


STAFF REPORT

To: Zoning Commission - Regular Meeting – August 6, 2024
From: Kim Golden, P.E., City Engineer 
CC: Doug Kneupper, P.E.
Date: July 29, 2024
Re: Southern Select Energy Storage Project (BESS) – 701 Hwy 146 N

Background: The applicant is Alpha Omega Power, LLC. The proposed project will encompass approximately 5.71 acres on 6.29 acres of vacant land. The location of the project is on the west side of S.H 146 N and north of the existing Golden Logistics. The property owner is LM Storage, LLC. The property is zoned District F. The project proposes to develop up to 106 lithium-ion containers for 205MW, 410MWh capacity at the site.

At its regular meeting on July 22, 2024, the Planning Board voted 3-2 to approve the proposed Detailed Site Plan and to recommend approval of the zoning change to the Zoning Commission and to the City Commission.

Requested Action: The applicant is requesting approval of a zoning change for development of an electric power generating station utilizing lithium-ion battery energy storage system. The application is being processed as a District SP (Site Plan) rezoning consistent with Section 160.051(A)(1)(f) *provide for the development of specific uses which are not normally found in zoning districts*, and (h) *provide additional information and regulatory controls concerning the proposed use or uses for the protection of the public health, safety, morals and general welfare of the community*. Zoning Commission recommendation will be presented to the City Commission for action regarding the requested zoning change.

Staff Review and Recommendation: The project will include up to 106 individual battery containers for 205MW, 410MWh two-hour capacity at the site. The two-hour designation is in reference to the time to fully charge and fully discharge under standardized conditions.

This proposed BESS installation is approximately 20times larger in battery capacity than the previously approved BESS installations. The site is also physically much larger than the previously approved. This site is 6.29 acres with 5.71 acres in use for batteries, as compared to the two previously approved projects which were 0.48 acres and 1.5 acres respectively.

PROPOSED SITE IMPROVEMENTS - The Site improvements will include a 20ft concrete perimeter fire lane with access to all containers and two access roads as required by the Fire Marshal, security fencing, and landscaping of at least 6ft in

height to provide screening of the battery containers from S.H. 146. The fencing along SH 146 will be a 6ft masonry wall. Container spacing has been adjusted to the 15ft minimum required by the Fire Marshal. In addition to the generating station, offsite improvements include electric transmission infrastructure that connects to Texas-New Mexico Power facilities in the vicinity. No water or sewer will be needed for this development. Site drainage will be accomplished using an on-site collection system that outfalls into the adjacent drainage systems.

EXISTING SITE - The project site is part of the former ETC Texas City Trucking Terminal. The site has been determined to have certain environmental concerns affecting the groundwater. Specifically, a barium plume. Monitoring wells have been established and were monitored for a required amount of time. Applicant has indicated and provided documentation that the monitoring has been concluded and the wells have been or will be removed. The location of the monitoring wells have been indicated on the site plan. As part of an approved Response Plan, the property is subject to a deed restriction which limits its use to commercial/industrial use. A Revised Response Action Plan dated June 9, 2021, and prepared for the previous owner, Enterprise Logistic Services, LLC, to provide to TCEQ, represented expected future use to remain a trucking facility. A copy of the Revised Action Plan will be included in the agenda packet with this staff report.

ADJACENT PROPERTIES - The adjacent property to the north is Baker Distributing Company at 801 SH 146. The adjacent property to the south is burdened with an easement to TNMP for the location of transmission poles and wires. No survey has been provided, but the width of the easement when scaled with the Google Maps tool indicates a width of approximately 200ft. However, the existence of overhead power lines in close proximity to the location should be noted. Immediately south and adjacent to the TNMP easement is Golden Rule Logistics, another distribution entity. Golden Rule Logistics is a tenant on the property. Records show the property south of the proposed site to have common ownership, LM Storage, LLC, with the subject location. It is understood the project owner, Alpha Omega Power, LLC, will also be a tenant. The property is bounded on the west by the railroad. Gulf Coast Water Authority owns the vacant property which is immediately west of the railroad. The site is bounded on the east by S.H. 146. The TNMP substation is located immediately east of SH 146.

TNMP HEIGHTS SUBSTATION - The applicant's submission includes the following information regarding the location in proximity to the TNMP Heights Substation:

The project location near the TNHeights substation was chosen based on detailed power flow analysis of the transmission system within TNMP service area. This analysis identified the TNHeights substation as an ideal candidate for a utility-scale BESS, providing sufficient injection capacity while remaining close to TNMP critical load centers. Injection capacity is a metric used to show how much electrical power (in MW) can be transmitted into a point of interconnection, such as a substation.

