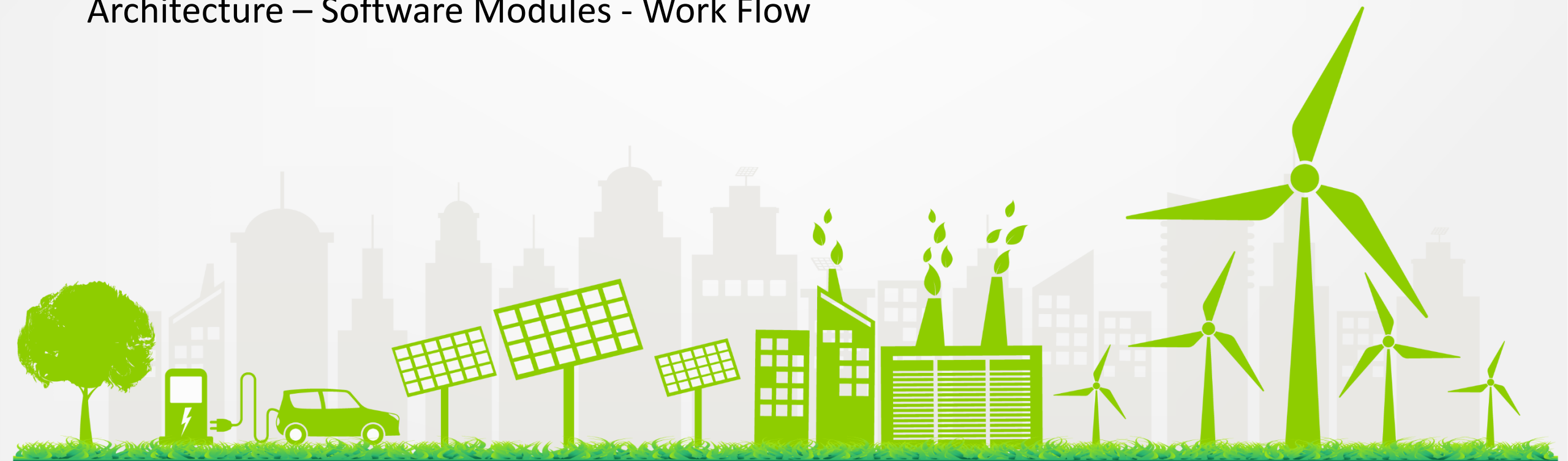


Session-2 National & State Level Solar Energy Data Management Platform

Need – Current Scenario – Vision

Architecture – Software Modules - Work Flow



One Nation - One Solar Energy Data Management (SEDM) Platform

NEED

Huge Investments from Multiple Investors

- Central Financial Assistance (**CFA**)
- State Financial Assistance (**SFA**)
- Loan from Financial Institutions
- Private Investors (**RESCO Model**)
- Investment from End User

Return on Investments

- **Units Generated by System**
 - **Reduction in Captive Energy Usage by using Renewable Source of Energy**
Agriculture Pumps (**PM KUSUM-B**)
 - **Revenue Generation by Exporting Extra Units to Grid**
Solarized Agriculture & Pumps (**PM KUSUM-A&C**)
- **Carbon Credit or RPO Obligations**

On Line Monitoring Is required to Ensure Productive Utilization and Security of Investments

- To ensure **Utilization of subsidized system** : Consumer Registration and Beneficiary tracking
- To ensure **Quality of Supply and Services** : Asset Quality Management, Mapping, Tracking, Complaint and Ticket Management
- To ensure **Performance of Systems** during Life Cycle : %CUF, %PR, Per Day Per kW Generation, Efficiency, Water Discharge
- To ensure **Availability** of multiple System Components : Running Hours - Pump, Inverter, Grid Power, Grid Three Phase Status etc.
- To ensure **Stability of Grid** with Millions of Generators connected to Grid : Notifications of abnormal Voltage, Reactive Power, PF, Harmonics
- To ensure **Clarity and Transparency** in Energy **Billing System** : Bi Directional Energy transaction – Import / Export / Net

On Line Monitoring System

Current Scenario

Cost :

- Capital cost of On Line Monitoring System is already included in the benchmark cost of Solar Plants and Solar Pumps
- Data goes to the server of Inverters or Pump Controller manufacturer and then relayed to Consumer Mobile Application

Issues :

- **Data Integration** : Multiple Manufacturers - Multiple Servers – Multiple Web Sites – Lack of Core IT/Communication Expertise with SIAs
- **Availability of Data** : Non availability of data with consumer / MNRE / SIA / DISCOM is a big issue.
- **Ownership of Data** : Data not available with Investors - MNRE (CFA), SIA (SFA), DISCOMs (Infrastructure and Revenue)
- **Integrity of Data** : Data hosted on manufacturer's IT infrastructure and in some cases on data centers outside India (China etc.)
- **Data Security** : High Level Security is required for Remote Operations and Remote Configuration which is compromised in current scenario
- **No Analytics** : De centralized information – No Standardization – No Authenticity

End Result :

Even after incurring expenses for Remote Monitoring Systems,
Objectives are not achieved due to lack of standardization and centralization

One Nation - One Solar Energy Data Management (SEDM) Platform

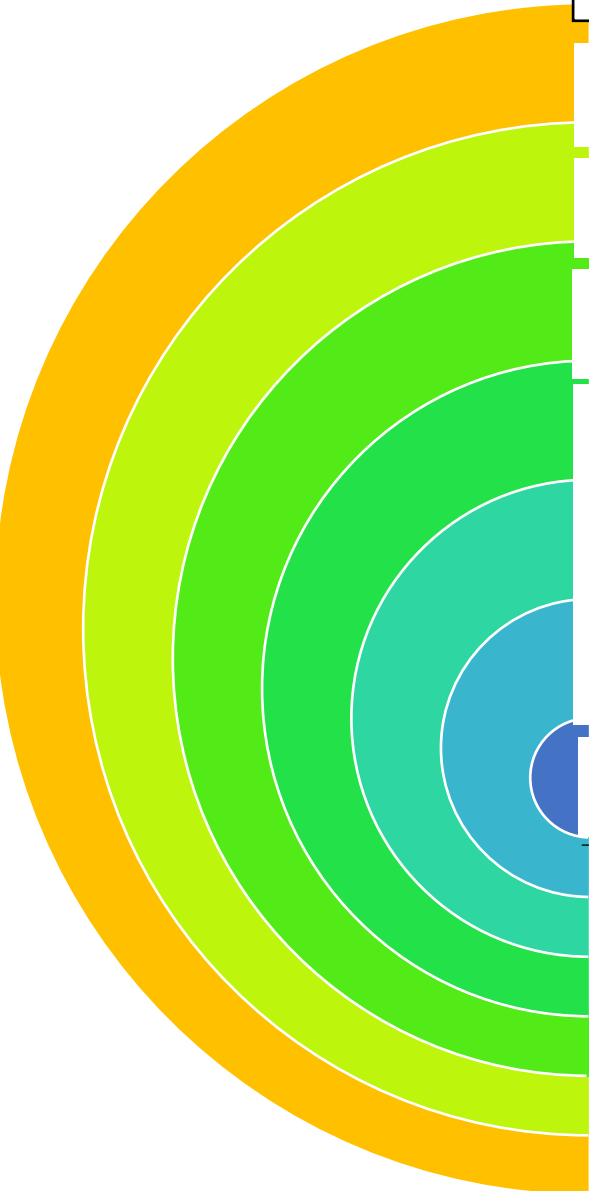
Vision

**National Level
SEDM Platform**
(Solar Energy Data
Management Platform)



National Level SEDM Platform (Solar Energy Data Management Platform)

Objectives



SEDM Module	Objective	Parameters and Stake Holders
Consumer Management	Beneficiary Tracking	<ul style="list-style-type: none"> • Identification & DBT Integration, Location-Agriculture-Irrigation-Pump-Solar-Finance Details • SIA, MNRE
	Scheme Progress Management	<ul style="list-style-type: none"> • Application Status Updates, MIS Reports & Dash board for Progress Tracking • SIA, MNRE
Asset Management	Asset Quality Management	<ul style="list-style-type: none"> • Registration, Pre Dispatch Inspection & Site Inspection, Asset Mapping & Tracking, Insurance • Farmer, SIA, Empanelled Agency, Insurance Agencies
	Energy Transactions	<ul style="list-style-type: none"> • Generation, Consumption, Import, Export, Net • Farmer, DISCOM, SIA
Performance Analysis	Performance Analysis	<ul style="list-style-type: none"> • %CUF, Water Flow Rate, AC/DC Efficiency, % Data Availability • Farmer, Empanelled Agency, SIA, MNRE
	Irrigation Analysis	<ul style="list-style-type: none"> • Pump Running Hours, Water Discharge/Usage Vs. Area/Season/Crop • SIA, MNRE, Research Institute
Live Asset Monitoring	Live Operational Status	<ul style="list-style-type: none"> • Geo Location, Pump Status, Controller / Inverter Status, Grid Status • Farmer, Empanelled Agency, DISCOM, MNRE

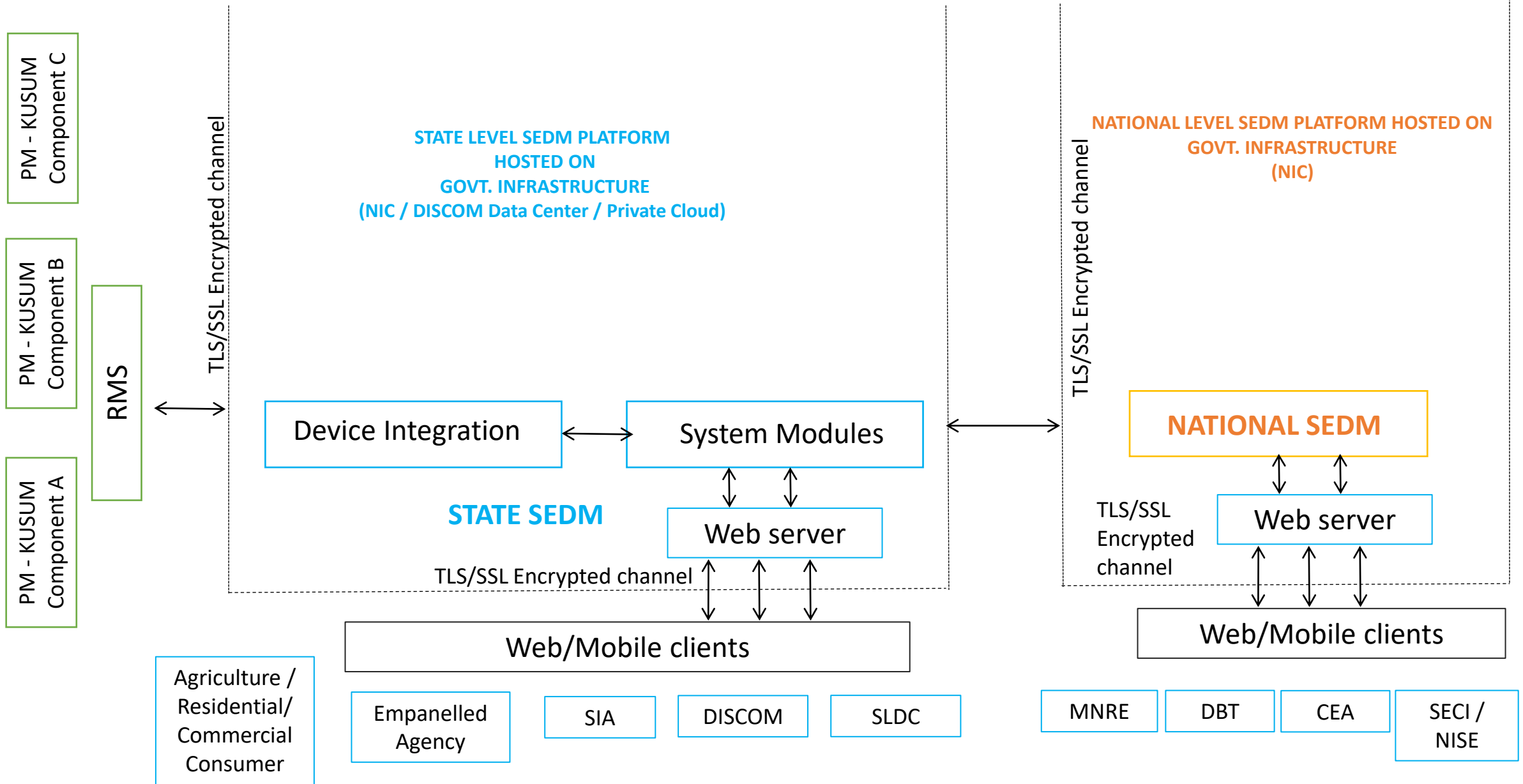
[Details](#)

