Advantages of Mid-Scale LNG Liquefaction
By Kevin J. Blount, Vice President, Sales & Marketing, Chart Energy & Chemicals, Inc.

Until recently, conventional wisdom regarding the development of LNG facilities has been targeted on better economies of scale through the implementation of larger and larger single liquefaction trains.

In fact, over the last 35 years single train size for "baseload" facilities has increased from less than 1 mm tons per year to over 5 mm tons per year driven primarily by concerted efforts to reduce the specific capital cost ($/ton of LNG produced) for these "mega" field opportunities (50-500 Tcf).

However, as the size of a single train increases so does the inherent risk associated with assured long term availability of the natural gas feedstock and the simultaneous attainment of a high degree of operational reliability and on-stream efficiency. In other words, as the cost and complexity of a larger and more sophisticated train increases, the risk associated with the potential of a non- or under performing asset increases dramatically, whether due to technical/operational difficulties or feedstock availability. And in today's economic climate, characterized by growing demand accompanied by shortages of natural gas and rising prices, there are "time-to-market" issues as well. To be a player in this market one can't wait for 5 years to bring a plant on stream.

With mid tier fields, typified by relatively limited size, geographical isolation or unconventional production challenges, the exploitation of what is a major share of global natural-gas reserves has traditionally been deemed uneconomical or technically infeasible. In the present economic situation however, the past assessments are no longer necessarily valid and are now being re-evaluated.

Recent research identifies some 2,000 small and mid-size natural gas reserves (1-5 Tcf and less) traditionally considered as "stranded". With mid tier gas fields, where there is a limited potential for long term gas supply and time to market issue are paramount, "conventional wisdom" (the larger train mentality) just doesn't work! In the mid tier arena, another method of monetizing this so called "stranded" gas necessarily must be considered.

Against the backdrop of spiraling primary energy costs; flexible business models and the availability of a "scale-adapted" modularized liquefaction system utilizing an electrically driven refrigeration/compressor (E-LNG) can paint an entirely different picture, opening up opportunities for substantial revenues to owners of stranded-gas reserves.

Energy World Group and Chart Energy & Chemicals, Inc. have teamed up to offer a repeatable solution specifically tailored for monetizing small and mid-scale natural-gas reserves through LNG liquefaction. Distinguished global players in their own right, the companies contribute general project management, technology, process expertise and equipment manufacture plus the option for financing. The liquefaction plant configuration of the proposed solution complements the benefits of small-scale, standardized, repeatable 0.5 MTPA LNG liquefaction trains with the productivity and efficiency advantages of the E-LNG concept, a new development derived out of combined cycle powerplants, where the refrigerant compressors are powered by electric drives rather than gas turbines.
The Energy World Group (EW) plans to use its unique modular LNG plant concept to develop stranded gas fields in several parts of the world; producing LNG for export, to meet an estimated 20 million tons per year shortfall, in one of the world’s fastest growing regions, the Pacific Rim.