

**Texas Commission on Environmental Quality
New Technology Implementation Grant (NTIG) Program
Quarterly Project Status Report**

Contract Number: 582-11-13126-3225
Grantee: General Compression
Report for the Monthly period: Q4 **Date Submitted:** Jan 10, 2012

Section I. Accomplishments

Provide a bulleted list of project accomplishments as well as a description of their importance to the project.

General Compression (“GC”) and project partner ConocoPhillips (“COP”) have established the necessary goals, legal and financial framework, operational responsibilities and staffed a respective team of design engineers, construction managers, consultants and energy executives to plan and successfully complete the scope of work for this grant. The following accomplishments (by task) are critical path activities for the project that have been completed as of December 31, 2011 (4th Quarter):

Task 1

- GC and COP are currently in negotiations to amend the Gaines, TX Project Site License Agreement (SLA) and extend site access for the project for a minimum of 7 years.
- The Task 1 report was submitted on October 25, 2011.
- GC received a letter from TCEQ on December 7, 2011 providing a conditional acceptance of Task 1 Deliverables pending the execution of the option for the Additional Term for 7 years.

Task 2

Task 2 Deliverables:

- The cavern design, engineering and re-commissioning have been completed. On November 25, 2011 GC submitted TRRC Rule 97 Permit to create, operate and maintain an underground compressed air energy storage facility.
- On November 25, 2011 GC submitted Task 2 deliverables, including the permit(s) to install and operate the GCAES system and construction of the Balance of Plant (BOP).

Permits that were submitted in Task 2 (as Confidential/Proprietary):

- **GCAES and Site:** Tetra-Tech Geotechnical Engineering Investigation ConocoPhillips Company ASP Energy storage project survey
- **GCAES and Site:** URS Fatal Flaw Analysis for Natural and Cultural Resources Evaluation

- **GCAES and Site:** URS ALTA Site Survey
- **Site:** Electrical Interconnect Agreement with Lea County Electric Cooperative
- **Cavern:** TRRC Rule 97 Permit
- **Wind Turbine:** The URS Fatal Flaw Analysis Compressed Air Energy Storage and Wind Farm Project Report

Task 2 Updates

- URS has developed a permitting plan for the Wind Turbine integration phase of the Gaines, TX demonstration project. A Wind Fatal Flaw Analysis report was commissioned by GC and the first phase was completed by URS on November 8, 2011.
- URS recommended a plan for pre-construction avian/bat study and Phase 1 Environmental study to be performed. They also recommended that The Texas Parks and Wildlife Department (TPWD) and the US Fish and Wildlife Service to be consulted in advance of the study.
- On December 20, 2012 URS and GC presented the results of the Fatal Flaw Analysis report, plans for the avian/bat study and the Phase 1 Environmental Study to representatives at TPWD.

Next Steps (task 2)

- URS will be conducting field work and soil analysis during the week of January 16, 2012. URS believes there are numerous underlying factors contributing to a successful permitting process, specifically that the project is planned to be developed in a sparsely populated and rural area that has existing oil production, gas pipeline and irrigation equipment.
- GC is currently in negotiations to procure a Suzlon Wind Turbine(s) for integration with the GCAES demonstration project in Gaines, TX.
- The Task 2 report was submitted on November 25, 2011. Task 2 deliverables are completed except for permits and site preparation related to wind integration.

Task 3

Task 3 Deliverables:

- General Compression, project partner ConocoPhillips, EPC firm Waldron Engineering and Cavern EPC Lonquist and CO have successfully planned, funded and executed specific development plans to prepare the demonstration site. Such plans specifically included:
 1. Constructing the project site, BOP, building and related infrastructure to support the integration of GCAES technology and operation of the demonstration project.
 2. Repurposing an existing salt cavern to Compressed Air Energy Storage Service and successfully integrate with GCAES technology.
- Waldron Engineering, ConocoPhillips and General Compression managed the development, construction schedule and reporting by the use of the Waldron Closeout Suretrack Schedule.
- The construction of the GCAES building, thermal pond, piping and electrical interconnect have been completed.
- The site preparation for the installation of the Advanced System Prototype (ASP) Unit 1 is complete.