Overview of Unified Data Integration

Scalability to Manage Thousands of Systems

Security using TLS/SSL VPN

Data Integrity by Hosting on Govt. Infrastructure



Sr. No	Software Modules	PM KUSUM Component-A	PM KUSUM Component-B	PM KUSUM Component-C (Individual)	PM KUSUM Component-C (Feeder Level)
1	State Level Web Portal	Y	Y	Y	Y
2	Application Pre Processing	Y	Y	Y	Y
3	Consumer Management	N/A	Y	Y	Y
4	Application Progress & Notification Management	Y	Y	Y	Y
5	Site Survey Mobile Application	N/A	Y	Y	N/A
6	Asset Management : Master Settings	N/A	Y	Y	Y
	Asset Management : Asset Inspection & Dispatch	N/A	Y	Y	Y
	Asset Management : Mapping & Tracking	N/A	Y	Y	Y
7	Complaint & Ticket Management	N/A	Y	Y	N/A
8	Live Asset Monitoring	Y	Y	Y	Y
9	Energy Audit and Accounting	Y	Y	Y	Y
10	Site Inspection Mobile Application	Y	Y	Y	Y
11	Consumer Monitoring with RMS Data from SCADA	N/A	Y	Y	Y
12	Consumer Mobile Application	N/A	Y	Y	Y
13	User and Role Management	Y	Y	Y	Y
14	Performance Analysis : Reports & Dash Board	Y	Y	Y	Y
15	MIS Dash Board & Reports	Y	Y	Y	Y
16	SCADA : Device Management	Y	Y	Y	Y
17	SCADA : Tag Processing	Y	Y	Y	Y
18	SCADA : Event and Notifications	Y	Y	Y	Y
19	SCADA : MDAS & MDM	Y	Y	Y	Y
20	SCADA :Archiving & Historian	Y	Y	Y	Y

