

SHEET 1
CONSOLIDATED RISK ASSESSMENT FOR ALL TECHNOLOGIES

Lifecycle Activities	Risks	Cause	Consequences / Environmental Impact	Mitigation Measures / Controls			Re-assessed Risks
				Process	Plant	People	
Storage	1) Damage to equipment or containment breach.	1) Not adhering to recommended handling and storage instructions. 2) No supervision during activities.	1) Spillage of electrolyte / dangerous substances. 2) Contamination of environment / soil / flora. 3) People injured.	1) Inspection of packaging for damage. 2) Risk assessment to be conducted. 3) Proper supervision. 4) Adhere to OEM handling and storage instructions. 5) Agreement / contract with HazMat company for first response, site cleanup and rehabilitation.	1) Use of Equipment suitable for activity. 2) Equipment properly packaged in line with regulations. ([1] Section 3.21.4 b)) 3) Ensure that storage facilities meet OEM requirements.	People trained and competent for activity / task.	No incidents.
Transportation	1) Damage to equipment or containment breach.	1) Road accident caused by driver or 3rd party. 2) Cargo not properly secured. 3) Bad road conditions.	1) Spillage of electrolyte / dangerous substances. 2) Contamination of environment / soil / flora. 3) People injured.	1) Inspection of packaging for damage. 2) Risk assessment to be conducted. 3) Route planning and obtaining all relevant permits from the local authorities. 4) Adhere to OEM handling and transportation instructions. 5) Agreement / contract with HazMat company for first response, site cleanup and rehabilitation. 6) All MSDS available for the BESS. ([1] Section 3.16.1 c) 4); 3.16.10 b))	1) Making use of accredited hazardous goods transportation companies. 2) Equipment properly packaged in line with regulations to facilitate safe handling, transportation and placement. ([1] Section 3.19.14.1 h); 3.21.4 a))	1) People trained and competent for activity / task.	No incidents.
Installation	1) Damage to equipment or containment breach.	1) Not adhering to recommended handling and storage instructions. 2) No supervision during activities.	1) Spillage of electrolyte / dangerous substances. 2) Contamination of environment / soil / flora. 3) People injured.	1) Inspection of packaging for damage. 2) Risk assessment to be conducted. 3) Effective scheduling to limit onsite storage of equipment - site to be ready to readily accept BESS. 4) Adhere to OEM handling and transportation instructions. 5) Agreement / contract with HazMat company for first response, site cleanup and rehabilitation. 6) All MSDS available for the BESS. ([1] Section 3.16.1 c) 4); 3.16.10 b))	1) Civil design ensures that spillages (of any nature) does not contaminate soil / environment. 2) Equipment designed to facilitate safe handling, transportation and placement. ([1] Section 3.19.14.1 h))	1) OEM accredited staff to be used for installation, testing and commissioning.	1) BESS equipment safely installed in line with OEM standards. 2) No incidents.
Operating & Maintenance	1) Fire 2) Explosion 3) Equipment augmentation.	1) Latent defects. 2) Wear and tear not detected during maintenance inspections. 3) O&M not according to OEM instructions. 4) Shortcircuits, thermal runaway, equipment failure or malfunctioning. 4) Augmentation needed to maintain plant contractual performance.	1) Spillage of electrolyte / dangerous substances. 2) Contamination of environment / soil / flora. 3) People injured. 4) Damage to plant.	1) OEM operating and maintenance documentation available. ([1] Section 3.22.4) 2) Operating and Maintenance programme in place. ([1] Section 3.22.7) 3) Auditing of all operating and maintenance functions. 4) Waste management programme in place.	1) Enclosure corrosion protection and ingress protection suitable for the expected environmental conditions. ([1] Section 3.19.14.1) 2) Primary and secondary containment of hazardous substances within the BESS equipment. ([1] Section 3.16.9) 3) Civil design shall prevent any discharge of hazardous substances into the soil. 4) Hazard detection and effective safety controls implemented. ([1] Section 3.16.2; 3.16.3; 3.16.8) 5) Staff and first responders suitably equipped to effectively deal with on site incidents. 6) Plant designed for safe O&M by staff. ([1] Section 3.16.4 - 3.16.7; 3.16.11)	1) Staff trained and accredited to operate and maintain plant. ([1] Section 3.16.10; 3.23) 2) First responders trained in effectively handling plant fires and explosions. ([1] Section 3.16.10; 3.23)	1) No incidents. 2) Limited environmental impacts due to incidents.
Retire/ Decommissioning	1) Damage to equipment or containment breach.	1) Not adhering to recommended handling and decommissioning instructions. 2) No supervision during activities.	1) Spillage of electrolyte / dangerous substances. 2) Contamination of environment / soil / flora. 3) People injured. 4) Damage to plant.	1) Decommissioning strategy in place. 2) Environmental management plan in place. 3) Waste management plan in place. 4) Waste streams identified and documented. 5) Waste permits in place. 6) Accredited waste facilities to be contracted for accepting / recycling the waste. 7) An EIA for the decommissioning of the BESS plant will be required and could trigger the need for a waste management license.	1) Plant recyclable components identified. 2) Use of suitable equipment to minimise or eliminate any spillages during decommissioning.	1) Making use of accredited staff.	1) No incidents. 2) No environmental impacts.