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China Light and Power's Liquefied Natural Gas Terminal Receiving Terminal

WWF Hong Kong Position Paper

Background – CLP's proposal

- 1.1 China Light and Power (CLP) claimed that the existing source of natural gas off Hainan Island (the Yacheng gas field), which runs by pipeline to Hong Kong, would run out early next decade.
- 1.2 An LNG terminal would be required to maintain its ability to receive and supply natural gas to its Black Point power station and it needs to use more natural gas to meet the government's 2010 emission targets
- 1.3 On 1 Sept 2006, CLP announced its intention to construct a liquefied natural gas (LNG) terminal on the South Soko Island.
- 1.4 Subsequently, CLP submitted the Environmental Impact Assessment (EIA) report to the government on 19 October 2006 and the EIA report was approved by the Environmental Protection Department (EPD) on 3 April 2007. The EIA examines two sites, South Soko Island and Black Point.
- 1.5 The financial plan of CLP's proposal is now being considered by the Economic Development and Labour Bureau (EDLB) for approval.

WWF Hong Kong's Position

We are strongly against an LNG receiving terminal at South Soko Island for the following reasons:

1 The Soko Islands are ecologically valuable and should have been declared a marine park years ago

- 1.1 *The intention of designating Soko as Marine Park has long existed*

The Chief Executive (CE) directed Marine Park Authorities to set concrete boundaries for two marine parks: Southwest Lantau Marine Park and Soko Islands Marine Park in May 2002
- 1.2 *Soko Islands and Southwest Lantau are of high conservation importance*

The Agricultural, Fisheries and Conservation Department (AFCD) said in 2002 that *"The waters of the two proposed Marine Parks are important habitats of Chinese white dolphins and Finless porpoises. The plan to designate the two marine parks would help protect these two rare species and other marine life found within the area."*

The statement published by the AFCD then also recognized beyond doubt *"the waters around southwest Lantau and the Soko Islands are important fishery spawning and nursery grounds,"* while the marine parks were endorsed to *"contribute to the conservation of fishery resources and building up of fish stocks."*
- 1.3 *Sokos were just one step away from being officially designated as a marine park*

AFCD stated that the endorsed marine parks have not been gazetted in the years since 2002 due to "resource allocation" not being resolved. However, as the government has had huge monetary reserves during this period, it is clear other factors are



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involved.

2 The proposed LNG terminal is incompatible with a sensitive marine area endorsed as a marine park

- 2.1 *Periodic dredging would be required during operation of the terminal and this is unacceptable in a marine park* In addition to considerable disturbance to marine life during the construction of the facility, including laying of the pipeline, the seabed will need periodic dredging to allow vessel access to the facility during the operation phase.
- Slow-growing benthic organisms such as sponges, soft corals and sea-fans would take years to recover from such dredging disturbance, which should not be acceptable in any marine park.
- 2.2 *Dredging is exactly the kind of serious disturbance that marine parks were established to provide protection from* AFCD's website notes that "Hong Kong coastline are threatened by the impacts of sewage, dredging, dumping, reclamation and other forms of threats such as destructive fishing. There is a need to protect and conserve the marine environment for the purposes of conservation, education and recreation."
- 2.3 *If the endorsed Soko Islands marine park was designated in 2002, it would not have been selected by CLP* It is worth noting that CLP's consultant screened out all existing marine parks when narrowing down the site options for an LNG terminal. If the Sokos had been designated a marine park in 2002, therefore, they would not have been considered as potential site at all.
- 2.4 *No other examples of a LNG terminal in a marine park are known* CLP cites "Dominion Cove Point" in the US as an example of a LNG terminal coexisting in a marine protected area. In fact the protected area there is all land-based, so there is no comparison. It is notable that this is the only example CLP could produce despite their intensive research.
- 2.5 *A bad precedent for the rest of the world* Building an LNG terminal in a marine protected area in Hong Kong would, therefore, set a bad precedent for the rest of the world.