Beneficiary Tracking – Consumer Info

Application & Consumer Details



Agriculture Details



Bank Details



Contact & Location Details

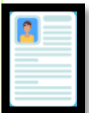


Pump Details



Agency Details

Irrigation Details



Solar & Grid Details



Financial & Commercial Details



Consumer Registration Page



Site Survey page



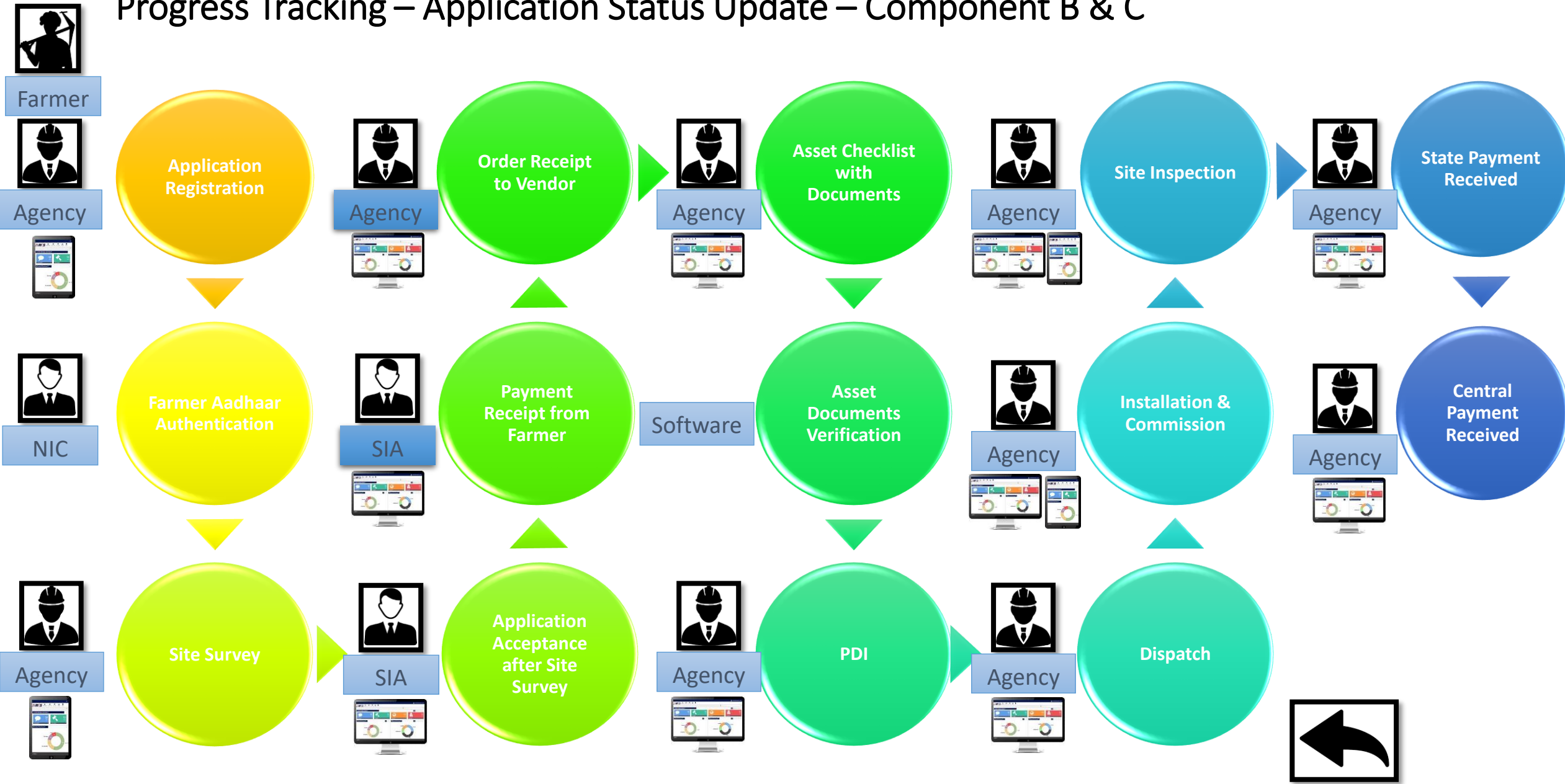
Agency Registration Page



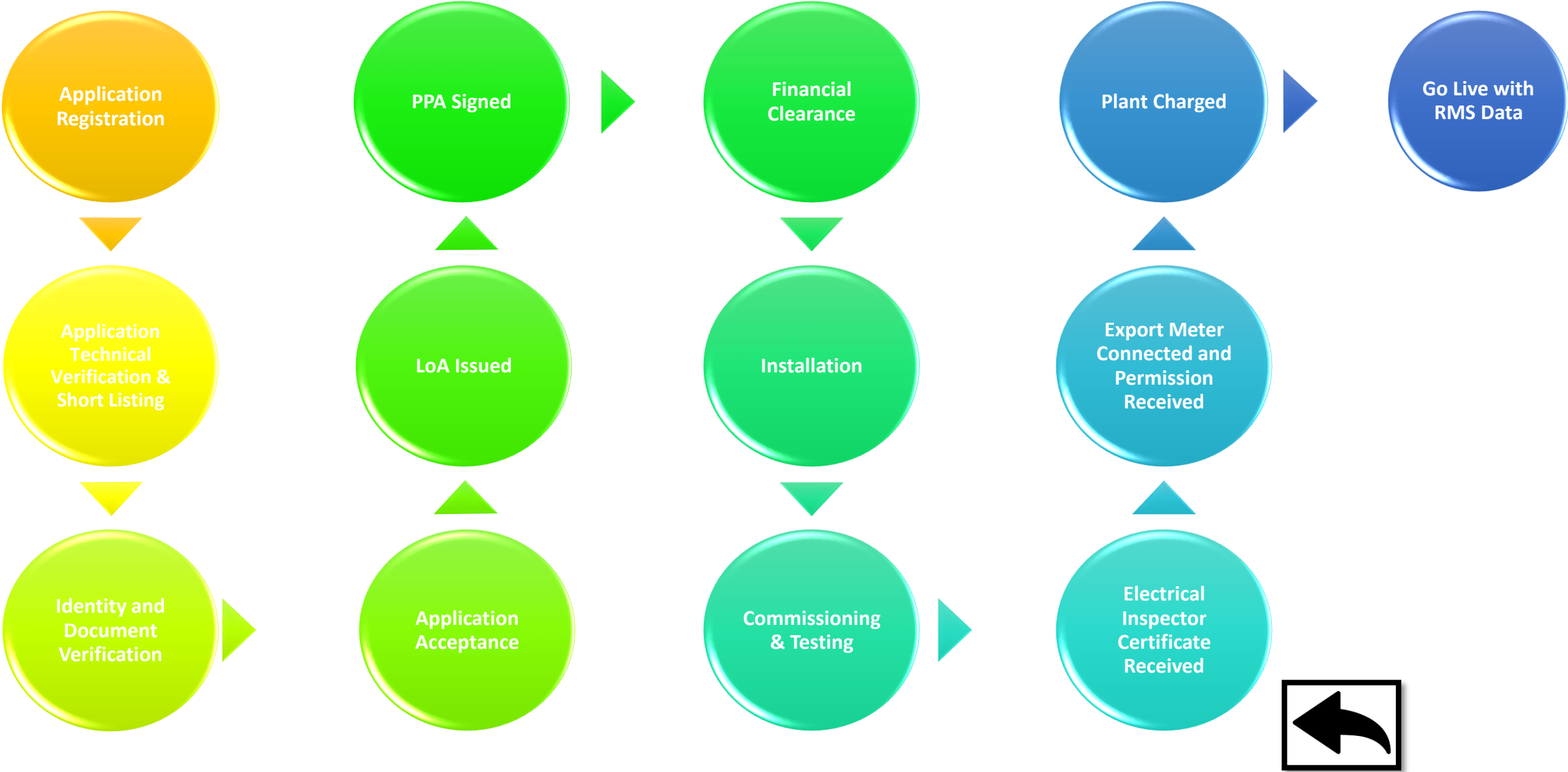
LOA



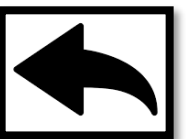
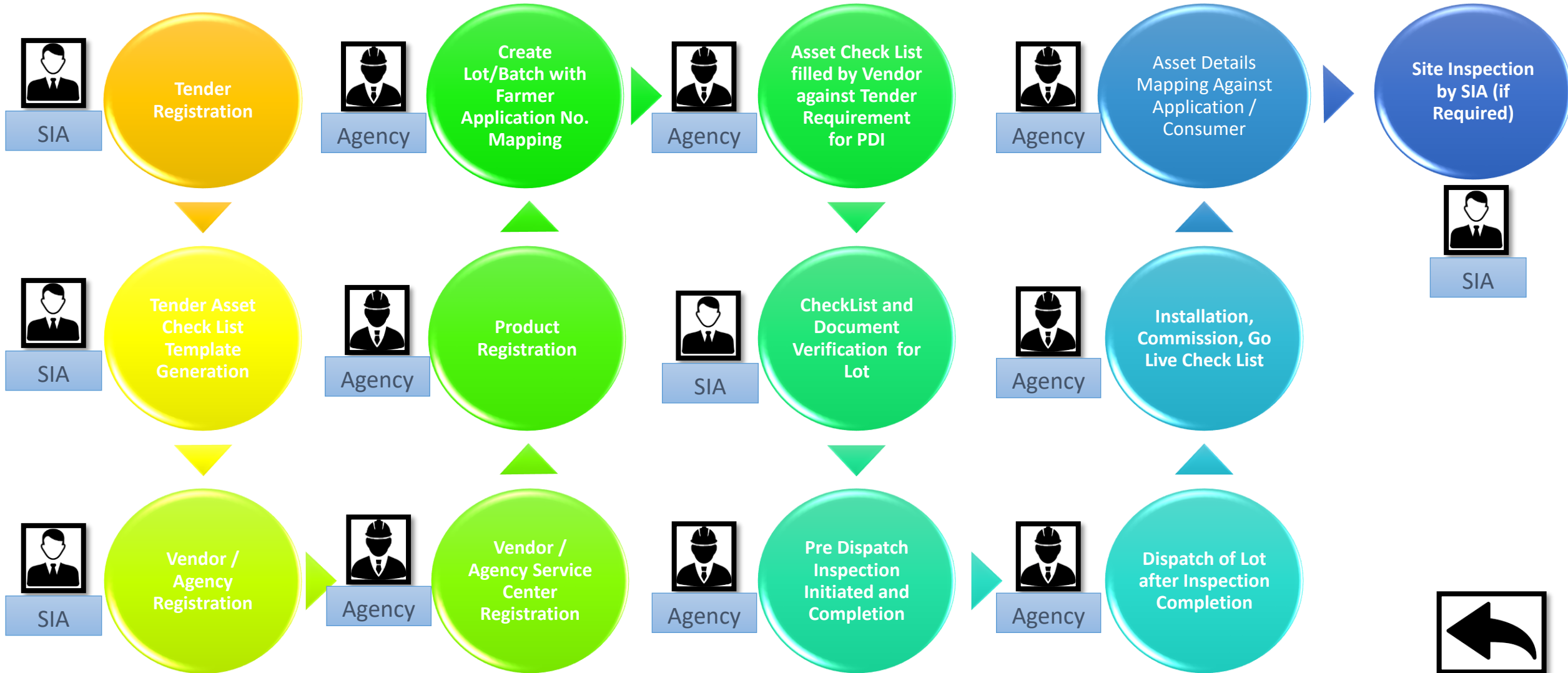
Progress Tracking – Application Status Update – Component B & C



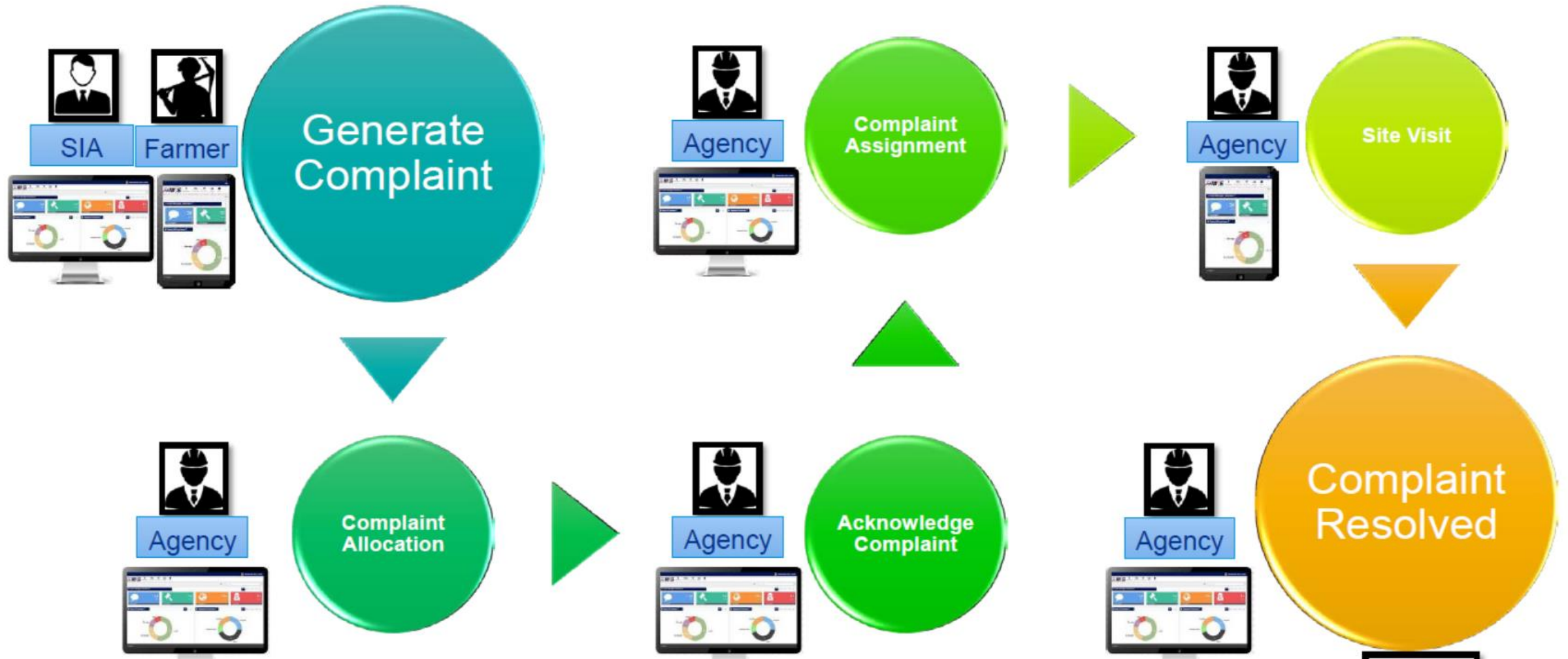
Progress Tracking – Application Status Update – KUSUM Component A



Asset Tracking



Complaint & Ticket Management Work Flow



Session-3 Software Demonstration



State Level SEDM Platform : Part-1

Section-A : Master Settings & Registration Process

Tender Registration

Tender reference details,
sanction Quantity / Targets

Rate Card Registration

Type of Systems, Ratings,
Discovered Price, Contribution Ratio

Agency Registration

System wise Agency,
Service Center Details

Product Registration

Product & Manufacturer Details,
Test Reports

Benefits :

- Configuration for **Multiple Tenders under Multiple state policies against multiple sanctions** over a period of 3-4 years
- A common centralized details with test reports
- One time registration process
 - Tender Registration, Rate Card Registration, Agency Registration by **Consultant as per data provided by SIA**
 - Product Registration with Test Reports by **Empanelled Agency and Approval by SIA (if required by SIA)**
- Quality Control by restricting empanelled agency to supply registered products against test reports only.
- Information available to all HO as well as district or division officers to **Expedite Inspection process**

Beneficiaries :

- **SIA :**
 - **Huge Reduction in time and management efforts** with stream lined process with almost **No efforts of data entry.**
 - Only Software driven Approval is required.
 - Multiple Type of Reports can be generated with **System Ratings, Amount/Rs./Contribution, Products** etc.
- **Farmer : Use of registered products** with test reports
- **Empanelled Agencies : Faster Inspection process**

State Level SEDM Platform : Part-1

Section-B : Consumer Management - Registration to Order Placed / Notice to Proceed

On Line Consumer Registration

(Application Details to be filled by farmer or Agency)
Document verification,
Priority & Short Listing

Site Survey Mobile App

Allocation to agency,
Capturing Longitude/Latitude,
Site images, Actual Site data etc.
with Local storage

On Line Status Update

Search / Sort and
update Application Status
From District Officer Grid

Track Application

Track dates, duration and
Generate Notification
against status change

Benefits :

- Software workflow driven application **status update by SIA as well as Empanelled Agency**
- Access to multiple stake holders including Empanelled agency to view and update application status for **better coordination**
- **Centralized Application details and documents** against each application
- **MIS reports and dash board** against District as well as Empanelled agency to track performance

Beneficiaries :

- **SIA :**
 - **Huge Reduction in time and management efforts .**
 - Each District Officers can process 30-40 applications daily on his dashboard resulting into 10000 applications or order processing in 2 weeks by 30 district officers with minimum data entry and automatic notification driven system
 - **Better and faster** coordination, book keeping and decision making process.
- **Farmer : Get updates and Notifications** of his application
- **Empanelled Agencies :**
 - **Faster and Clear Allocation, Reallocation, Acceptance/Rejection process to avoid disputes**

State Level SEDM Platform : Part-1

Section-C : **Asset and Workmanship Quality Management & Tracking**

On Line Lot Creation

EA can create lot of multiple systems for inspection against test report, with specifications and serial numbers of asset

PDI & Dispatch Instruction

On Line PDI call will be initiated Against lot. Officer will get details of Test reports, specification check list, Quantity details in advance.

