

## Requirements: Technical Specifications

Order number 订单号	
Project name 项目名称	
Project location 项目地点	Illinois, US 美国伊利诺伊
Delivery time (FOB time) 发货时间	June 2022. 2022 年 6 月
Delivery Port 发货地点, 港口	As required 按需
Scope 供货范围	<input checked="" type="checkbox"/> Battery Racks (BMS included) 电池簇 (包括 BMS) <input checked="" type="checkbox"/> Control Cabinet 控制柜 <input checked="" type="checkbox"/> PCS 逆变器 <input checked="" type="checkbox"/> Enclosure <input checked="" type="checkbox"/> HVAC 空调 <input checked="" type="checkbox"/> AC Disconnecter AC 断路器 <input checked="" type="checkbox"/> DC Disconnecter DC 断路器 <input checked="" type="checkbox"/> Fire suppression system 消防系统 <input checked="" type="checkbox"/> BESS Assembly 安装 <input checked="" type="checkbox"/> FAT report 出厂测试报告 <input checked="" type="checkbox"/> Local controller 本地控制器 <input type="checkbox"/> Transformer 变压器 <input checked="" type="checkbox"/> Spare parts 备品备件  Other 其他 _____
Battery Installed Energy Capacity (kWh) 安装容量	No less than 323kWh 不小于 323kWh (S138-15P9 three strings. S138-15P9 三簇)
Usable Energy (kWh) 可用容量	300kWh (DC side) 300 kWh (DC 侧)
Grid AC Voltage 交流电压	<input type="checkbox"/> 600V <input checked="" type="checkbox"/> 480V <input type="checkbox"/> Other _____
Unit Power converter size (output) (kW) PCS 功率	50kW Sinexcel PWS1-50K-NA
Units of PCS PCS 数量	1
Power factor 功率因数	From 0.8leading~0.8 lagging 0.8 超前与滞后
Total harmonic content 总谐波含量	< 3% (compatible with US grid standards) 总谐波含量<3% (与美国电网标准兼容)
Power response speed 响应时间	<input type="checkbox"/> ms level 毫秒级 <input checked="" type="checkbox"/> Second level 秒级 <input type="checkbox"/> Not required 无要求
Local controller function 本地控制器功能	off-grid function required 需要有离网功能
Enclosure environment 箱体种类	<input type="checkbox"/> Indoor 室内 <input checked="" type="checkbox"/> Outdoor 室外
Enclosure painting 喷涂	TROES Corp logo required. Color is to determined by client. 需喷涂 TROES Corp 的 Logo. 箱体颜色由客户另行决定
Units of Enclosure 箱体数量	1
Enclosure type 箱体尺寸	<input checked="" type="checkbox"/> 10-foot <input type="checkbox"/> 20-foot <input type="checkbox"/> 40-foot <input type="checkbox"/> Cabinet Enclosure Description: 10ft outdoor container. 十尺标准海运集装箱 Drawing provided:
Enclosure certification 箱体防护等级	NEMA 3R or equivalent NEMA 3R 或同等等级
HVAC system 空调系统	Automatic HVAC heating / cooling system 自动恒温系统, 带冷暖功能  HVAC system must satisfy the Internal Ambient temperature range as listed below 空调系统应满足如下温度要求
Ambient Temperature 环境温度	External Ambient Temperature range : -- Ambient temperature range 外界温度范围: -20~40 摄氏度  Internal Ambient temperature range : -- Internal temperature range required 内部须保持温度范围: 20~40 摄氏度
Fire Suppression system 消防系统	<input type="checkbox"/> FM 200 <input checked="" type="checkbox"/> Novec <input type="checkbox"/> Asenol

