

General Questions

Did you contact anyone in Rarity Bay when the initial site was selected? If so, when and whom did you meet with and what was the result of that meeting.

Yes. On January 8, 2021 a webex meeting was held with RB representatives to go over the project and site selection process. The meeting was coordinated with Joe Barletta and Michael ? (email was Michael@RarityBayLiving)

Does the BESS affect the power distribution at all in Rarity Bay? i.e. If it is primary used for the Industrial Park, and Rarity Bay shares the distribution with the industrial park, then it effects Rarity Bay.

Not directly. The BESS will interconnect with a TVA 69-kV transmission line that is one source to the LUB substations that supply the local area. The BESS will be used in such a way that will provide the most benefit to TVA and its rate payers. For example, the BESS will be used for peak load shaving and voltage support which will benefit the industrial customers as well as the RB residents.

Does TVA have any plans to expand the BESS site? Such as a solar farm, wind farm, etc.

TVA does not have any current plans to expand the BESS site with any other forms of green power.

What landscaping will be added to the BESS to make it less noticeable to the community particularly from route 72.

TVA is reviewing landscaping options for installation where possible.

There is an existing tree buffer on the east side of Highway 72 north of the Rarity Bay entrance that should significantly shield the visual impact as residents are exiting the Rarity Bay community. It is likely that residents and visitors of Rarity Bay will be able to see the facility once they reach the intersection of Highway 72 and Rarity Bay Parkway. However, TVA could consider installing visual buffers (trees, vegetation, etc.) on the perimeter of the facility as needed to improve the aesthetics.

Please provide a site plan that include the location of the retention pond and how water would flow from each container to the retention pond in case of an emergency.

The BESS site does not have a retention pond for water run off. It does have an oil retention pond for the transformers used with the BESS and the interconnection substation.

How many BESS installations does Hitachi have? How many fires have there been at Hitachi sites? How have the fires been put out? Water? Burn out on their own?

Over 75 globally.

There have been no fires that resulted from or caused thermal runaway within Samsung batteries in the Hitachi North America region. The battery management systems (which detect elevated temperatures) are provided by the battery manufacturer. Installations are typically also provided with a NOVEC clean agent tank which will discharge in the event of a fire alarm. Some sites also are equipped with a deluge system, depending on the battery installation size and site requirements. No NOVEC or deluge systems have been activated during operation in Hitachi region North America installations.

How hardened are the assets to domestic or international terrorism.

This site has not been hardened since the lack of its operation will not adversely affect the power supply system

If the BESS goes offline, does it affect Rarity Bay?

No. Rarity Bay is served by LUB's TRDA 69-kV Substation which has two 69-kV source lines that are utilized to maintain service to the TRDA substation. The BESS facility will interconnect with the 69-kV lines and will come on and offline as needed to provide the best benefit for TVAs rate payers. This may entail peak shaving during high loads as well as voltage support for the area.

Is there any light pollution from the BESS.

The BESS will have security lighting.

What is the anticipated life expectancy for the batteries? There are studies that suggest they can be as short as 1 – 3 years. How will the batteries be disposed of?

The life expectancy is 10-15 years after which they would be recycled.

Can the noise be heard in our community? Is there anything that could cause the noise levels to increase to an unacceptable level.

It is more likely you will hear traffic noise from vehicles traveling Route 72 than from the Vonore BESS. At its worst, the anticipated level of noise at the substation fence line will be approximately 75dB – equivalent to a vacuum cleaner or average radio volume – and may happen in the infrequent instance when all outdoor equipment (heating, ventilation, air conditioning; inverters; transformers) are operating at the same time. This scenario could happen possibly a couple of times during any 24-hour period. This sound level will quickly diminish with distance from the site boundary.

Does the BESS create a magnified field that could affect the environment?

Power frequency (60 Hz) electric and magnetic fields (EMF) are present wherever electricity is generated, transmitted, or used, including utility installations such as substations and transmission lines, and typical household electrical appliances such as hairdryers and microwave ovens. The health effects of 60 Hz EMF have been the subject of extensive research since the late 1950s and no studies report adverse health cause and effect related to power frequency EMF. Further information on Electric and Magnetic fields associated with electrical power is available on TVA's website at tva.com/emf.

In rare cases, electrical equipment may also be a source of Radio Frequency (RF) signals that can interfere with communication technologies like broadband cable or broadcast radio and television. In the unlikely event that the Vonore BESS is identified as a source of RF interference, measures would be taken by TVA to correct the issue.