Installation, Commissioning & Site Inspection

Status update with image upload against each stage etc. Mapping of each serial number against farmer. Only PDI completed Assets are allowed. Online Access of details to inspector with insurance

Benefits :

- Create lot of **500 systems within 10 minutes with CSV upload facility**
- Map multiple assets against **hundreds of farmers within 10 minutes with CSV upload facility having V&V logics**
- Auto generation and submission of PCR/JCR (Project Completion/Joint Commissioning Report)

Beneficiaries :

- **SIA :**
 - **Huge Reduction in time and management efforts without any data entry .**
 - **Online Generation and Submission of PCR/JCR Report**
- **Farmer : Get good quality of product and service**
- **Empanelled Agencies :**
 - **Faster and Transparent inspection process.**

State Level SEDM Platform : Part-1

Section-D : MIS Reports & Dash Board

Summary Indicator and Analytics Dash Board :

- **Application Status** wise Indicators : Number of Applications, kWp capacity, HP capacity
- **District** wise details of each indicator
- Filter to get data by **System Ratings** or **Empanelled Agency**

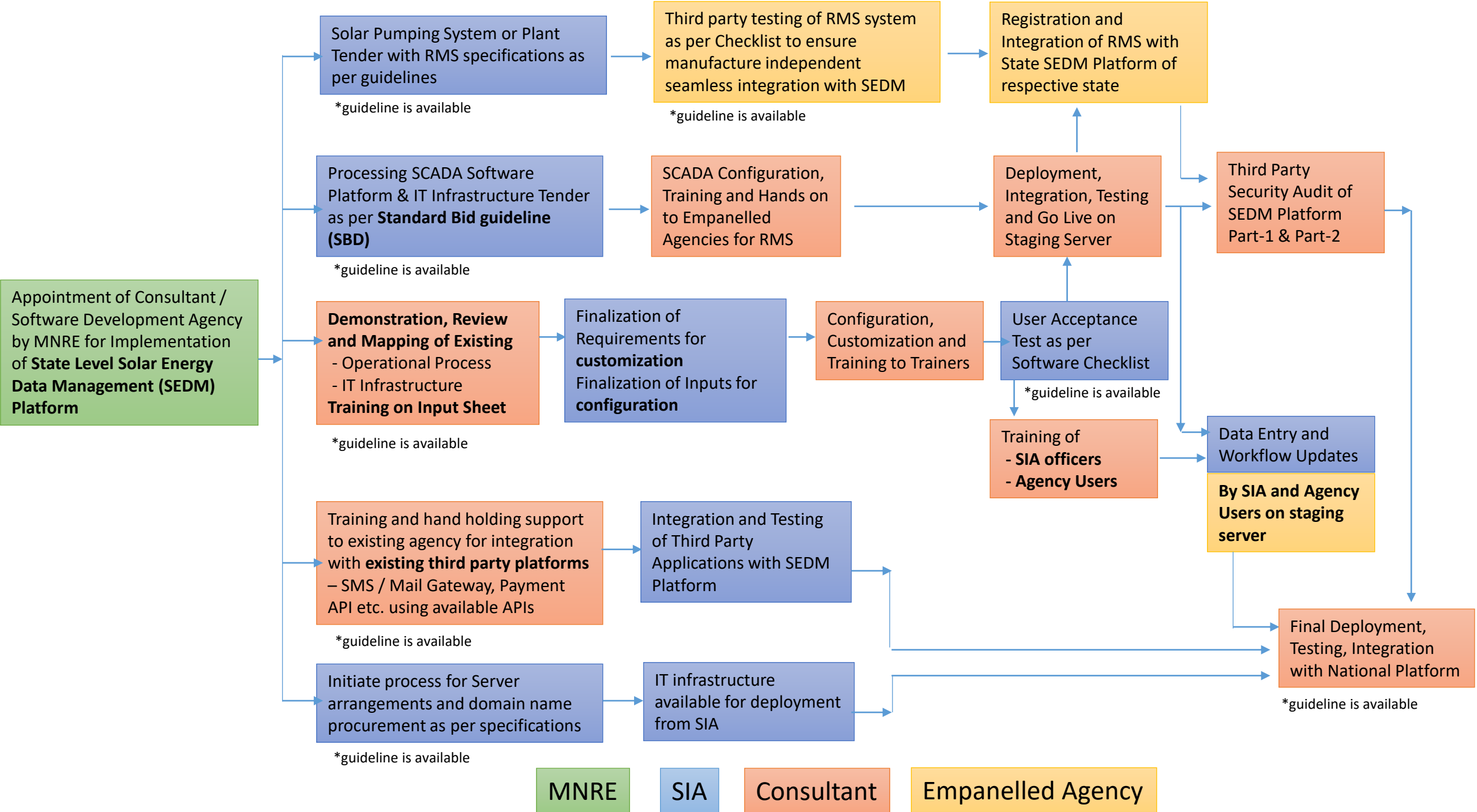
MIS Reports with multiple filters :

- **Month wise** Progress report
- **District wise** Progress report
- **System ratings wise** Progress report
- **Empanelled agency wise** progress report

Session-4

Implementation Strategy





Experts from Consultants / Software Development Agency :

Project Manager : 25+ Years of experience of **IT in Electrical Distribution / Utility / Renewable Energy Company**

Organize, Plan, Manage to ensure project objectives are met within scope, timeframe and budget;
balance scope, quality, effort, risk and time line; to achieve project schedule and meet desired requirements;
Establish Project Standards

Solution Architect : 12+ years of experience of **IT & OT Projects, IoT projects, Energy Monitoring Projects**

Data Flow Architecture, Software and IT Infrastructure Architecture, Solution Detail Specifications,
Process Engineering

Project Lead : 10+ years of experience **IT Project Management**

Organize, Plan, Manage Resources; Detail Requirement Analysis, Time Line Management,
Module wise resource allocation; Review work and deliverables

Domain Leads : 10+ years of experience in respective domains

IT Infrastructure lead - specifications of IT infrastructure; deployment, integration, testing of software application

SCADA Lead – Device Provisioning, Device integration, SCADA Configuration

Back End Lead – Database, Web API / Web Services

Front End Lead – Web and Mobile Application development

QA, Training, Support Lead – Quality Assurance, User Acceptance Test, User Training, Support after go live

State Implementing Agency:

Director / Joint Director/State Nodal Coordinator of PM KUSUM Scheme implementation in a state :

Review and Approval of Processes and Work Flow,
MIS Reports, Dash Board, Driving Tender and other Administrative Procedures,
Review and Approval of user role management and data access policy

Project Officer :

Coordination and Management with multiple actors, Implementation of Software Process and Work Flow Management,
Project Report Submission, Training Coordination

IT Admin:

Managing requirements related to IT Infrastructure, Third Party Integration,
Training and hand over related to IT software maintenance, troubleshooting etc.

District or Division Officers :

Field execution of entire PM KUSUM scheme or project at ground level,
coordination with farmers as well as field team of empaneled agencies, Inspection procedures

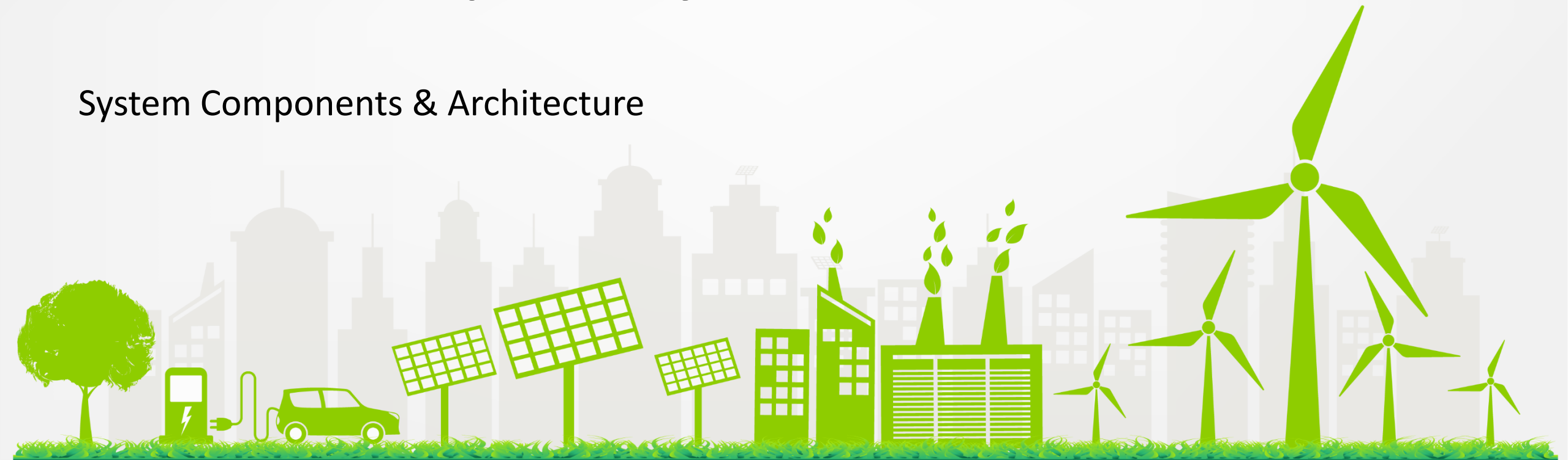
	Coordination or Cooperation Process	Coordinate from HKRP Innovation	Agency of an External Actor	Designation or Role of an External Actor
1	<p>Appraising multiple aspects of Solar Energy Data Management Platform Implementation and getting all actors on board</p> <ul style="list-style-type: none"> - Need, Vision, - Objectives, - Software Modules, - Data Architecture, - Specifications, - Scope of Work, Techno Commercial Detail - Responsibility of Multiple Actors / Agencies - Finalization of Project Coordinates 	Project Manager / Expert	State Implementing Agency	Director / Joint Director
2	<p>Finalizing Customization Requirements</p> <ul style="list-style-type: none"> - Demonstration of Existing Software Platform - Review of Current Operational Practices - Finalizing customization requirements in existing software Platform 	Project Manager / Project Lead	State Implementing Agency	Joint Director / Project Officer
3	<p>Acquiring Inputs from End User</p> <ul style="list-style-type: none"> - Explaining required inputs for various configurations - Submission of input sheets to SIA - Handholding for getting correct required inputs 	Project Lead	State Implementing Agency	Project Officer
4	<p>Finalizing IT Infrastructure Requirement</p> <ul style="list-style-type: none"> - Review of existing IT Infrastructure - Review and selection of IT Resource or Admin - Submission of IT infrastructure requirement - Coordination with IT Infrastructure Agency 	Project Lead + IT Lead	State Implementing Agency and IT Infrastructure Agency	IT Admin and IT Coordinator
5	<p>Approval of Customization and Development of Software Modules</p> <ul style="list-style-type: none"> - Finalization and Approval of customization requirement in coordination with SIA - Getting Approval of Lay outs and Mock Ups from SIA 	Project Lead + Front End Lead	State Implementing Agency	Joint Director and Project Officer
6	<p>Deployment, Integration and Testing</p> <ul style="list-style-type: none"> - Coordination for Public IP, Domain and Sub Domains - Firewall, Security, Port Bypass Settings - TLS/SSL Certificates - Vulnerability Audit, Security Audit 	IT Lead	State Implementing Agency and IT Infrastructure Agency	IT Admin and IT Coordinator

	Coordination or Cooperation Process	Coordinate from HKRP Innovation	Agency of an External Actor	Designation or Role of an External Actor
7	Software User Acceptance after Configuration <ul style="list-style-type: none"> - User Acceptance for Configuration related to Registration of Tender, Assets, Manufacturers, Divisions, Districts, Dub Divisions - User acceptance for user and role management - Software Module wise User Acceptance 	QA / Testing Training Lead	State Implementing Agency	Project Officer / IT Admin
8	Coordination for Third Party Integration <ul style="list-style-type: none"> - Third party API integration for existing Mail Server, SMS Gateway, Consumer registration portal etc. 	Project Lead + Back End Lead	State Implementing Agency	Project Officer / IT Admin
9	Coordination for SCADA Configuration and Go Live <ul style="list-style-type: none"> - Finalization and Approval for component wise List of RMS Parameters - Finalization and Approval for Alarms, Events, Notifications - Finalization and Approval for Display Parameters, Reports 	SCADA Lead	State Implementing Agency	Joint Director / Project Officer
10	Coordination for Security Audit <ul style="list-style-type: none"> - Security Audit of Business Process Modules - Security Audit of SCADA Platform 	IT Lead		
11	Coordination for Training and Hand Over to State Implementing Agency <ul style="list-style-type: none"> - Training to Project Officers for MIS - Training to District or Division officers - Training to IT Admin 	QA/Testing/Training Lead	State Implementing Agency	Project Officer + District / Division Officers
12	Coordination for Training to Empaneled Agencies <ul style="list-style-type: none"> - Training to Social Engineering or Sales Team - Training for Production Team - Training for Installation & Commissioning Team 	QA/Testing/Training Lead	Empaneled Agency	Production Manager Project Manager

