CASE STUDY

BESCOM Automates Power Purchase Agreements with eMudhra's emSigner Solution

About the Customer

BESCOM (Bangalore Electricity Supply Company Limited) is responsible for power distribution in eight districts of Karnataka, including Bengaluru. It operates under Karnataka Power Transmission Corporation Limited (KPTCL) and ensures electricity supply, billing, and infrastructure maintenance. BESCOM also promotes renewable energy initiatives and smart grid technologies for efficient power management.

Client Background

Client Name
Bangalore Electricity Supply Company Limited (BESCOM)

Industry
Energy & Utilities

Location
Karnataka, India

Impact at a Glance

90%
Reduction in PPA processing time

40%
Cut in administrative overheads

100+
Paperless digital agreement execution

Thousands
of agreements automated monthly

Business Scenario

BESCOM, the electricity distribution company in Karnataka, manages a high volume of Power Purchase Agreements (PPAs) with residential producers under the PM Surya Ghar: Muft Bijli Yojana. The traditional PPA signing process was manual, time-consuming, and dependent on multiple approvals. The lack of automation, digital signatures, and seamless payment integration led to inefficiencies, delays, and high administrative overhead.

Additionally, the absence of an integrated payment gateway and e-stamping caused disruptions in agreement execution, requiring consumers to visit BESCOM offices multiple times for payments and approvals. BESCOM sought a secure, automated, and fully integrated digital signing and e-stamping solution to streamline the PPA process.

eMudhra Solution

eMudhra provided BESCOM with its emSigner-based e-stamping and digital agreement solution, enabling a fully paperless and secure PPA execution process. The solution integrated with NeSL for e-stamping and PayU for seamless online payments, ensuring real-time validation and agreement finalization.

Key features of the Solution:

Automated Digital Signing & e-Stamping: Consumers can sign agreements online using Aadhaar-based eSign, DSC, or biometric authentication.

Real-time API-based Integration with BESCOM Portal: The system fetches consumer details automatically, reducing errors and processing time.
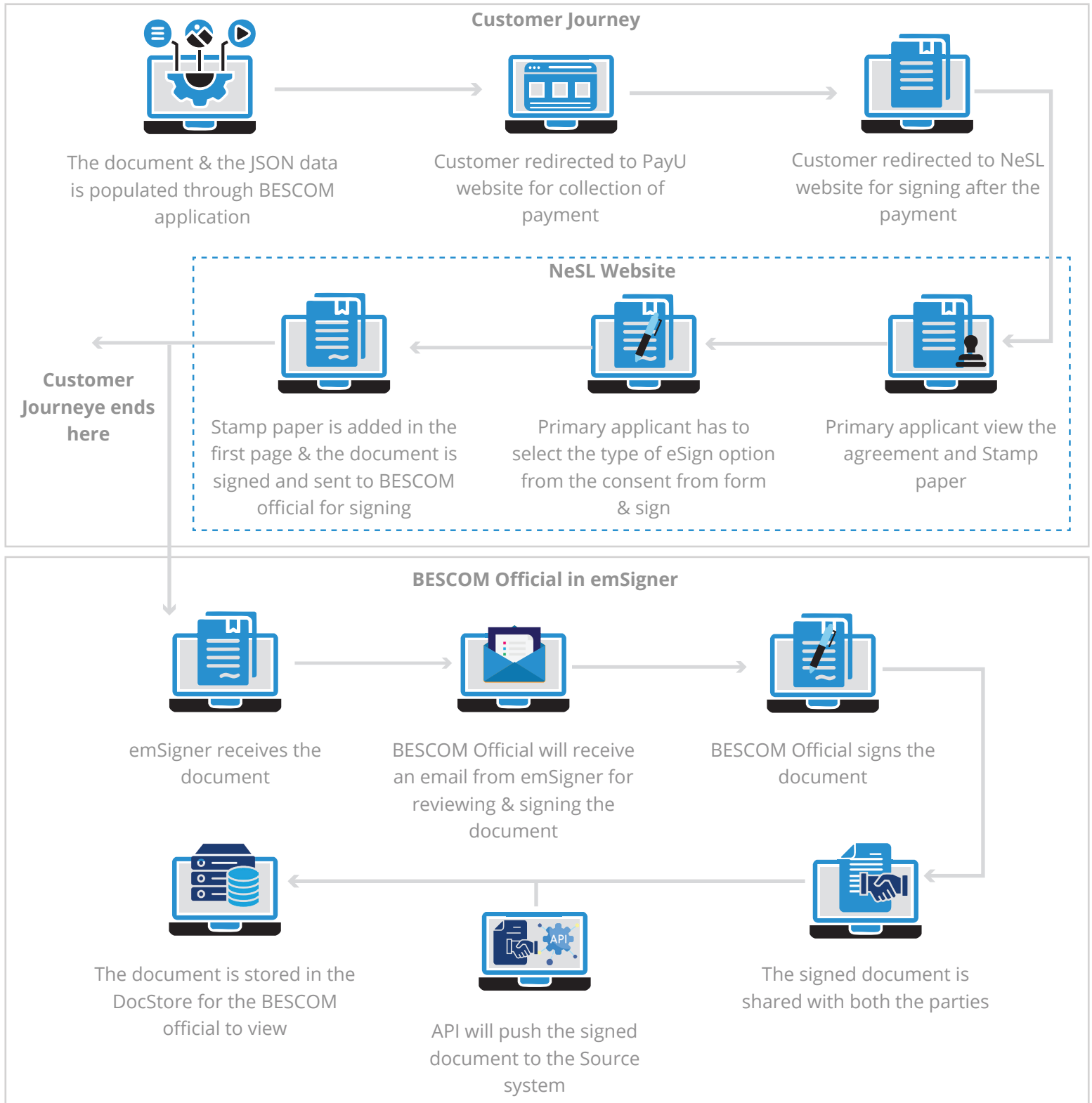
Seamless Payment Integration : Consumers can pay required fees via PayU, eliminating the need for manual transactions.

