

Hydrates: Energy for India and China

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One of the biggest problems in producing natural gas is that, if there is any water in the gas at all, when you choke it down from the relatively high wellhead pressure to pipeline pressure it forms solid ice-like crystals called hydrates. The crystals quickly plug up the pipeline and shut down production. Wellhead gas heaters and dehydrators are installed to keep this from happening.

Hydrates are water crystals that contain methane. Once formed they are hard to get rid of because the crystals are extremely stable. After decades of fighting with hydrates, gas engineers finally realized that if these things form so easily and are so robust, there have to be a bunch of them out there in nature.

And indeed there are. Just a few thousand feet under ocean beds that lie under more than 500 meters of water there are immense quantities of this stuff. Hydrate exploration is still in its infancy but already the total carbon content of the known reserves of hydrates exceeds all the carbon in all of the world's known coal, oil, and natural gas reserves combined. The find promises an energy bonanza of epic proportions.

The next phase of our energy history may be dominated by hydrates. This version of the future is particularly germane to Asian giants China and India. The emergence of these countries as significant economic players and energy consumers on a global scale is changing the world order of energy consumption. It has already altered the global energy equation. Energy prices are rising as India and China scurry to secure supplies.

Current resources and supplies cannot accommodate another two billion people at a consumption level to which these behemoths aspire. As they grow, their demand pushes up energy prices and higher energy prices in turn curtail global economic growth. The energy supply issue is the unanswered question in the otherwise rosy economic forecast for China and India.

Hydrates may hold the answer, and if it comes to that, India will have the edge over China. If you compare economic access to oceans at sufficient depth to hold hydrates you find that among the major Asian economies, India and Indonesia come out on top. Most of the ocean controlled by China is too shallow to hold hydrates. China will almost certainly not be a major hydrate producer. By contrast, India holds the key to a vast hydrate potential. In the hydrate scenario of the future it may be India and not China that becomes the world's next economic superpower.

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