3 Further encroachment of habitat increases the cumulative impacts on the Chinese White Dolphin

- 3.1 *Chinese white dolphin has already been subject to too much disturbance to its habitat* Over the past 12 years, over 1,700 ha of sea have been reclaimed within the relatively small area inhabited by the Chinese white dolphin in Hong Kong's western waters.
- Reclamation has not just caused a direct loss of the Chinese white dolphin's habitats, it also removes habitat for the fish on which the dolphins feed.
- 3.2 *The cumulative impacts incurred by the past, present and future projects to the Chinese white dolphin are alarming* Endless past, present and future works such as dredging, dumping, facilities installation, and pollution poses threats to our marine ecosystem

In addition to the LNG terminal, WWF is seriously concerned about the cumulative impacts of other large proposed engineering projects in dolphin habitat including a third runway at Chek Lap Kok airport, Hong Kong-Zhuhai-Macau bridge, Container



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Terminal 10 and others.

3.3 *2005 was the year of highest cetacean mortalities since recording started in 1996*

The fact that 2005 was the year of highest cetacean mortalities in Hong Kong since recording started in 1996, is cause for concern, even if the reasons for this are not known. CLP and government's own consultant for dolphin research concedes cumulative impacts are a concern.

4 The seawater circulation system for the proposed LNG terminal at Soko will be a fish killing machine

4.1 *The proposed LNG terminal will need an open-loop system to turn LNG into its gasified state*

CLP proposes to take water from the sea around South Soko and use it to heat up the super cold liquid gas (-162°C), and turn it into gaseous form before the seawater is discharged back to the sea. This is known as an open-loop system.

4.2 *The large temperature drop and addition of chlorine to the intake water will likely kill all fish, shrimp and other larvae and eggs entering it.*

From data contained in CLP's EIA report, WWF calculates that, 400 million eggs and larvae will be killed annually, equivalent to 400,000 adult fish lost per year, of which 55,000 adult fish will be from commercially important species. The Sokos are the 7th highest fishery ground out of the 12th highest in Hong Kong.

4.3 *The open-loop system will cause a substantial economic loss in the fishing industry*

WWF estimates that for commercially important species, this equates to a figure of HK\$1.65 million loss to fisheries per year. The amount will be much higher when fish of less commercial importance, and invertebrate eggs and larvae such as shrimp are taken into consideration. If the LNG terminal has a life span of 30 years, this will result in losses to Hong Kong of more than HK\$ 50 million at today's prices. Unbelievably, CLP is offering nothing in compensation to the fishing industry for this loss.

4.4 *Hong Kong fisheries are already close to collapse and it is dangerous to allow new and major disturbance*

Already weakened marine ecosystems like those in Hong Kong where fisheries are close to collapse will be even less likely to withstand destruction of large quantities of fish eggs and larvae than healthier ecosystems such as in the Gulf of Mexico.

One study by international scientists on Hong Kong fisheries concluded "*continuation of the (fisheries management) status quo without mitigation measures will lead to further fishing down the marine food web and shifts in ecosystem structure with a high probability of ecosystem collapse and attendant loss of economic and social benefits*" (Pitcher *et al.* 2002).

The open loop system proposed is equivalent to increasing fishing pressure at the Soko Islands, and therefore increasing the possibility of ecosystem collapse.

5 The United States has recently rejected LNG terminals because of impacts to marine resources

5.1 *If the United States has rejected a LNG terminal because it is in proximity to a national marine sanctuary, how can the Hong Kong government accept an LNG terminal*

The building of LNG terminals in environmentally sensitive areas have come under harsh scrutiny in the US in recent years from federal, regional and state agencies. For example, the California State Governor Arnold Schwarzenegger recently (18 May 2007) rejected a proposed LNG terminal at Cabrillo Port along the west



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WITHIN a marine park?

5.2 *Two other applications for building LNG terminals were rejected because of grave concern on the open-loop system*

coast of United States because the proposed terminal is in proximity to (12.5 miles) a National Marine Sanctuary and the state believes that *“a seawater gasification system, as originally proposed by BHP, would impact significant volumes of fish eggs, larvae, and other planktonic life...”*

In 2006 the state governments in Alabama and Louisiana rejected two applications from power companies attempting to build LNG terminal employing a technology called “open rack vaporization” or “open loop” system. The Gulf of Mexico Fishery Management Council opposed the use of open loop LNG systems in the Gulf of Mexico.

