Fuel-Free, Ubiquitous, Compressed Air Energy Storage and Power Conditioning

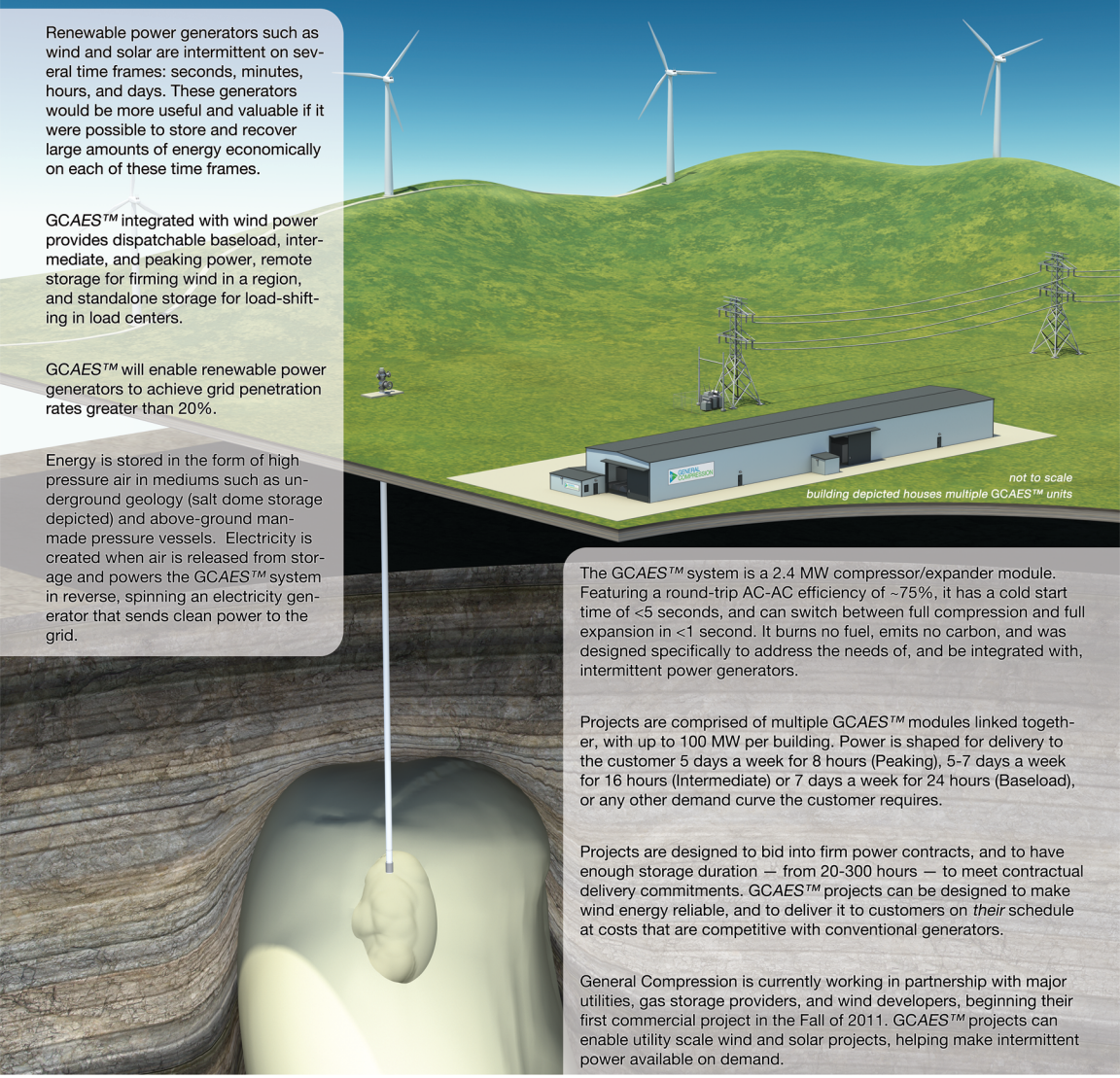
Introducing **GC*AES*™** — the **General Compression Advanced Energy Storage** system, an ubiquitous, near-isothermal revolutionary technology that allows the conversion of compressed air into power without burning fuel

Renewable power generators such as wind and solar are intermittent on several time frames: seconds, minutes, hours, and days. These generators would be more useful and valuable if it were possible to store and recover large amounts of energy economically on each of these time frames.

GC*AES*™ integrated with wind power provides dispatchable baseload, intermediate, and peaking power, remote storage for firming wind in a region, and standalone storage for load-shifting in load centers.

GC*AES*™ will enable renewable power generators to achieve grid penetration rates greater than 20%.

Energy is stored in the form of high pressure air in mediums such as underground geology (salt dome storage depicted) and above-ground man-made pressure vessels. Electricity is created when air is released from storage and powers the GC*AES*™ system in reverse, spinning an electricity generator that sends clean power to the grid.



The GC*AES*™ system is a 2.4 MW compressor/expander module. Featuring a round-trip AC-AC efficiency of ~75%, it has a cold start time of <5 seconds, and can switch between full compression and full expansion in <1 second. It burns no fuel, emits no carbon, and was designed specifically to address the needs of, and be integrated with, intermittent power generators.

Projects are comprised of multiple GC*AES*™ modules linked together, with up to 100 MW per building. Power is shaped for delivery to the customer 5 days a week for 8 hours (Peaking), 5-7 days a week for 16 hours (Intermediate) or 7 days a week for 24 hours (Baseload), or any other demand curve the customer requires.

Projects are designed to bid into firm power contracts, and to have enough storage duration — from 20-300 hours — to meet contractual delivery commitments. GC*AES*™ projects can be designed to make wind energy reliable, and to deliver it to customers on *their* schedule at costs that are competitive with conventional generators.

General Compression is currently working in partnership with major utilities, gas storage providers, and wind developers, beginning their first commercial project in the Fall of 2011. GC*AES*™ projects can enable utility scale wind and solar projects, helping make intermittent power available on demand.

GENERAL COMPRESSION
expanding clean power™

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