The [attached map] shows the individual injection capacity for four of the largest substations within city limits. The TNHeights substation has the highest injection capacity (over 800MW), making it the ideal point of interconnection for multiple BESS projects to support regional grid reliability and electricity demand. Currently, one BESS project is operational at the TNHeights substation (BRP Heights, 10MW project), while three others are in queue to interconnect (Zeya 256MW, IEP Blackhawk 100 MW, and Southern Select 100MW). The combined capacity of these four projects (466MW) is well below the available injection capacity of the substation, indicating the substation is capable of supporting multiple BESS projects.

BATTERY CHEMISTRY and MANUFACTURER - The application indicates an intent to use LFP (lithium iron phosphate) battery cells which is the cell chemistry which currently available information indicates may be less prone to thermal runaway than the NMO (nickel manganese cobalt) battery cells. Applicant has indicated Fluence or Tesla are likely manufacturers, and that they intend to use CATL cells. CATL cells are considered Tier 1 cells.

FLOOD PLAIN/COASTAL ENVIRONMENT - The site is not located in a flood plain. It is located inside the area protected by the Texas City Hurricane Levee. Container foundations will be placed at elevation 7.0ft in accordance with Texas City ordinances.

Regarding protection from the saltwater/coastal environment, the applicant advises in an email received 7.19.2024 that the containers are fully integrated cabinets and shipped to the site as such, so there is no exposure to the elements during the installation process. The containers will meet the requirements of IP 67 at the Pack level and IP55 at the Battery Container level. IP67 means the individual battery packs do not allow for the ingress of dust particles. They are protected against the ingress of water from spraying/water jets and are rated to be submersed in up to 3' of water for up to 30 minutes without penetration. IP55 means the battery containers themselves provide protection from dust, low pressure water jets and damp and wet weather. The storage units also meet an anti-corrosion class of up to C5-H depending on the local environment. C5 is the highest class of anti-corrosion coating. Air filter maintenance is also a critical element of maintaining the units for optimal operating conditions and will be performed by a regular maintenance crew as often as needed, which may be weekly. Some of the indications in the email are different from the spec sheet provided with the application. The representations of the email are considered to supersede the spec sheet insofar as the conditions being presented to the Planning Board and others for approval at this time. **The codes and standards most appropriate for saltwater/coastal environment will be applied by the Fire Marshal and Chief Building Official during the permitting process.**

FIRE PROTECTION - Fire protection will be provided by on-site systems specifically designed for this application with Fire Marshal coordination. The project will be subject to the 2024 fire codes and building codes. The Fire Marshal may require

additional submittals at the time of permitting and has advised these requirements will include at minimum commissioning and decommissioning plans, site safety plan, all UL test results for the batteries to be installed, a bond or other security for decommissioning and some requirements for insurance. The Chief Building Official is likely to require annual certification and inspection of ventilation systems at minimum. The Applicant acknowledges these, and other requirements must be satisfied to obtain the necessary permits.

DECOMMISSIONING - The costs of decommissioning have been identified as an issue of concern for cities because it is known that batteries have a service life which expires. Additionally, as technology evolves, installations become obsolete. A recent article from the Green Clean Solar, January 11, 2023, references some key findings from a study of the Electric Power Research Institute. The study estimated the cost of decommissioning for a 1-MWh NMC lithium-ion based grid energy storage system as \$91,500. Applying this factor to the 410 MWh capacity proposed for this project would estimate the decommissioning cost as \$37,515,000. Although this project is not proposing NMC lithium-ion batteries, the estimated decommissioning cost is based upon 40% dismantling and packaging, 30% transportation and only 30% recycling. The battery chemistry would have the most impact on the cost of recycling. The estimated cost is significant enough to warrant the posting of substantial security.

SECOND POINT OF ACCESS – ISSUE UNRESOLVED: The secondary access is proposed to be through adjacent property under lease to Golden Rule Logistics. Applicant provided a proposed access agreement with the adjoining property owner just before the Planning Board meeting. Staff have subsequently provided comments on the access easement and recommend the final location be dedicated by plat as a fire lane for secondary access to the site. Such platting is necessary to be sure the access can be maintained permanently through the adjacent property which is used for logistics and staging. Fire Marshal has indicated a requirement for lockbox access.

APPLICANT'S EXPERIENCE/COMPANY HISTORY – The applicant is AOP Holdings, LLC d/b/a Alpha Omega Power, was established in 2023. The company profile and resumes of the key personnel are provided with this memo.

Analysis and RECOMMENDATION: City staff have reviewed the submitted Site Plan and provided numerous comments regarding spacing, paving, screening and landscaping standards. All of the site plan specific comments have been resolved, with the exception of the issue regarding the second point of access. Staff cannot make a recommendation regarding the adequacy of the second point of access without more information regarding the specific agreement with the adjacent property owner and tenant. Staff maintains its recommendation that the final location of the second access be approved by the Fire Marshal and granted by plat.

Applicant's information indicates it is a start-up company. Given the magnitude of the potential estimated cost of the decommissioning, the need for posting of a substantial bond should not be overlooked.

Staff makes no recommendation regarding this application for rezoning.