“The Council adopted a position that it believes LNG open loop systems will adversely affect the biota of the Gulf of Mexico and the recreational and commercial fishing industries that depend on this biota. Therefore the Council opposes the use of open loop LNG systems in the Gulf of Mexico, and recommends the use of closed loop systems in inshore, nearshore, and offshore locations.” (Gulf Fishery News March/June 2004).

5.3 *ACE and EPD were wrong to accept conclusions in the EIA on the impacts of open loop*

The arguments in the EIA used to draw the conclusion that “no significant adverse impacts to fisheries resources are expected” are based on a number of false assumptions which WWF detailed in its submission to EPD during the public consultation. These concerns were ignored and WWF believes that both ACE and EPD were in error in endorsing this aspect of the EIA.

5.4 *WWF completely rejects the assertion in the EIA that “no significant adverse impacts to fisheries resources are expected from the open-rack vaporization system”*

The proposed LNG terminal would not be permitted in certain states of the US, and it should not be permitted in Hong Kong, where fisheries resources are already depleted, and where the fishing community is struggling to survive.

Alternatives to open loop systems include closed loop, and “Gunderboom” a floating barrier net fine enough to screen out fish larvae that has been deployed at some power stations in the US.

6 The public does not want an LNG terminal in the Sokos Islands

6.1 *Over 20 000 people joined WWF over a two week period to call for a rejection of the Soko as the preferred site of the LNG terminal*

Over 20,000 people joined WWF over a two week period, to express their views through WWF's petition and signature campaign (Appendix 1) to reject Soko as the preferred site for the Liquefied Natural Gas (LNG) Terminal during the EIA public consultation. In addition, more than 1000 individuals have written to express their own point of view, a record for the public consultation of any EIA in Hong Kong. The LNG terminal has become an issue of public concern. Chinese White Dolphin is Hong Kong's best known marine species, known by 99% of Hong Kong public (TNS survey for WWF, 2005).

7 The “mitigation” measures proposed will not compensate damage caused

7.1 *Mitigation measures will not mitigate the impact caused by the LNG terminal*

The measures proposed by CLP as mitigation are mostly small initiatives centered around enhanced monitoring, and recreational opportunities. They will not compensate for the ongoing



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disturbance to the marine environment caused by the LNG terminal.

It is also worth noting that the marine park as proposed will provide negligible additional protection to the Chinese white dolphin due to its small size in relation to the home ranges of the dolphin, as commercial fishing is still permitted within them, and with the other disturbances mentioned.

7.2 *The measures to fund the establishment of marine park are in no way “mitigation” measures*

Marine parks were planned before the LNG terminal and should go ahead without CLP’s financial input. CLP funding for them is, therefore, in no way mitigation.

7.3 *The \$100 million funding by CLP to fund the enhancement plan is a small change*

The HK\$ 100 million proposed as funding by CLP for the various initiatives (a cost which will be passed onto the public) is small change given that CLP will make a profit of 1 billion just on constructing the LNG terminal under the scheme of control, and the loss to fisheries over the lifespan of the terminal will exceed 50 million.

8 WWF supports the use of cleaner fuels but not without consideration of other environmental costs

8.1 *WWF supports the use of cleaner fuels including natural gas for power generation*

WWF supports the use of cleaner fuels including natural gas for power generation. An increased use of natural gas in Hong Kong's power stations will reduce emissions of pollutants such as sulphur dioxide, oxides of nitrogen and particulates that cause Hong Kong's air pollution problem, providing that the amount of coal used is in turn reduced.

8.2 *There are doubts as to how much the proposed LNG terminal can help to improve Hong Kong’s air quality*

A significant portion of the energy generated through existing and to-be-constructed facilities owned by CLP in Hong Kong is also sold to Mainland China. There remains a question of how much the construction of one or more LNG stations will eventually help improve Hong Kong’s air quality, given that CLP is not subject to restrictions on the amount of power it sells across the border, where demand is rising.

8.3 *We should **not** solve one environmental problem by creating another environmental problem*

The fact remains that CLP has been one of the largest air polluters in Hong Kong for decades. CLP has been effectively pressurising the government to allow it to destroy another environment in order to solve problems of its own creation, and should not be permitted to do so.

