# Green Power Solutions - Technical Terminology Standardisation Glossary

## Unified Cross-Pillar Technical Framework

**Document Type**: Foundation Framework (TASK-001)

**Implementation Phase**: Phase 1 (Days 1-2)

**Responsible Agents**: Lead Content Orchestrator + All Specialists

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## EXECUTIVE OVERVIEW

This glossary ensures consistent technical terminology across all four pillar pages (Generator Solutions, Hybrid Lighting, Tank Storage, Load Bank Testing) to maintain professional authority and cross-pillar technical integration.

**Consistency Requirements:**

* Unified power terminology and calculations
* Standardised Australian compliance references
* Consistent environmental performance metrics
* Aligned technical specification formats

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## CORE POWER & ENERGY TERMINOLOGY

### Power Calculations & Specifications

* **kW (Kilowatt)**: Continuous power output measurement - used consistently across all pillars
* **kVA (Kilovolt-Ampere)**: Apparent power rating for generators - standard format: "XXX kVA"
* **Load Factor**: Ratio of average load to peak load - expressed as percentage
* **Power Factor**: Efficiency measurement for AC power systems - expressed as decimal (0.8) or percentage (80%)
* **Fuel Consumption Rate**: Standardised as "litres per hour at 75% load" across all equipment

### Generator-Specific Terminology

* **Biodiesel Compatibility**: B20 (20% biodiesel blend) compatibility as standard specification
* **Mining Compliance**: Reference to Australian mining standards (AS/NZS 3000:2018)
* **Prime Power Rating**: Continuous power output capability under varying load conditions
* **Standby Power Rating**: Maximum power output for emergency or backup applications
* **Automatic Transfer Switch (ATS)**: Switching mechanism for seamless power transition

### Load Bank Testing Terminology

* **Resistive Load**: Pure resistive load testing for generator validation
* **Reactive Load**: Inductive load testing for comprehensive generator assessment
* **Load Step Testing**: Graduated load increase methodology for performance validation
* **Power Quality Analysis**: Voltage stability, frequency regulation, and harmonic distortion measurement
* **Certification Testing**: Compliance testing to Australian standards (AS 60439.1)

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## HYBRID & SOLAR TECHNOLOGY TERMINOLOGY

### Solar-Diesel Integration

* **Hybrid Power System**: Combined solar photovoltaic and diesel generator system
* **Solar Fraction**: Percentage of power derived from solar sources - expressed as percentage
* **Battery Storage Capacity**: Measured in kWh (kilowatt-hours) for energy storage systems
* **MPPT (Maximum Power Point Tracking)**: Solar charge controller technology for optimised energy harvest
* **Grid-Tie Capability**: Connection to electrical grid for bi-directional power flow

### Lighting Technology

* **LED Efficacy**: Measured in lumens per watt (lm/W) for energy efficiency comparison
* **IP Rating**: Ingress Protection rating for weather resistance (IP65 standard for outdoor applications)
* **Beam Angle**: Light distribution pattern measurement in degrees
* **CCT (Correlated Colour Temperature)**: Light colour measurement in Kelvin (K)
* **CRI (Colour Rendering Index)**: Light quality measurement (minimum 80 CRI for professional applications)

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## FUEL MANAGEMENT & STORAGE TERMINOLOGY

### Tank Storage Systems

* **Fuel Tank Capacity**: Standardised in litres for Australian market
* **Bunded Tank**: Double-walled tank construction for environmental protection
* **AS 1940:2017 Compliance**: Australian standard for storage and handling of flammable and combustible liquids
* **Fuel Management System**: Automated monitoring and control system for fuel inventory
* **Leak Detection System**: Environmental protection system for fuel storage integrity

### Fuel Quality & Monitoring

* **Fuel Polishing**: Fuel filtration and cleaning system for long-term storage
* **Water Separation**: Fuel treatment system for moisture removal
* **Microbial Growth Prevention**: Fuel additive system for biological contamination control
* **Fuel Quality Testing**: Regular analysis for contamination and degradation assessment
* **Environmental Spill Protection**: Containment systems meeting Australian environmental regulations

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## SAFETY & COMPLIANCE TERMINOLOGY