The Vonore BESS site would be designed and constructed to meet or exceed applicable industry safety codes and standards. The equipment being used consists of components already in widespread use throughout TVA and other power utilities. EMF and RF emissions would be no different from a typical power delivery substation and the BESS site area is sized such that EMF and RF would be negligible at the site fence perimeter area. Highest levels of EMF and RF would be present inside the fence perimeter which is not accessible to the general public or those

without training for working in areas of elevated EMF and RF

Safety

Is there any type of incident at the BESS that would require the evacuation of all of Rarity Bay? After full build out, there could be in excess of 1500 cars that need to exit onto route 72.

Emergency Response Guidelines indicate that for an uncontained fire the evacuation radius would be 1/3 of a mile. The BESS is designed so that fires are contained and do not propagate from one module to the next within the containers and each container is separated to mitigate any catastrophic event of a container spreading to other containers.

The distance to the nearest home in the RB community is currently approximately ¼ of a mile

When can we expect to review the emergency response plan?

The ERP will be complete near commercial operation date (COD) once all equipment has been installed and testing is complete.

If there is an incident at the BESS, how will the emergency preparedness plan address the single ingress of Rarity Bay.

This will be looked at and discussed with the local emergency responders as part of the ERP

Will TVA provide a critical risk assessment that includes a plume study, thermal runaway, chemical runoff etc.

TVA currently does not have plans to conduct a plume study.

The battery manufacturer has performed thermal runaway testing and incorporated mitigations into the design of the BESS being installed at Vonore.

TVA does not have plans to conduct a chemical runoff study due to the fire suppression system being designed with a dry agent to suppress the fire. In the event of the fire not being extinguished, the affected container would be allowed to burn out

With the BESS being unmanned, what is the response time for TVA personnel to be on site. If the monitoring system is remote, how is the information being relayed back to the monitoring system (hard wired, wireless, etc.). If wireless, is there battery backup for the wireless system?

TVA's Cleveland office will be responsible for the maintenance trouble calls for this site and will be able to have personnel on site within thirty minutes. TVA is using its fiber optic system in conjunction with LUB's fiber optic system to monitor and control the BESS from its operation center. The terminal fiber optic equipment does have a battery backup system

Does Vonore Fire of Monroe County have the necessary equipment to deal with a fire at the BESS. Do they understand the threats, etc and know how to respond.

The Vonore Fire Chief will be at the meeting and can respond to this question

Has a HAZOP study been done?

No

Rarity Bay has been struck by lightning numerous times in the last couple of years, has lightning

arrestation & grounding been studied and included in your plans.

Overhead static wire, surge arrestors, and grounding to protect TVA substation installations from lightning are always an integral part of TVA's designs and have been included for the BESS site

Environmental

What chemicals or toxic gases could be released into the atmosphere if the batteries are damaged due to fire or other events.

CO, CO₂, H₂, and HC; Toxicological information is provided in the MSDS that has been provided to the RBHOO

What chemicals or toxic gases could be released into the atmosphere during a thermal runaway? How are they controlled? It was mentioned that water could be sprayed on them; where would that water go?

When in thermal runaway the toxins that could be released are CO, CO₂, H₂, and HC. MSDS has been provided

The fire suppression system (FSS) approach for the container involves mitigation for the most consequential events, including prevention of Thermal Runaway and Explosive Gas Buildup. The container and battery hardware includes an integrated clean agent system, which has been tested and approved to UL9540A standards, that has demonstrated through lab testing success in mitigating thermal runaway in the event of cell failure. Separately, the container also includes a gas detection system that will activate forced air venting of the container to prevent the buildup of explosive gases that may result from any material failure of cells. In addition to these mitigation strategies, the BMS controllers for the battery monitor system health for temperature, voltage, and other potential faults, while the container protection monitors for ground faults and ambient temperature concerns. Alarms on any of these controllers will pre-emptively open all contactors and shut down the system. All these items work together to help prevent consequential events from occurring.

Currently there are no plans to use water for firefighting methods, only dry agents.

If dry chemicals are used to put out the fire and then water is used, is there a retention pond to hold the water until it can be treated or will it flow off the site eventually into Bat creek and the Tennessee River?

See response to previous question

MSDS sheet for dry chemicals used in the BESS pr

3M Novec 1230 Fire Protection Fluid is the dry agent that will be used with the BESS FSS. The MSDS is available on line but have included a copy as well. It has been deemed safe for human exposure.

The Vonore Fire Chief can provide information on what type of dry chemicals they would be using to fight any fire associated with the BESS.