## Plug-and-play

power

Floating modular infrastructure will bring affordable power to remote communities

The correlation between electricity, education, and GDP is indisputable, so it is essential that remote communities have access to power they can afford.

Historically, electricity has been delivered to isolated communities via diesel generator sets, but growing concern about emissions and the availability of huge gas reserves worldwide makes gas an increasingly attractive fuel choice.

While liquefied natural gas (LNG) is a feasible alternative, it is much more difficult to transport than oil, requiring specialised containers and precisely engineered pipelines that can withstand its extreme -160°C temperature. Traditional infrastructure for moving LNG around the world has been typically designed on the back of 25-year contracts between suppliers and major customers, such as power stations or urban utilities, and the costs and complexity are acceptable in this context.

When you try to shrink the size of the conventional delivery operation to bring relatively small amounts of LNG into inaccessible places, unit costs climb fast. Shipment requires distribution from a central hub to local satellite receiving terminals, and if each of these includes conventional jetties and onshore regasification facilities at every landing point, then land acquisition, permitting, construction, and logistics problems can be challenging. Additionally, in the key markets of Asia, building earthquake-proof infrastructure requires the highest quality of construction and finishing, which is a difficult task at many remote sites.

So, the challenge has been to devise an LNG reception system that does not incur major diseconomies of scale. Cue the AgileNLG Floating Storage Regasification Unit (FSRU) which, as the name suggests, stores the fuel in its liquid form and turns it back into gas for pumping ashore.

But, if you are after power, why stop at doing the regasification process offshore? Why not avoid the need for an onshore

terminal altogether by attaching a power station to the FSRU to create a complete piece of floating infrastructure?

AgileLNG provides communities with the opportunity for power and gas together, and takes the basic FSRU approach further than ever before in order to wring out costs.

- steel, making them much more durable in the hostile marine environment and permitting longer lifespans and significantly less inspection and maintenance.
- The different elements are modular so they can be pre-fabricated and joined together as required, avoiding potentially expensive technical issues with a single massive barge.
- Using standard off-the-shelf components makes the build more straightforward.

This Ikea-style approach to small-scale LNG distribution pieces together offthe shelf and prefabricated elements to deliver a smart and flexible solution at an acceptable price: maximising cost savings through intelligent design. BMT's Richard Colwill explains how these modular barges have the potential to transform lives across the archipelagos of Asia and around the world.

• The hulls are built of concrete, instead of

- Shipyard manufacture enables repeatability and quality control.
- The use of atmospheric vaporisers for regasification has the potential to create substantial volumes of fresh water - a valuable community benefit that is being reviewed in the further development of the design.

AgileLNG offers a reliable, entirely flexible, three-module, power delivery system that can be configured to suit individual sites. The storage and regas unit can be employed on its own or with support and power units attached.

While economy of scale means it is never going to be possible to distribute small amounts of LNG as cheaply as large volumes, AgileLNG has done much to minimise the increase in unit rates over an operation ten times the size.

The platform can bring reliable power to remote coastal communities world-wide, and permits the roll-out of cleaner fuels across all scales of urban development.