- Lonquist developed the Railroad Commission of Texas, Oil and Gas Division cavern *Permit application and plan* to create, operate, and maintain and an underground compressed air energy storage facility by repurposing an existing salt cavern for air service.

Document/permits that were submitted in Task 3 (as *Confidential/Proprietary*):

- The Waldron Closeout The Suretrack schedule was submitted in Task 3 as “*Confidential/Proprietary.*”
 - The TRRC Rule 97 permit application was submitted as *Confidential/Proprietary*”.
- The Task 3 report was submitted on November 25, 2011. Task 3 deliverables are completed except for permits and site preparation related to wind integration.

Task 4

- The plan for 1000hrs of Proof of Concept (“POC”) unit and ASP Unit 1 operation and endurance testing has been completed. POC Watertown commercial demonstrator endurance testing to achieve 950 operating hours on the GCAES design is on-going. The unit has logged 101 hours to date.
- The Proof of Concept (“POC”) unit testing hours experienced a delay and two weeks of down time because of an upgrade and installation of a new large vessel seal design.
- GC has hired the project testing engineer who will execute the ASP Unit 1 testing protocols.
- Assembly of GCAES ASP Unit 1 and all subcomponents, including controls have been completed. The unit is currently being commissioned for testing and operational phases. Testing is expected to commence in January 2012.

Task 5

- GCAES ASP Unit 2 design freeze is expected by end of January 2012.
- GCAES ASP Unit 2 assembly and installation development plan is under development.

Task 6

- GC Supply Chain team has initiated vendor selection and qualification to procure ASP Unit 2 components.
- RES Americas has been selected as the project’s wind EPC.
- GC has granted a limited notice to proceed (LNTP) to RES Americas to initiate predevelopment activities, including an Alta Study for “right away” for wind turbine site selection and optioning of WT land.

*Confidential/Proprietary: inform applicant & seek AG opinion before releasing
Indicate which part of the Grant Activities as defined in the grant*





Section II: Problems/Solutions

Problem(s) Identified: Report anticipated or unanticipated problem(s) encountered and its effect on the progress of the project.

- a) Confirming the schedule/timeline to permit/install Wind turbine(s) at the Gaines site before the May 2013 grant deadline.

Proposed Solution(s): Report any possible solution(s) to the problems that were considered/encountered

GC Solution:

- a) Engaged environmental consultant firm URS of Austin TX to initiate and manage the permitting process, including conducting a Wind Integration Fatal Flaw Analysis, a Phase 1 Environmental Study, avian/bat study after consulting with TX Fish and Wildlife regarding the development and environmental impact plan.

- b) GC will continue to present a best and worst case timeline based on the project development milestones to TCEQ as new information is made available.

Action(s) Conducted and Results:

Describe the action(s) taken to resolve the problem(s) and its effect

- a) GC and COP executed a statement of work with URS to conduct fatal flaw analysis, initiate the Wind Turbine permitting process to have a better understanding of the time to permit/install Wind Turbines at the Gaines site, and a Limited Notice to Proceed for wind predevelopment with EPC Res Americas.

Section III. Goals and Issues for Succeeding Period:

Provide a brief description of the goal(s) you hope to realize in the coming period and identify any notable challenges that can be foreseen:

- a) GC continues to move forward with completing Task 1 (Conditional Acceptance), Task 2 (Wind Permitting), Task 3 (Wind Site Prep), Task 4 and Task 5 objectives before receiving

the Notice to Proceed to pursue Tasks 6 and Task 7.

a) GC will continue to host conference calls with the TCEQ Grant Management Team in order to provide updates on the project timeline and plan regarding the Wind Turbine integration, completion of 1000hr of endurance testing, timing on ASP Unit 2 (TCEQ Funded Unit) design and project completion date.

David Marcus – President Date:

Date: January 10, 2012

Authorized Project Representative's Signature

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