Session-5

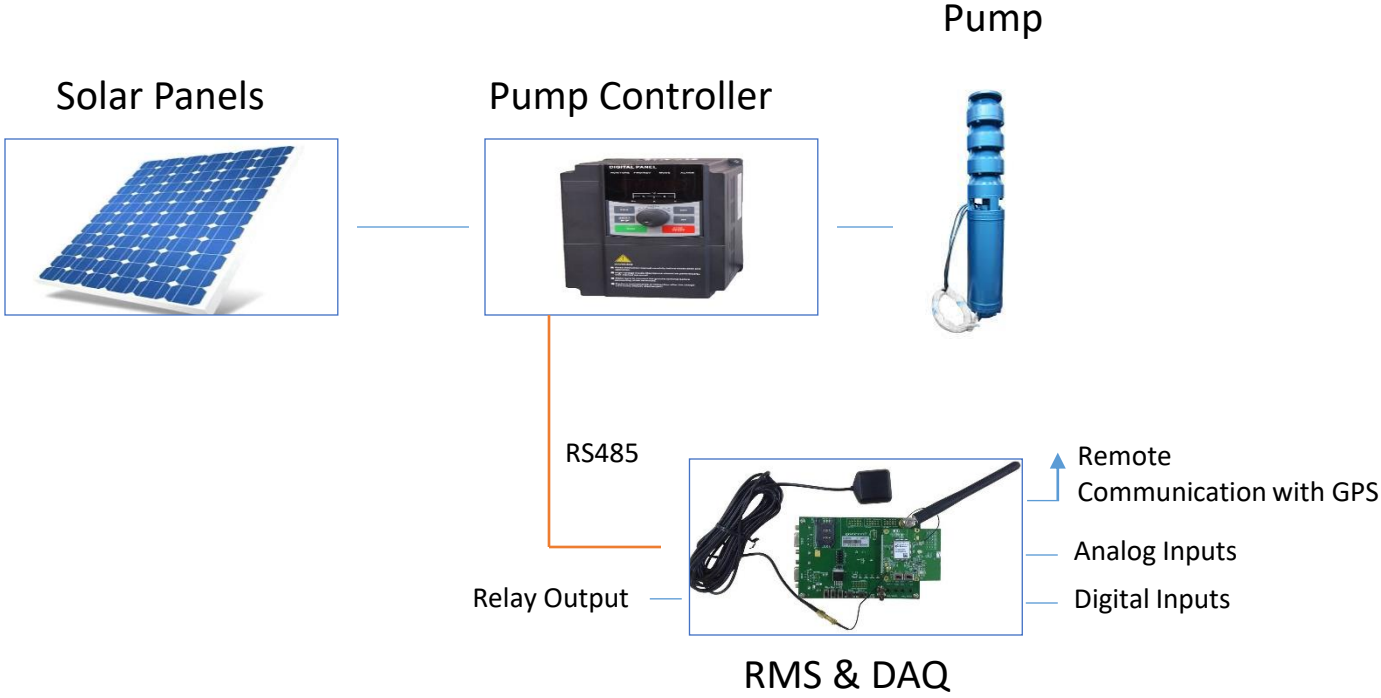
RMS and Data Acquisition System

System Components & Architecture



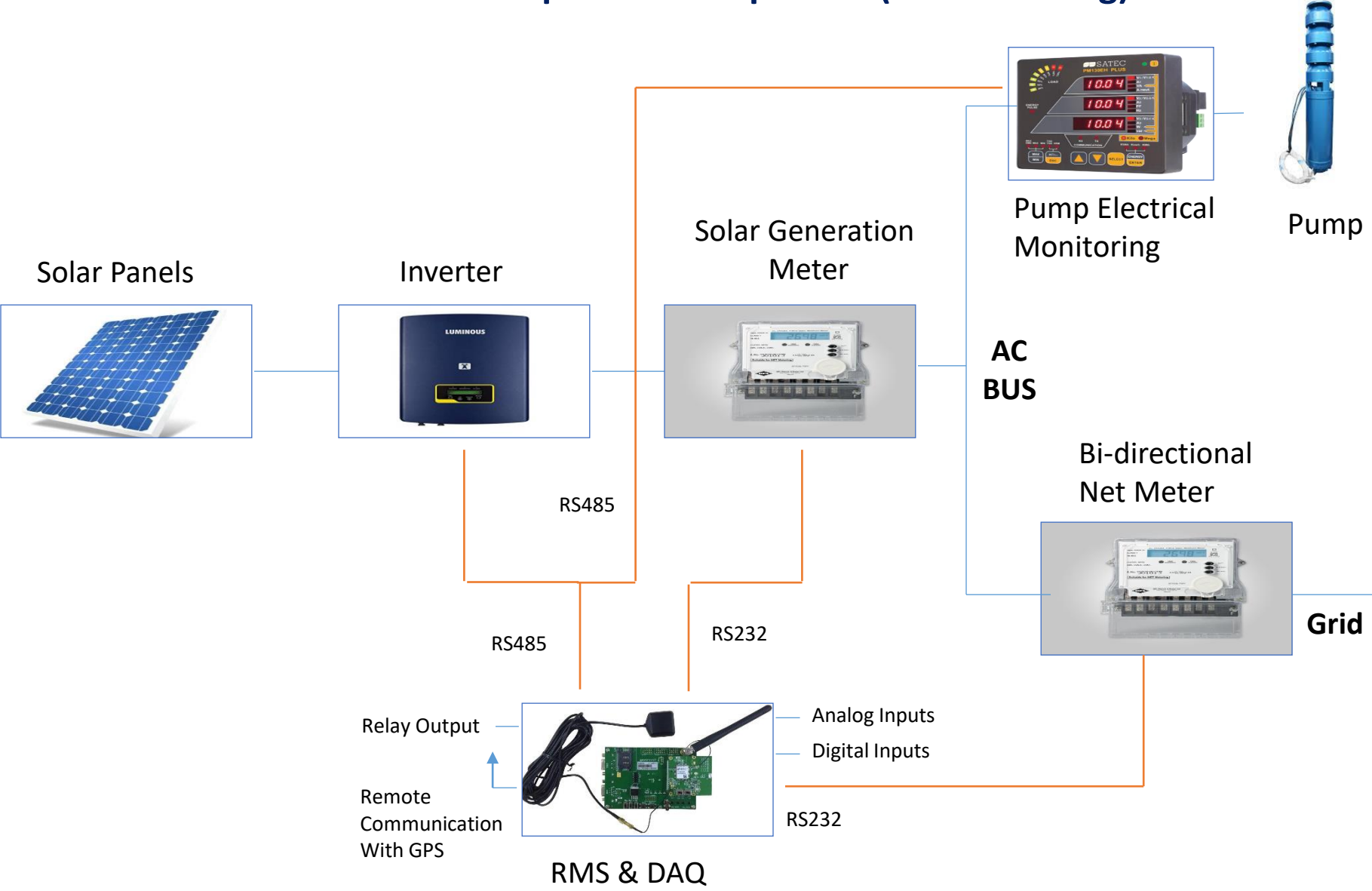
System Components & Architecture

KUSUM Component B



System Components & Architecture

KUSUM Component C : Option-1 (Net-Metering)



System Components & Architecture

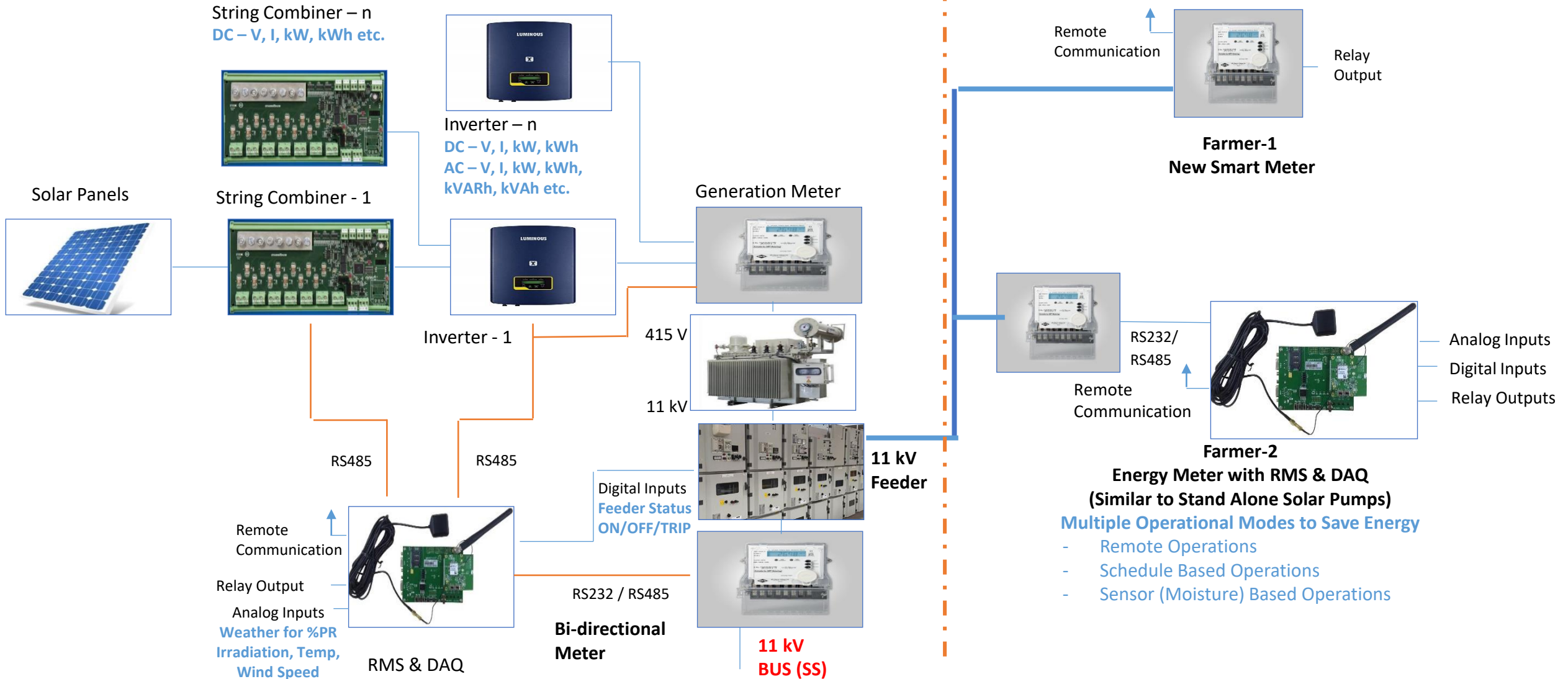
KUSUM Component C or A : Option-2 (Solarisation of Ag Feeder at SS Level)

