

Project Blue Light

Project Analysis Document

Singapore EMA Electrical Installation Licence
Application & Renewal Automation Platform

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1. Project Purpose & Background

1-1. Project Purpose

To build a one-stop digital platform (App/Web) that automates the **new application and renewal process for Electrical Installation Licences (EIL)** for commercial and industrial premises in Singapore.

1-2. Current Pain Points (As-Is)

- In Singapore, it is **legally mandatory** to hold an Electrical Installation Licence from the **Energy Market Authority (EMA)** to operate an electrical board exceeding **45kVA**
- The current process is **entirely manual** — upon receiving a renewal notice, licensees must find and engage a Licensed Electrical Worker (LEW) on their own
- Delays can result in **termination of electrical supply by SP Group (Singapore Power)**
- The **high turnover rate of Singapore's commercial spaces** (due to high rental costs) creates continuous demand for new applications and renewals

1-3. Key Value Proposition

- Tenants and building owners can **complete the entire process via self-service**: discover website → read guidelines → sign up → make payment
- LEWs receive **guaranteed job assignments in exchange for an annual subscription fee** (first year free), with access to the inspection system
- Post-inspection **rectification quotations** create additional revenue streams

2. User Types

| User | Role |
|---|---|
| Applicant | Tenants, building owners, contractors — apply for / renew licences, make payments |
| LEW (Licensed Electrical Worker) | Licensed electrician — conducts on-site inspections, prepares documents, submits to EMA |
| SLD / Layout Drafter | Single Line Diagram designer (in-house or freelance) |
| Service Providers & Administrators | Platform administrators — manage users, professionals, and applications |

3. Core Business Processes

3-1. New Licence Application

1 Open SP Group Utilities Account

Applicant applies directly via the Gov Link provided by the platform → obtains SP Account Number + Provisional Account

System captures the kVA capacity for the address (e.g., 45kVA → 45kVA; 45.01kVA → rounded up to 46kVA)

2 Complete Acknowledgement Form

SP Group form — enter applicant details (company name, UEN, address) + LEW details (name, licence number, contact)

3 Submit Letter of Appointment for Electrical Installation

LEW appointment letter — includes LEW name, licence number, installation address, company name (UEN), contact details, licence period (3 months \$50 / 12 months \$100)

4 Submit Latest SLD (Single Line Diagram)

Prepared by a Drafter or upload existing drawing. Must comply with EMA regulations

5 Pay \$100 to EMA

Payment via ELISE system (elise.ema.gov.sg) using eNETS CreditCard

6 EMA Review & Licence Issuance

Result notification within approximately 10 days → upon approval: Licence Letter + Electrical Installation Licence issued

Licence valid for 1 year (e.g., 22/01/2026 to 21/01/2027). Must be displayed at the Main Switch Board (MSB)

3-2. Licence Renewal

1 Receive EMA Renewal Notification Email

User details auto-populated; Renewal Reference Number assigned

2 Submit Letter of Appointment for Renewal

Includes LEW name, existing licence number, expiry date, renewal period (12 months \$100 / 3 months \$50)

3 Submit Latest SLD

4 Pay \$100 to EMA

5 EMA Approval & Renewed Licence Issuance

3-3. Temporary Supply Installation

1 Submit Letter of Appointment for Supply Installation

Under the Electricity Act (Cap. 89A). Choose 3 months (\$50) or 12 months (\$150)

3-4. Inspection & Rectification

1 Conduct On-Site Inspection

After electricity supply turn-on, LEW performs on-site inspection using mobile checklist + photo capture

2 Auto-Generate PDF Report

Documents Issue / Risk / Action items per category, with on-site photos. Compliant with SS 638:2018 standards

3 Deliver Report to Client

Via email or platform download

4 Link to Rectification Services

If client opts in, a rectification quotation is provided → generates additional revenue

4. Detailed Feature Specification

A. Applicant Portal (PC / Mobile Web)

| # | Feature | Description |
|------|--------------------------------|--|
| A-1 | Sign Up / Login | Email/password-based registration, email verification, password recovery |
| A-2 | New Licence Application | Enter SP Account info → Acknowledgement Form → Letter of Appointment → Upload SLD → Payment |
| A-3 | Licence Renewal | Based on EMA renewal notification → Letter of Appointment (Renewal) → SLD → Payment |
| A-4 | Service Type Selection | Drop-down menu for different service types; AI guides selection of Apparent Power (kVA) |
| A-5 | kVA-Based Auto Pricing | Fixed pricing auto-calculated based on kVA captured during SP Account application (45kVA → 45kVA; 45.01kVA → rounded up to 46kVA) |
| A-6 | SLD Service Request | Commission a Drafter for SLD preparation (EMA-compliant, 3–5 day turnaround, unlimited revisions, digital + printed copies) |
| A-7 | Find & Engage LEW | Search LEW via Find LEW → review ratings → select → enter details → fixed pricing by DB size → payment |
| A-8 | Find SLD/Layout Drafter | Search and engage a drafter via Find SLD/Layout Drafter |
| A-9 | SLD Verification | Compliance verification service for SLD and layout drawings |
| A-10 | My Profile | Manage business profile (company name, UEN, contact details), change password |
| A-11 | My Licenses | Manually register and manage existing licences; track status (Active / Expired / Pending) |
| A-12 | My Application | Track the status of in-progress applications |
| A-13 | My Engagement | Manage list of engaged LEWs and Drafters |
| A-14 | Dashboard | Overview of all applications and engagements at a glance |
| A-15 | Chat | Communicate with engaged LEW/Drafter via Chat List feature |
| A-16 | Document Delivery | Receive endorsed licences/drawings via email; download from platform |
| A-17 | Payment | QR Code, PayNow (UEN), Credit Card (Mastercard / Visa), NETS |

| | | |
|------|------------------------|-------------------------------------|
| A-18 | Payment History | Track payment records via dashboard |
|------|------------------------|-------------------------------------|