### Australian Standards References

* **AS/NZS 3000:2018 Wiring Rules**: Electrical installation standard
* **AS 60439.1**: Switchgear and control gear assemblies standard
* **AS 1940:2017**: Flammable and combustible liquids storage standard
* **Work Health and Safety (WHS) Regulations 2011**: Workplace safety compliance
* **Australian Competition and Consumer Act 2010**: Consumer protection compliance

### Safety Systems

* **Emergency Shutdown System (ESS)**: Automated safety system for equipment protection
* **Earthing System**: Electrical safety grounding in accordance with Australian standards
* **Fire Suppression System**: Automated fire protection for equipment installations
* **Safety Interlock**: Protective system preventing unsafe operation conditions
* **Risk Assessment**: Systematic hazard identification and mitigation process

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## ENVIRONMENTAL & SUSTAINABILITY TERMINOLOGY

### Environmental Performance

* **Carbon Footprint Reduction**: Quantified CO₂ emission reduction in tonnes per year
* **Fuel Efficiency Improvement**: Percentage reduction in fuel consumption compared to standard diesel systems
* **Renewable Energy Integration**: Solar or other renewable energy system incorporation percentage
* **Environmental Impact Assessment**: Systematic evaluation of environmental effects
* **Sustainable Power Solutions**: Energy systems designed for long-term environmental responsibility

### Emissions Standards

* **Tier 4 Final Emissions**: Current Australian emission standards for diesel engines
* **Noise Level Compliance**: Sound emission measurement in dB(A) at specified distances
* **Particulate Matter (PM)**: Diesel exhaust emission measurement in g/kWh
* **NOx Emissions**: Nitrogen oxide emission measurement in g/kWh
* **Environmental Management System**: ISO 14001 compliant environmental framework

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## TECHNICAL SPECIFICATION FORMAT STANDARDS

### Power Equipment Specifications

**Format Template:**

* Power Output: XXX kW / XXX kVA
* Fuel Consumption: XX.X L/hr at 75% load
* Dimensions: L x W x H (mm)
* Weight: XXX kg (dry weight)
* Noise Level: XX dB(A) at 7 metres

### Performance Metrics Standards

* **Efficiency Ratings**: Expressed as percentage with one decimal place (85.5%)
* **Runtime Specifications**: Hours at specified load percentage
* **Temperature Ranges**: Operating temperature in Celsius (-10°C to +50°C)
* **Altitude Derating**: Power reduction per 100m above sea level
* **Humidity Specifications**: Maximum relative humidity for operation

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## INTEGRATION ELEMENT TERMINOLOGY

### Cross-Pillar References

* **System Integration**: Seamless connection between generators, lighting, storage, and testing equipment
* **Modular Design**: Scalable system architecture for flexible power solutions
* **Remote Monitoring**: Digital system oversight and control capability
* **Maintenance Scheduling**: Systematic service planning for optimal equipment performance
* **Performance Optimisation**: Continuous system tuning for maximum efficiency

### Customer Journey Language

* **Power Requirements Assessment**: Professional evaluation of electrical load needs
* **Custom Solution Design**: Tailored system configuration for specific applications
* **Installation and Commissioning**: Professional deployment and system activation
* **Ongoing Support**: Comprehensive maintenance and technical support services
* **Performance Monitoring**: Continuous system oversight and optimisation

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## QUALITY ASSURANCE VERIFICATION

### Terminology Consistency Checkpoints

1. **Power Specifications**: Consistent kW/kVA format across all pillars
2. **Compliance References**: Accurate Australian standard citations
3. **Environmental Metrics**: Standardised emission and efficiency measurements
4. **Technical Accuracy**: Verified specifications against industry standards
5. **Professional Language**: Authoritative yet accessible technical communication

### Cross-Pillar Integration Verification

* Generator specifications align with load bank testing capabilities
* Fuel storage systems integrate with generator fuel requirements
* Hybrid lighting systems complement generator power specifications
* All systems maintain consistent Australian compliance standards

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**Document Status**: Foundation Framework Complete

**Next Phase**: Brand Voice Consistency Framework Development

**Quality Gate**: Technical terminology alignment verified across all specialists

**Approval**: Lead Content Orchestrator + All Technical Specialists