Sub Station End

Farmer End

Solar Plant Performance & Feeder Availability Monitoring

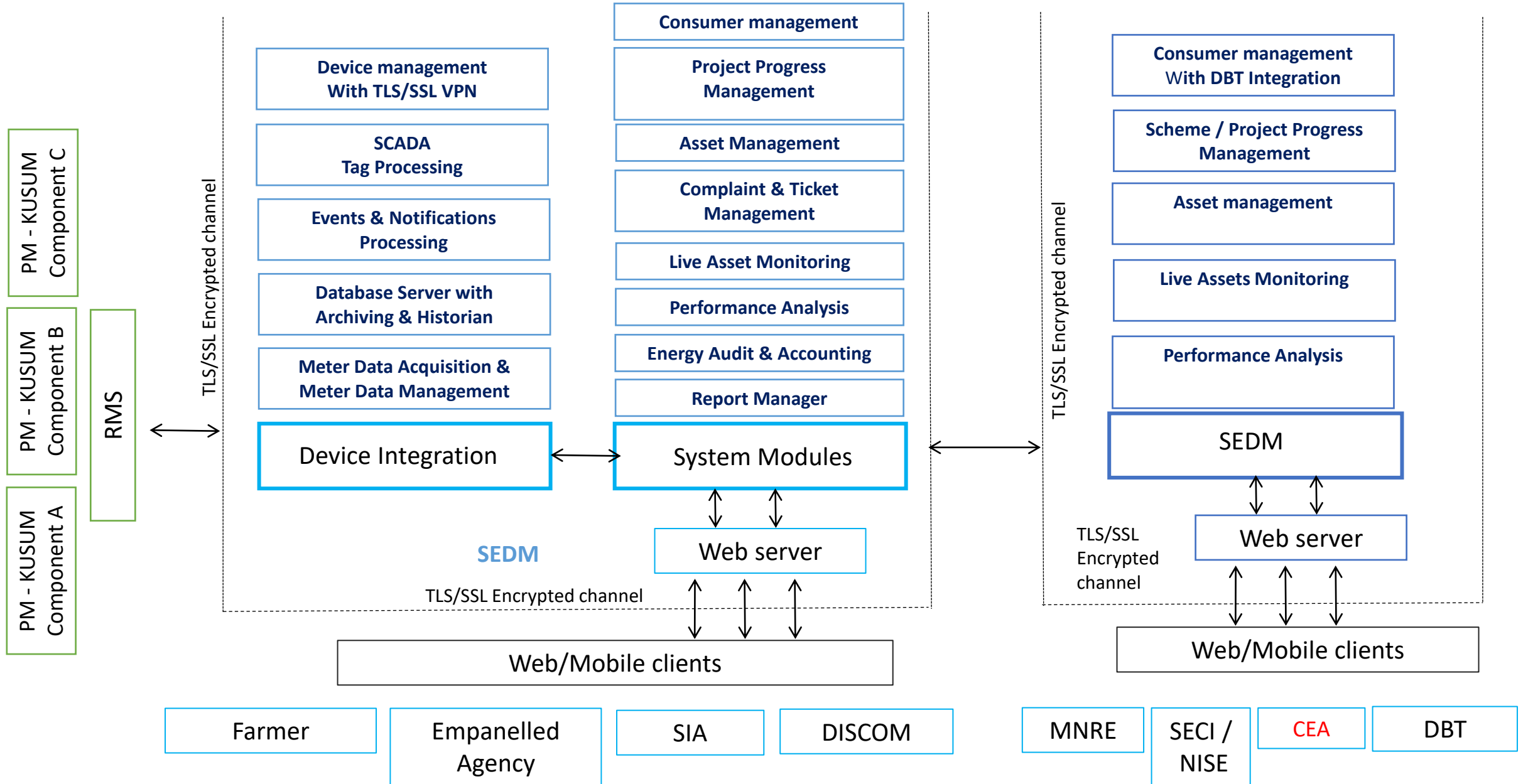
Pump Performance & Energy Monitoring



RMS Field Systems

State Level SEDM Platform

National Level SEDM Platform



RMS Integration with State Level SEDM Platform

Common for All Types of Solar RMS

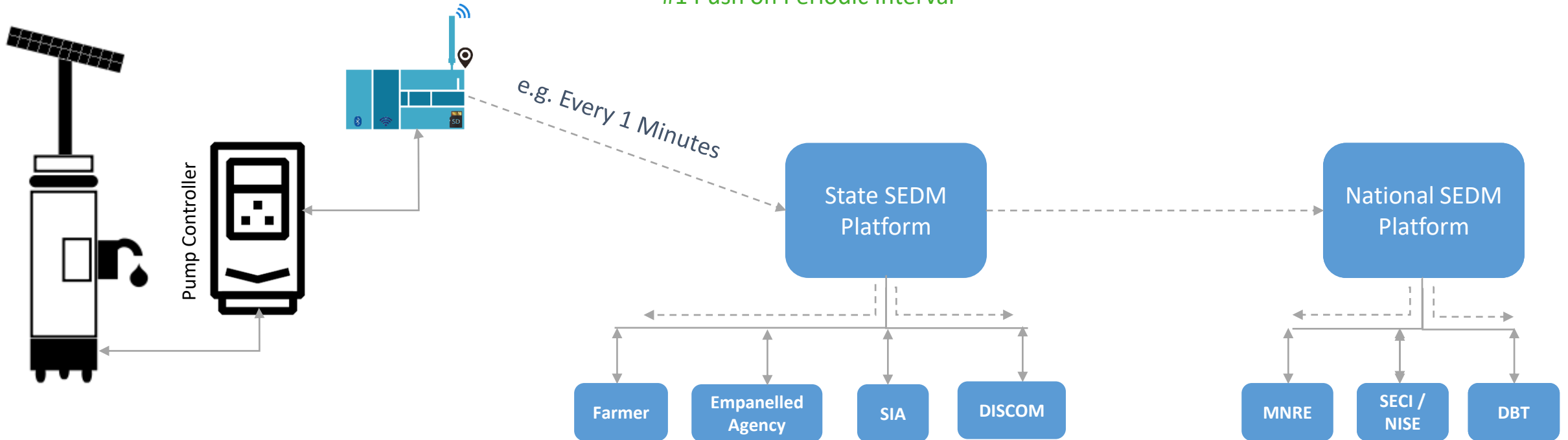


Unified Data Integration Architecture for Solar Energy Data Management (SEDM) Platform

COMMUNICATION MODES (with reference to EESL Tender Annexure 8 – clause 4.b)

Five Different Communication Modes between RMS & SEDM Platform

#1 Push on Periodic Interval

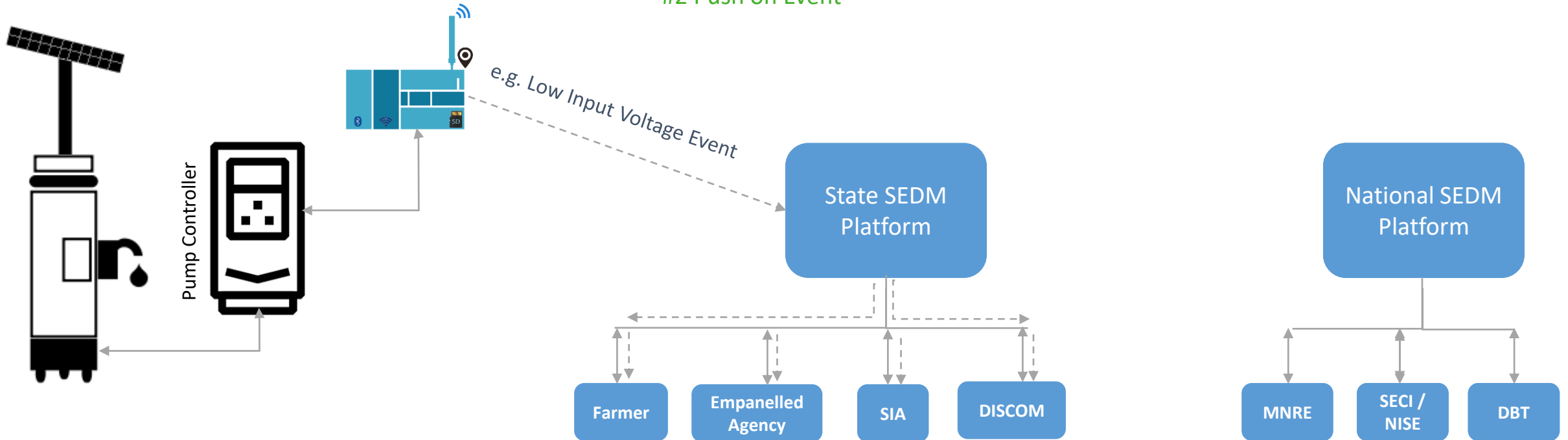


Unified Data Integration Architecture for Solar Energy Data Management (SEDM) Platform

COMMUNICATION MODES

Five Different Communication Modes between RMS & SEDM Platform

#2 Push on Event

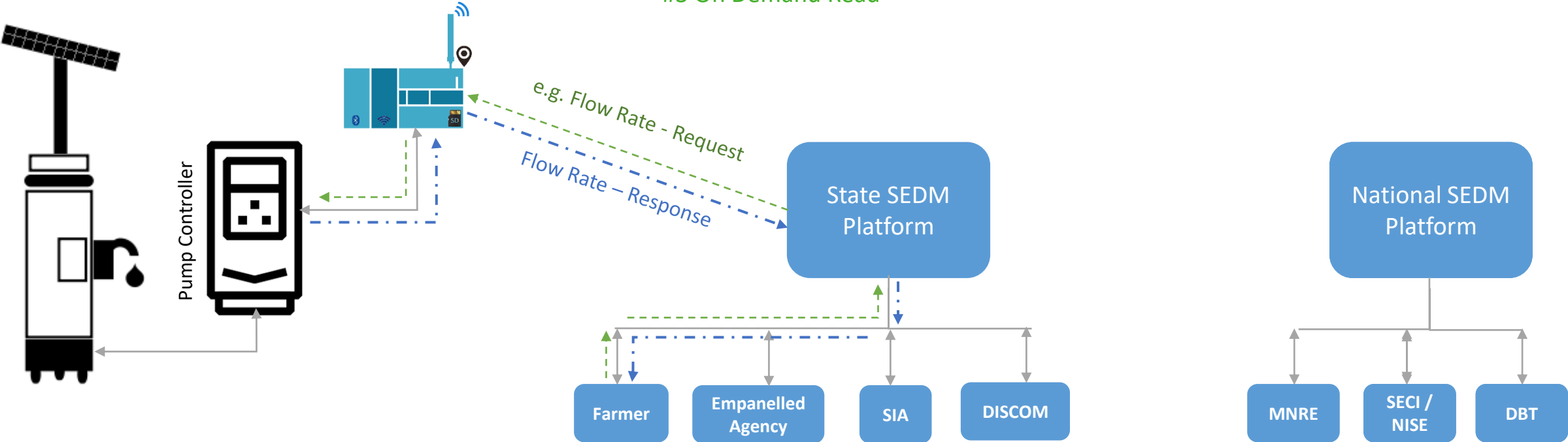


Unified Data Integration Architecture for Solar Energy Data Management (SEDM) Platform