B. LEW / Drafter Service Provider Portal

| # | Feature | Description |
|-----|-----------------------------------|--|
| B-1 | Profile Management | Set up business profile; upload credentials and licences for verification |
| B-2 | Job Dashboard | Manage incoming jobs, ongoing jobs, and upload reports |
| B-3 | Mobile Inspection Form | Complete checklists on-site + attach photos via smartphone camera + electronic signature |
| B-4 | Auto PDF Report Generation | Generate standardised inspection report PDF from form data (per SS 638:2018 standards) |
| B-5 | Drawing (SLD) Management | Upload client drawings and link to relevant projects |
| B-6 | Client Chat | Communicate directly with engaged applicants |
| B-7 | Payment Tracking | View and track payment records |
| B-8 | Subscription-Based Access | Annual subscription fee (first year free) for system access and guaranteed job assignments |

C. Admin Dashboard

| # | Feature | Description |
|-----|----------------------------------|---|
| C-1 | User Management | View and manage all registered users |
| C-2 | Professional Verification | Review and approve LEW/Drafter credentials before granting access |
| C-3 | Application Monitoring | Track the status of all applications across the platform |
| C-4 | Support Handling | Respond to customer enquiries and support tickets |

D. System & Notifications

| # | Feature | Description |
|-----|------------------------------------|--|
| D-1 | AI Chatbot | Automated FAQ responses; LEW concurrently serves as chatbot operator while building AI training data |
| D-2 | Email Helpdesk | Email channel for additional enquiries |
| D-3 | Payment / Completion Alerts | Automated email notifications upon payment completion and job completion |
| D-4 | Renewal Reminder | Automated alerts when licence expiry is approaching |
| D-5 | New User Promotion | Conditional promotional offers for new users |

5. LEW Participation Models (3 Versions)

The storyboard (Drawing1) defines three operational versions for LEW participation:

| Version | Model | Description |
|---------|----------------------------------|--|
| VER 1 | Without LEW Participant | Document processing only, without LEW involvement |
| VER 2 | Allow LEW to come in & bid job | External LEWs can join the platform and bid for jobs |
| VER 3 | Allow LEW to rectify site defect | LEW performs on-site rectification of identified defects |

Note: As the model progresses from VER 1 to VER 3, LEW involvement in the platform deepens, expanding both service scope and revenue opportunities.

6. Domain Glossary

6-1. Key Terms

| Term | Definition |
|--------------------|---|
| EMA | Energy Market Authority — Singapore's energy regulatory body |
| ELISE | EMA's online licence application system (elise.ema.gov.sg) |
| EIL | Electrical Installation Licence — required for installations exceeding 45kVA |
| LEW | Licensed Electrical Worker — licensed electrician authorised to perform electrical work |
| SLD | Single Line Diagram — a simplified electrical circuit diagram |
| SP Group | Singapore Power Group — electricity and gas utilities provider |
| kVA | Kilovolt-ampere (apparent power) — pricing is determined by DB size (distribution board capacity) |
| DB | Distribution Board — an electrical panel that distributes power to circuits |
| MSB | Main Switch Board — the primary electrical panel; licence must be displayed here |
| UEN | Unique Entity Number — Singapore's standard business identification number |
| SS 638:2018 | Singapore Standard "Code of Practice for Electrical Installations" (incorporating A1:2022) |

6-2. LEW Licence Grade System

| Grade | Title | Scope of Authority |
|----------------|------------------------------------|--|
| Grade 7 | Licensed Electricians | ≤1,000V / Approved load ≤ 45kVA |
| Grade 8 | Licensed Electrical Technicians | ≤1,000V / Approved load ≤ 500kVA Drawing design & submission: ≤150kVA |
| Grade 9 | Licensed Electrical Engineers (PE) | Operational voltage: 1kV to 400kV May be restricted to particular types of installation |

7. Letter of Appointment (3 Types)

| Type | Purpose | Licence Fee | Remarks |
|-----------------------------|-------------------------------|------------------------------------|--|
| for Electrical Installation | New licence application | 3 months: \$50 12 months: \$100 | Under Electricity Act (Cap. 89A) |
| for Renewal | Existing licence renewal | 3 months: \$50 12 months: \$100 | EMA sends renewal notification email; Renewal Ref number assigned |
| for Supply Installation | Temporary supply installation | 3 months: \$50 12 months: \$150 | For temporary electrical supply |

Common Required Fields: LEW full name, LEW licence number, installation address, company name, UEN, contact details (phone / email / SMS), authorised person's signature, date

8. Key Deliverables (Documents Generated / Managed by the Platform)

| Document | Description |
|---------------------------------|---|
| EMA Licence Letter | Licence approval notification (signed by EMA Authorised Officer, includes licence number) |
| Electrical Installation Licence | Official licence certificate (Serial No., validity period, Licence Fee \$100, must be displayed at MSB) |
| Inspection Report (PDF) | On-site electrical safety inspection report (Issue / Risk / Action items per category, with on-site photos, compliant with SS 638:2018) |
| SLD (Single Line Diagram) | Electrical single line diagram (EMA-compliant, prepared by Drafter) |
| Acknowledgement | ELISE system application receipt confirmation (includes Application Reference Number, outcome within 10 days) |
| Credit Transaction Receipt | EMA \$100 payment receipt (eNETS CreditCard, includes Transaction ID / Ref) |

