for the team of people that will be brought o Hayle to support Ocen Power Technologies**
- **Find out if sand dredging to accommodate the supply ships will be necessary**

ROB JEWELL

- **To give Guy contacts at Surfers Against Sewage**

JOHN NUNN

- **To give Guy contacts at Cornwall College**

To be item on Agenda for May/July 2010 meeting.

ADDENDUM

Guy's responses to date on Action above.

- **Roadway - we plan to patch up the road only - fill the worst potholes. Proper road building depends on delivery of the ING project.**

- **Jobs - Jobs have to be created by winning investment and creating the right business environment. This means positive attitudes all round.**

- **Position – We will send a plan**

- **Heights - there are no restrictions for wind or anything else. Each application is viewed on its merits. The WH site is so far offshore that it can only be seen from a hilltop and even then only on an exceptionally clear day. Most clear days still have a blue tinge on the horizon that makes objects blur so this really isn't an issue. Even the biggest WECs are not that tall. This is all referenced in the EIA on our website.**

- **Vessels – no-one knows and developers make use of whatevr harbours and boats they can.**

- **Land – this is shown on ING's own planning applicatin that can be viewed on Council's website – alongside the sub-station.**

- **Dredging – the harbour will need to be operationally effective and th9is means a channel that vessels can use safely.**