COMMUNICATION MODES

Five Different Communication Modes between RMS & SEDM Platform

#3 On Demand Read

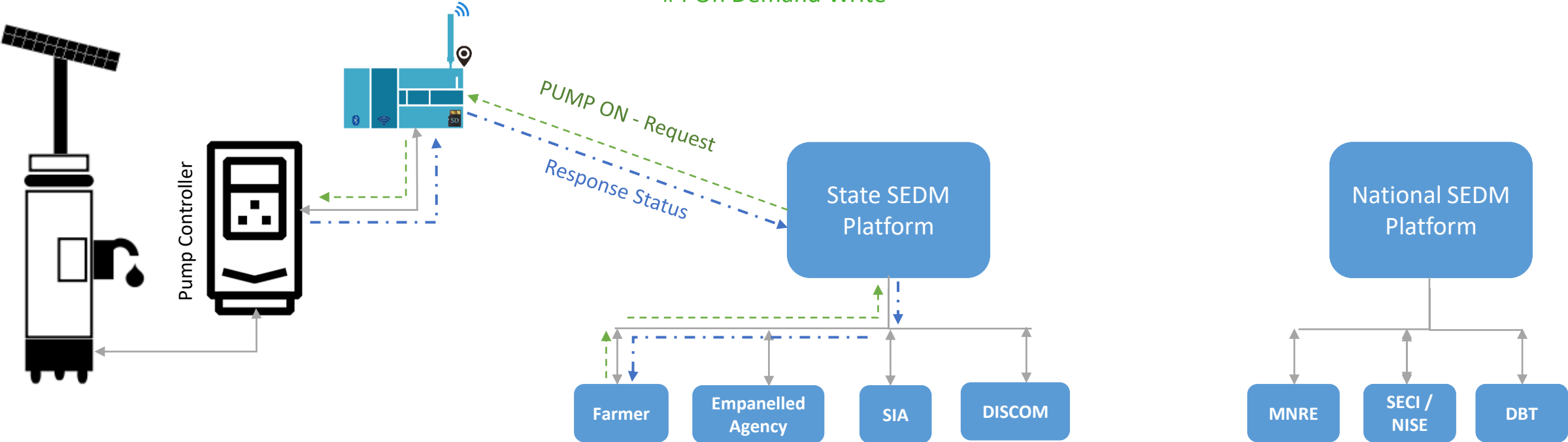


Unified Data Integration Architecture for Solar Energy Data Management (SEDM) Platform

COMMUNICATION MODES

Five Different Communication Modes between RMS & SEDM Platform

#4 On Demand Write



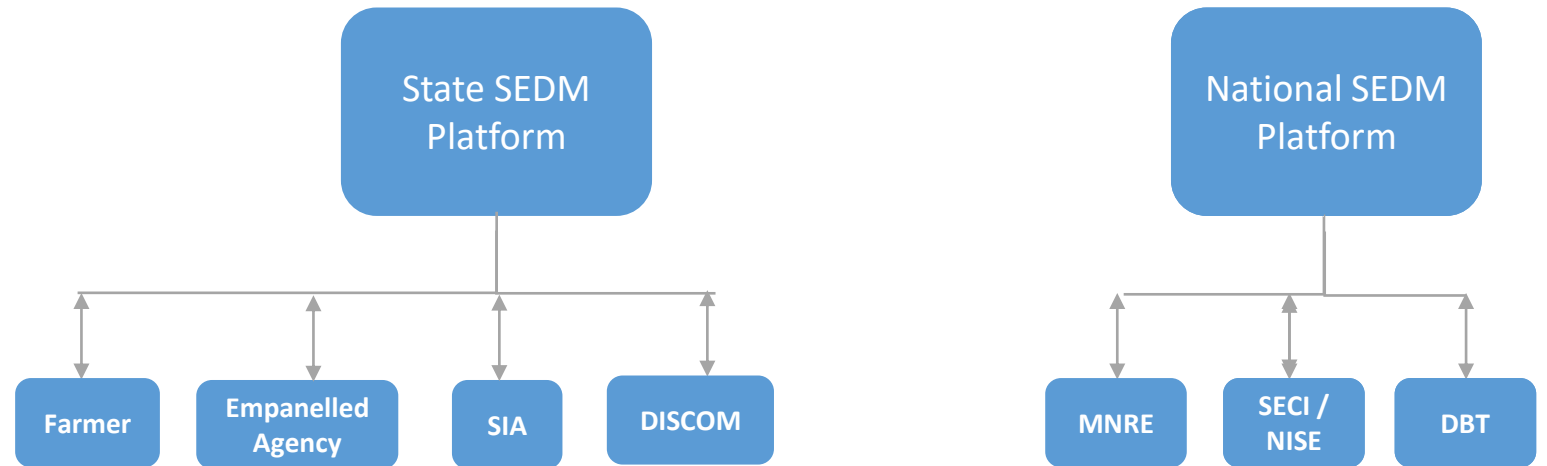
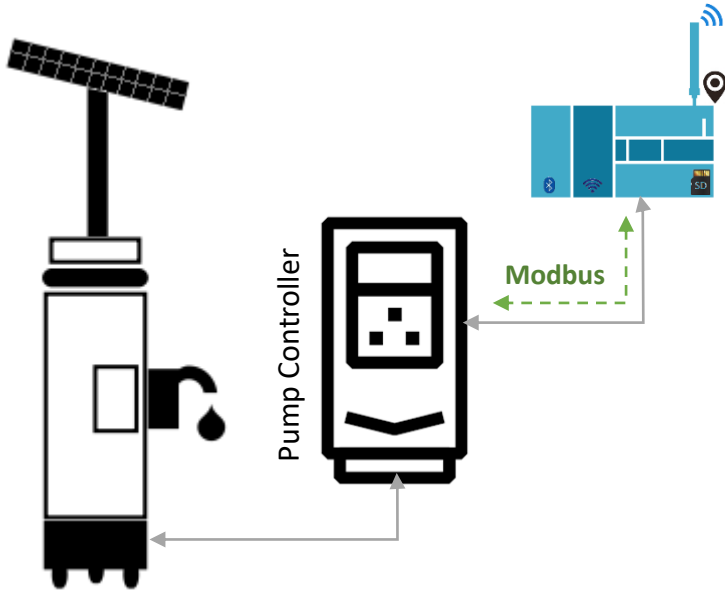
Unified Data Integration Architecture for Solar Energy Data Management (SEDM) Platform

COMMUNICATION PROTOCOLS (with reference to EESL Tender Annexure 8 – clause 4.a & 4.c)

Open Protocol Architecture Accepted Worldwide by all Manufacturers

#1 Field Device Communication

An Open Device communication Protocol supported by Manufacturers of Pump Controller/ Drive/Inverter/ Energy Meters / String Combiner Box

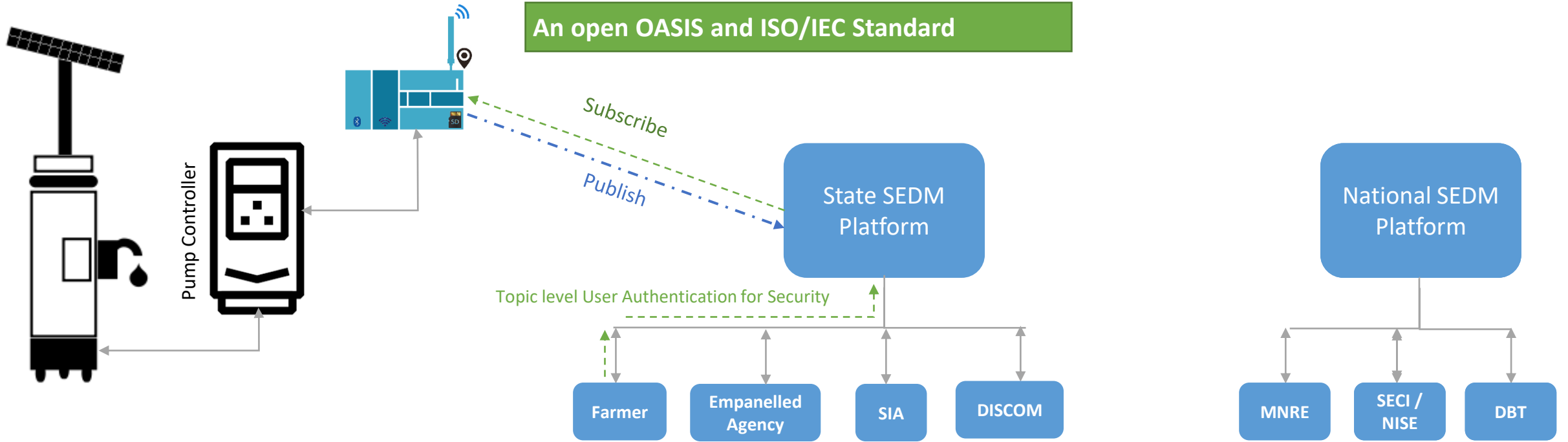


Unified Data Integration Architecture for Solar Energy Data Management (SEDM) Platform

COMMUNICATION PROTOCOLS

#2 RMS to Server Communication – **Industrial IoT MQTT Protocol**

Lightweight – Low bandwidth remote applications | Pub-Sub Architecture – Scalable for Millions of Devices | Message Queuing



MQTT - Supported by Global OT Players across Smart Grid, Smart RE & Smart City Applications

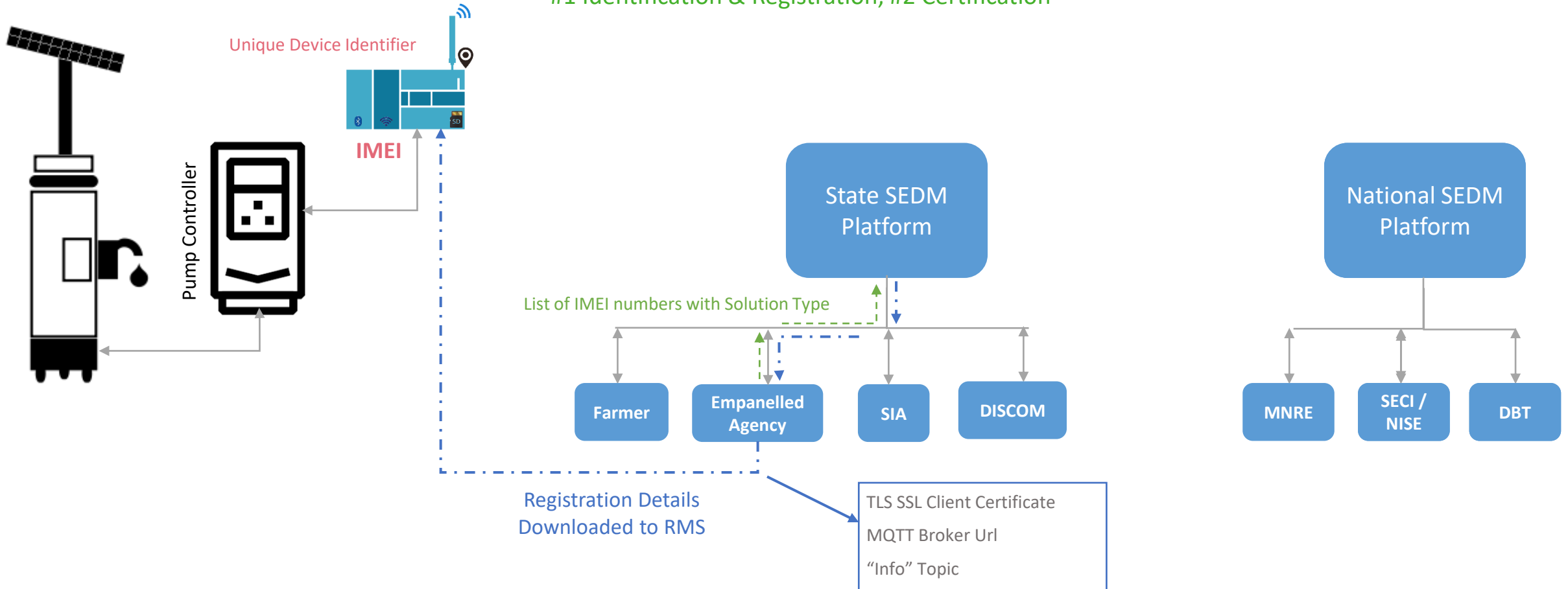
MQTT - Accepted by Global IT Players for Integration with Cloud Infrastructure