9 CLP’s need for an new LNG terminal is not proven

9.1 *The Yacheng gas field supplier, CNOOC, stated that they can provide sufficient gas to CLP until 2025*

On 13 December 2006 the Yacheng gasfield operators CNOOC and BP took the unusual move of announcing to local media that the existing supply of gas, at two and a half billion cubic metres of gas annually (around 250 million cubic feet per day) to Hong Kong would last 30 years until 2025.

A CNOOC official was subsequently quoted as saying "We will supply sufficient gas to CLP during the contract period even though it says the gas field will run out sooner...If CLP want to



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buy more gas, we can explore for more gas by drilling four new wells" (SCMP 14 Dec 2006).

9.2 *An independent auditor to evaluate the Yacheng gas field reserve is essential*

Although CNOOC issued a joint statement with CLP to refute these claims, WWF called on the government to appoint an independent auditor to evaluate the ability of the Yacheng gas field to continue supplying CLP's Black Point power station. The government is in the process of doing so but the results have not been released. The LNG terminal should not be considered if existing supplies are adequate.

10 Other viable options exist

10.1 *Sinopec would like to sell gas to Hong Kong but CLP rejected its offer because its LNG EIA was approved*

The SCMP recently reported on 23 April 2007 that China Energy Development Holdings, which has a 50-50 joint venture with China Petroleum & Chemical Corp (Sinopec) and is to develop a LNG project in Zhuhai and Macau, were in talks to sell gas to Hong Kong utilities. However, CLP rejected the offer in light of the Environmental Protection Department's recent approval of CLP's EIA report to build its own LNG terminal at Soko Island.

10.2 *Alternative supply of natural gas is available*

In Dec 2006, Woodgroup a company hired by Sinopec, was conducting a desktop preliminary study on a submarine gas pipeline connecting the proposed LNG receiving terminal on Huangmao Island, Guangdong to Coloane Station in Macau to the west (13.5 km long) and to South Soko Island to the east (about 40km long). This demonstrates that an alternative is available, and preparations have started to be made for it.

10.3 *The need for another LNG station in Hong Kong remains unknown*

WWF hopes the Government will validate its earlier claims that it would seek independent advice to determine if the gas consumption data provided by CLP justify the need for another LNG station. EDLB earlier indicated to the public that it *"would evaluate the data on gas consumption and the availability of the Yacheng station and would seek independent consultant advice if necessary."* (SCMP 14 Dec 2006).

Reference

Pitcher, T., Buchary, E., and Trujillo, P. 2002. Spatial Simulations of Hong Kong's Marine Ecosystem: Ecological and Economic Forecasting of Marine Protected areas with Human-Made Reefs. The Fisheries Centre, University of British Columbia



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Appendix 1 Soko Petition Letter

Dear Director, Environmental Protection Department,

WWF’s “No Go at Soko” petition letter

The recent proposal by China Light and Power to build a Liquefied Natural Gas (LNG) receiving terminal at South Soko Island is a threat to the existence of the Chinese white dolphin in Hong Kong waters. The dolphins are supposed to be a protected species, yet the government has already allowed more than 1,700 hectares of their habitat to be lost to reclamation and other projects. The 38 km pipeline, and operation of the LNG terminal at South Soko would be yet another impingement on their territory.

The Soko Islands are one of the prime habitats for the Chinese white dolphin and are the only area where this species co-occurs with the Finless porpoise in Hong Kong. The ecological value of the area has already been recognized with the Country and Marine Park Board endorsing a proposal for a marine park there in 2002. However, designation of the park has yet to occur, and even within the existing marine park for dolphins commercial fishing still occurs. As the dolphins already suffer from a high level of human disturbance, and receive little effective protection, it is vital that they not be subjected to even more stress.

I now urge the Hong Kong SAR government to ensure the Chinese white dolphins survive forever in Hong Kong by taking the following actions:

1. Reject the Environmental Impact Assessment (EIA) report of LNG terminal at South Soko Island as the preferred option
2. Designate the waters around the Sokos as a marine park where no fishing is permitted, to create a true marine sanctuary
3. Plan and act strategically when considering development in western waters so that the most sensitive areas are fully protected forever, and development is only permitted in other zones

Only by taking these measures can we avoid eventually pushing the dolphins to extinction

<i>Public Signature</i>				

By Hong Kong citizen who care for our marine environment