

## EASTERN MEDITERRANEAN FOCUS

### INTERVIEW

#### *Shipping Compressed Natural Gas by Sea Is the Best Option for Transporting Gas from the Eastern Mediterranean to Europe,*

**David Stenning**, President and Cofounder of **Sea NG Corporation**, tells **AOG**

- ▶ The option of exporting CNG by sea is far less costly than natural gas liquefaction and quicker to implement
- ▶ The challenge is to find one or more producers willing to lead the way
- ▶ I am very confident about the future of the “floating CNG” business. The first project should get off the ground soon and be followed by many more.

(Following is the text of an interview with Mr. David Stenning, President and co-founder of **Sea NG Corporation**, a Calgary-based company which is promoting the marine compressed natural gas - CNG - option. See his CV on the following page).

**AOG:** *Sea NG Corporation is promoting the use of floating compressed natural gas (CNG) for some time. What are the main technical and economic advantages of this technology?*

■ **David Stenning:** The main technical advantages are that compression is much simpler than liquefaction and is proven offshore. All FPSOs and offshore platforms have compression facilities to deal with the natural gas – either by compressing it to a pipeline for export or compressing it for re-injection into a reservoir for pressure maintenance and/or conservation. Unlike liquefaction, compression is more tolerant to gas impurities such as nitrogen, CO<sub>2</sub> and mercury. This greatly reduces expensive and complicated gas processing offshore. The economic advantage of CNG is that compression is much less expensive than liquefaction and faster to implement.

Until the **Coselle CNG ship** was developed by Sea NG and fully approved by the **American Bureau of Shipping**, the only opportunity for shipping gas by sea was as liquefied gas in LNG ships. Now that CNG ships are available industry has a new option for shipping natural gas. If the gas market is within 2,500 km of the gas source marine CNG should be considered.



Photo Sea NG Corporation.

**AOG:** *You have set up an **alliance with Marubeni, Teekay Corporation and Enbridge** in order to be able to provide a complete CNG shipping service. What are the major assets of this alliance?*

■ **D. S.:** Teekay is a large publicly traded shipping company with enormous expertise in shipping both oil and natural gas with an outstanding track record of safety. Enbridge is a large publicly traded energy mid-stream company with expertise in pipelines, compression and gas treating facilities throughout North America. Marubeni is a large Japanese conglomerate with particular expertise in financing and energy infrastructure projects worldwide. This Alliance of companies, dedicated to the safe and cost effective shipping of natural gas in Coselle CNG ships, provide customers with the assurance that CNG projects will be carried out and operated safely within budget and schedule.

**AOG:** *How would you assess the results of this promotional effort so far? What are the key **challenges** you are facing and the principal **obstacles** you have to overcome?*

■ **D. S.:** The number one challenge is finding the producer who is prepared to participate in the first marine CNG project. In today's world, being an 'aggressive follower' of technology implementation seems to be the norm for energy companies and this has been our main hurdle. We have had several due diligence reviews by producers and in all cases the technical and economic feasibility has been confirmed. The issue is finding the right application and the right partners for the first project.

That said, we are getting a very positive reception from producers who are beginning to see the benefits of marine CNG. One particular benefit is the monetization of offshore gas fields that are too small for LNG and where pipelines are too difficult. We think the rewards are large enough for a first-mover, especially with our Sea NG Alliance fully committed to a safe and successful first project.

**AOG:** *You have just delivered a speech at the European Mediterranean Oil & Gas Exploration & Production Summit at Limassol (Cyprus). Do you think that the **Eastern Mediterranean** could be an interesting area for the implementation of the floating CNG technology?*

<b>WHO'S WHO</b>	<b>&gt; David Stenning</b> President and co-founder of Sea NG Corporation
	David Stenning is President and co-founder of <b>Sea NG Corporation</b> . He is also a co-inventor of <i>Coselle CNG</i> technology. Sea NG is leading the development of safe, economic and reliable marine transportation of CNG. The invention, development and international approvals of the patented <i>Coselle</i> system is a result of David Stenning's engineering and management capability, and his track record for innovative thinking.
	With more than 30 years of experience in the international energy industry David Stenning has engineered and managed multi-discipline and innovative projects, including two of the first offshore drilling structures in the Arctic. Prior to Sea NG, he served as Director of Marine CNG at <b>Williams</b> , where he managed the development of the <i>Coselle CNG</i> technology. He has written and presented several papers on marine gas transportation, offshore engineering and project management and holds six patents in the areas of offshore platform design and gas transportation.
	David Stenning holds degrees in Applied Science (Civil Engineering) from the <b>University of British Columbia</b> (1975) and a Masters in Economics from the <b>University of Calgary</b> (1996).
	<small>Source: Sea NG Corporation.</small>

■ **D. S.:** Large quantities of natural gas have been discovered in the Eastern Mediterranean and marine CNG is the most economical way to deliver that gas to Europe, so yes, I see a major opportunity for CNG shipping. In time LNG, either through a floating plant or an onshore plant, will exploit the large fields and supply gas to the world markets, primarily Asia. However, without marine CNG the smaller fields and the southern European markets will likely be ignored for many years. While regional pipelines have been proposed, the technical and cost challenges of these pipelines will require vast investments in a politically difficult region. Marine CNG, on the other hand, is unaffected by water depth and in the event of a political crisis can be taken out of harm's way and redeployed – the investment is not lost. Also international CNG shipping is governed by the existing international conventions for shipping and does not require new laws and permissions. This greatly shortens the implementation schedule of a marine CNG project.

Marine CNG can provide the means for early exploitation of the large fields and an economic solution for the smaller fields. The market for CNG would be the regional markets in southern Europe. We like to think that marine CNG connects neighbours and in time many shipping routes would serve the Greek Islands, as well as the main lands of Greece, Italy and Turkey. This is not only an economic solution but could also have very positive political benefits.

***AOG:** Do you have - or did you have - discussions with the main players in this region as far as the gas issues are concerned, that is **Noble Energy** and its partners as well as the **governments of Israel and Cyprus**? What are their reactions to your proposals?*

■ **D. S.:** We have been marketing in the region for the past few years but it takes time to convince people that this 'new technology' is real and that our company and the Alliance are committed to deliver that solution. While I cannot disclose any specific discussions with governments, producers and off-takers I can say that the reception has been warm but cautious. The 'who-goes-first' issue is obviously a hurdle. However we think that all the parties are starting to realise that marine CNG is a new application of existing technologies and that the opportunities far outweigh any potential risk.

***AOG:** Are you in touch with other operators in this part of the world, including **Total** and **Eni** which were recently awarded exploration permits off Cyprus?*

■ **D. S. :** Without disclosing specifics, we are in contact with many potential operators for marine CNG around the world.

***AOG:** Do you remain optimistic about the prospects of floating CNG?*

■ **D. S.:** Yes, I am optimistic because the economics are so compelling – for short distance markets the cost of a floating CNG project is one half that of a floating LNG project. Like many new ideas the first project is a challenge. However, I am very confident that the first project will be soon and that there will be many follow-on projects. The marine CNG industry is just at the starting gate.