Compliance with Regulatory Standards: The solution ensures alignment with MNRE & DISCOM guidelines for power purchase agreements.

Architecture Diagram

Customer Journey

The document & the JSON data is populated through BESCOM application

→

Customer redirected to PayU website for collection of payment

→

Customer redirected to NeSL website for signing after the payment

NeSL Website

Stamp paper is added in the first page & the document is signed and sent to BESCOM official for signing

←

Primary applicant has to select the type of eSign option from the consent from form & sign

←

Primary applicant view the agreement and Stamp paper

Customer Journeye ends here

BESCOM Official in emSigner

emSigner receives the document

→

BESCOM Official will receive an email from emSigner for reviewing & signing the document

→

BESCOM Official signs the document

The document is stored in the DocStore for the BESCOM official to view

←

API will push the signed document to the Source system

←

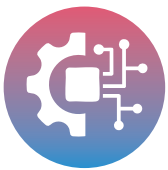The signed document is shared with both the parties

Solution Architecture

The solution was integrated into BESCOM's online portal, leveraging cloud-based HSMs (Hardware Security Modules) for secure certificate storage and real-time document signing. Consumers access the system via BESCOM's portal, where they complete the agreement process in the following steps:

1. Consumer submits PPA application and receives a unique reference number.
2. Agreement details are auto-fetched from BESCOM's database.
3. Consumer reviews, signs the agreement digitally, and completes payment via PayU.
4. e-Stamping is executed through NeSL, ensuring legal compliance.
5. BESCOM officials review, validate, and digitally sign the agreement, completing the process.
6. Signed documents are stored securely and shared with both parties for reference.

Implementation Process

Quick Integration
eMudhra's API was seamlessly integrated with BESCOM's existing portal, ensuring minimal downtime.

Zero Maintenance Overhead
The cloud-based system eliminated infrastructure and maintenance costs.

Scalability
The system supports thousands of transactions per month, with expansion potential across multiple DISCOMs and states.

Digital Power Purchase Agreements for Rooftop Solar Consumers

BESCOM implemented the emSigner solution for its solar energy consumer agreements, reducing signing and approval timelines from weeks to minutes. Consumers no longer need physical visits for net-meter approvals, e-stamping, or payments, significantly improving customer experience and process efficiency.

Value Add to BESCOM

1. **90% Reduction in Processing Time**

    *   The traditional PPA signing process, which took weeks due to manual approvals and multiple consumer visits, is now completed within minutes using eMudhra's emSigner

    *   Real-time digital signing, e-stamping, and automated approvals have eliminated bottlenecks, ensuring faster onboarding of rooftop solar consumers.

2. **100% Paperless, Fully Compliant Digital Workflow**

    *   BESCOM has transitioned to a zero-paper workflow, significantly reducing administrative overhead and ensuring compliance with MNRE & DISCOM regulatory mandates.

    *   Digital signatures provide non-repudiable proof of agreement execution, strengthening legal enforceability.

3. **Seamless Consumer Experience – No More Office Visits**

    *   Consumers can now complete the entire PPA process remotely via BESCOM's portal, eliminating the need for physical visits for net-meter approvals, payments, and agreement signing.

    *   The solution has enhanced BESCOM's digital service capabilities, aligning with India's "Ease of Doing Business" initiatives.

4. **40% Cost Reduction in Administrative & Operational Overheads**

    *   BESCOM no longer incurs expenses related to printing, document storage, manual verification, and in-person service handling.

    *   The automation has freed up internal resources, allowing BESCOM to allocate manpower to higher-value tasks.

5. **Enhanced Transparency & Accountability**

    *   End-to-end tracking of PPA agreements ensures audit readiness, reducing discrepancies and improving governance.

    *   A centralized digital repository provides instant access to signed agreements, ensuring better contract lifecycle management (CLM).

6. **Scalability for Future Energy Initiatives**

    *   With thousands of PPA agreements processed monthly, BESCOM can seamlessly expand digital workflows to other DISCOMs and electricity-related agreements.

    *   The cloud-based architecture ensures adaptability for future growth, supporting Karnataka's renewable energy vision.

Conclusion

By implementing eMudhra's emSigner solution, BESCOM successfully automated and digitized its Power Purchase Agreement workflow, eliminating paperwork inefficiencies and enabling seamless consumer participation in PM Surya Ghar: Muft Bijli Yojana. With a scalable and secure digital platform, BESCOM is now set to expand similar automation for other electricity-related agreements, improving service delivery across Karnataka and beyond.

About eMudhra

eMudhra is a leading global provider of digital security, e-signature, and identity management solutions, helping businesses and government entities streamline document workflows while ensuring security, compliance, and efficiency. With expertise in digital transformation, eMudhra empowers enterprises with end-to-end automation for seamless and legally valid digital transactions.

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