	Automatic fire suppression system 自动消防系统
Grid connection 离/并网	<input type="checkbox"/> Off-grid 离网 <input type="checkbox"/> A/C grid tied 并网 <input checked="" type="checkbox"/> both off-grid and on grid 离并网
Battery certification 电池认证	UL1973, UL9540, UL9540A
Charge C rate 充电速率	0.5C Maximum. 最大 0.5C
Discharge C rate 放电速率	0.5C Maximum. 最大 0.5C
Warranty 质保	3 years 三年
Performance Guarantee 循环性能	5000 cycles, 80% End of Life. One cycle per day. 5000 次, 80% 最大放电深度, 按每天一次循环
A/C output frequency AC 频率	60HZ
AC side System efficiency [Battery system plus PCS] (round trip) AC 端效率	PCS: 97% Battery : 98%
Communication protocol 通讯协议	Modbus TCP
Spart Part requirement 备件要求	Standard: battery pack, DC terminal, CMU board, BMU board, main control board, cabinet HVAC parts, fuses 电池包, 直流接线端子, 分控板, 电池包采集板, 主控板, 机柜空调附件, 熔断器 Special:
Project procedure requirement 项目流程要求	All the design documents including, SLD, drawings, BOMs, etc. need to be reviewed by TROES before manufacturing. 所有设计资料, 包括结构图, 单线图, BOM 等在交付生产前需要由 TROES 审核确认。
FAT requirement: 工厂调试要求	<ul style="list-style-type: none"> <li>Power converter type testing and fault testing reports to be forwarded in advance. 交货前需提交系统故障测试报告</li> <li>Include start and full commissioning of each system 每套系统交付前需进行完整调试</li> <li>Nameplate need to be included upon requirement 系统名牌按需求制作</li> <li>HMI Control interface should be in English with TROES logo. HMI 系统控制界面为英文界面, 且显示 TROES Logo</li> <li>Each subsystem can communicate with PLC normally, the protection logic of PLC can run normally. 各分系统与 PLC 通讯正常, PLC 的保护逻辑可以正常实现</li> <li>Need to provide local commissioning tools and software. 需提供本地调试工具和软件 (上位机等)</li> </ul>
Saltwater corrosion protection 防盐雾设计	N/A
Certification standard 认证标准要求	<p>To meet the UL9540 standard, the following requirement need to be meet:</p> <ol style="list-style-type: none"> <li>Distribution system, aux system, etc. All the DC and AC circuit breakers need to have UL489 certification.</li> <li>All the DC cables longer than 3.5m, for the part that not in the conduit need to be protected by the flexible cable protectors.</li> <li>Barriers need to be added to prevent people form entering.</li> <li>Fire suppression system control box need to have ULc certification (For Canada projects only)</li> <li>All electrical equipment suspended outside the container needs to be waterproofed. Sealing strips are required at all openings of the container. There must be no exposed cables and connectors.</li> </ol> <p>为满足系统 UL9540 现场认证, 系统需满足如下要求:</p> <ol style="list-style-type: none"> <li>配电系统, 辅助系统等所有直流、交流微型断路器, 均需 UL489 标准认证</li> <li>所有的直流线缆, 未在线槽内的部分需要加装柔性线缆保护套</li> </ol>

	<p>3, 所有可容纳人员进出的空间均需加装防护网, 避免人员误入集装箱 (集装箱系统适用)</p> <p>4, 消防系统控制盒需要 ULc 认证 (加拿大项目)</p> <p>5, 所有集装箱外部悬挂电气设备需要做防水处理。集装箱所有开门处需要有密封胶条。不得有裸露线缆与接头。</p>
铭牌规格	<p>Nameplate material should be metal, fixed by rivet. TROES would provide the draft.</p> <p>铭牌需由金属材料制作, 铆钉固定。样式由 TROE 另行提供</p>
<p>Battery pack and rack layout requirement</p> <p>电池包与电池架排布需求</p>	<p>No special requirement 无特殊需求</p>
<p>Other information not showed in the form: 其他</p>	<p>If the battery pack is to be shipped separately from the container, the battery pack should be properly packed, and the surrounding foam should be filled to prevent condensation.</p> <p>如需电池包与集装箱分开发货, 电池包应妥善包装, 四周需要泡沫填充以防止冷凝水产生。</p>