Unified Data Integration Architecture for Solar Energy Data Management (SEDM) Platform

SECURITY ARCHITECTURE (with reference to EESL Tender Annexure 8 – clause 4.d)

Identification & Registration | Certification | Authentication | Encryption | Authorization | OTP

#1 Identification & Registration, #2 Certification

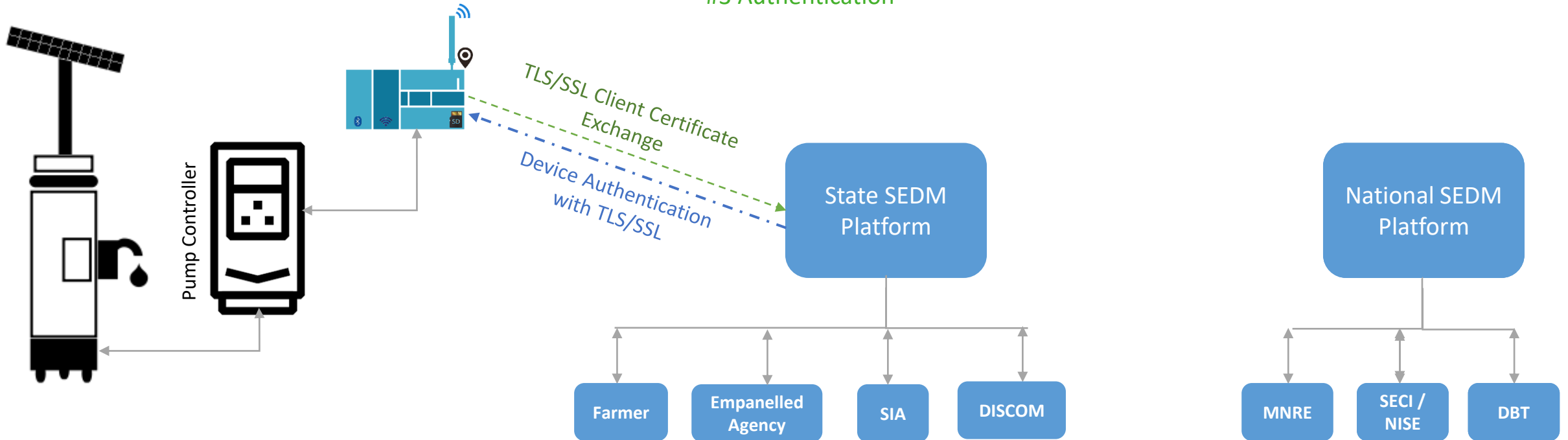


Unified Data Integration Architecture for Solar Energy Data Management (SEDM) Platform

SECURITY ARCHITECTURE

Identification & Registration | Certification | Authentication | Encryption | Authorization | OTP

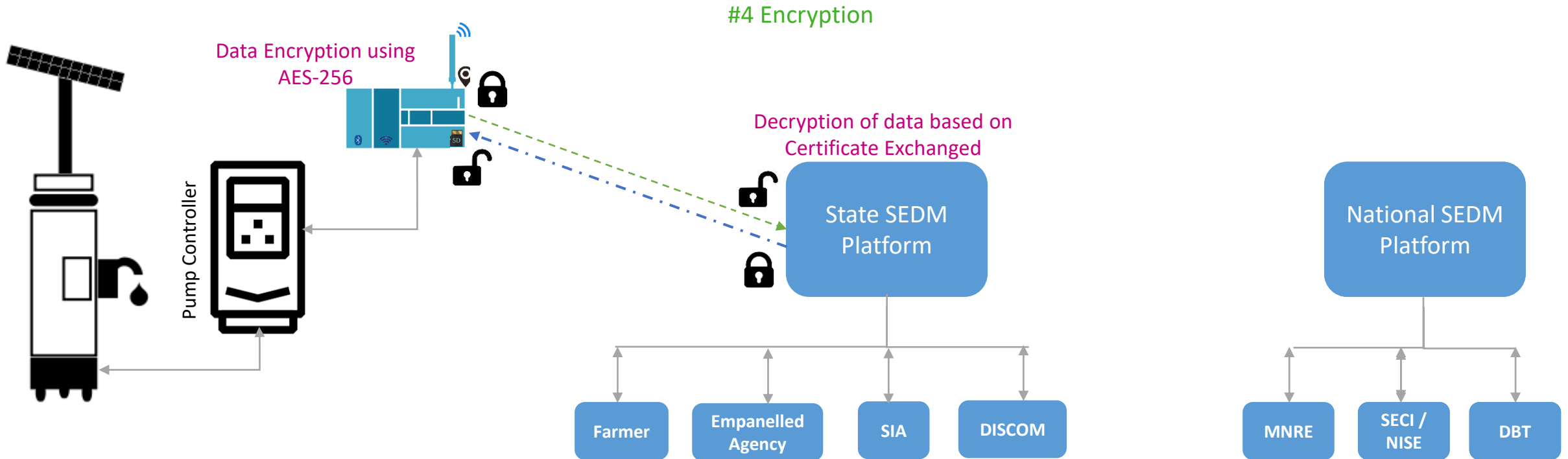
#3 Authentication



Unified Data Integration Architecture for Solar Energy Data Management (SEDM) Platform

SECURITY ARCHITECTURE (with reference to EESL Tender Annexure 8 – clause 4.d)

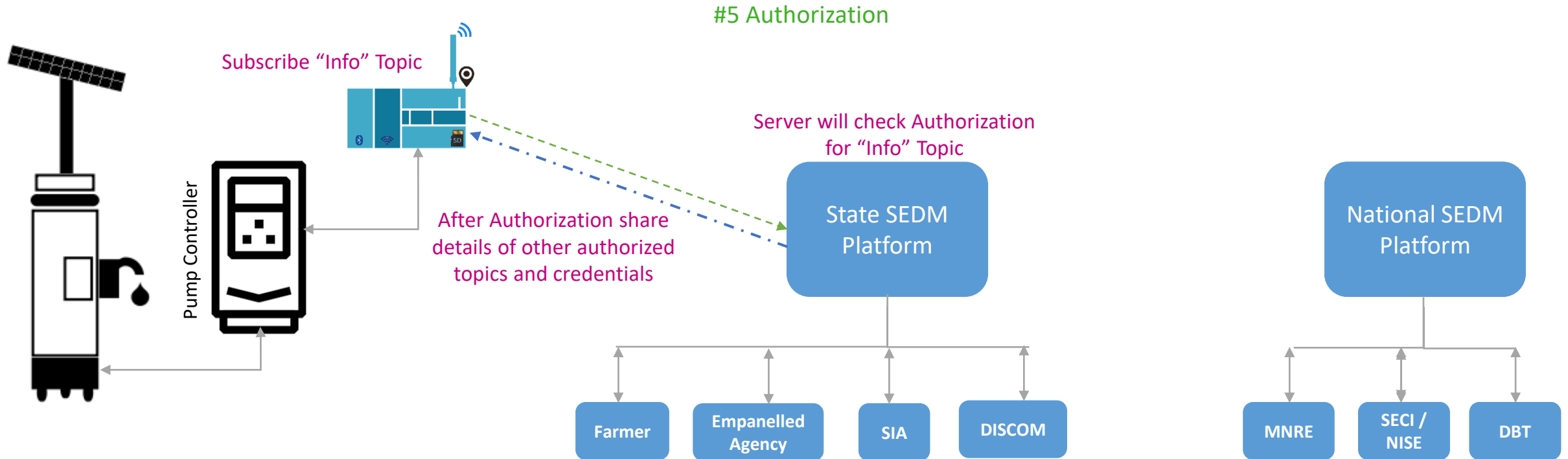
Identification & Registration | Certification | Authentication | Encryption | Authorization | OTP



Unified Data Integration Architecture for Solar Energy Data Management (SEDM) Platform

SECURITY ARCHITECTURE

Identification & Registration | Certification | Authentication | Encryption | Authorization | OTP

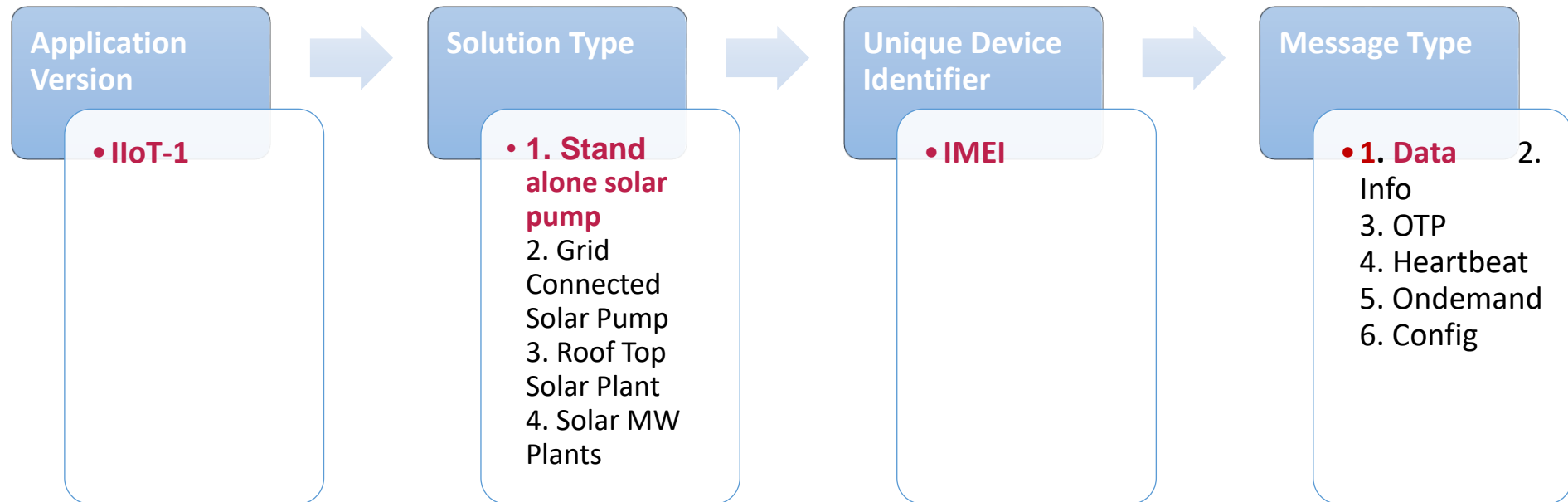


Unified Data Integration Architecture for Solar Energy Data Management (SEDM) Platform

MQTT Topic Structure for Authorization

Sample topic Structure for Standalone Solar Pump

IIOT-1 / Standalone Solar pump / IMEI / data

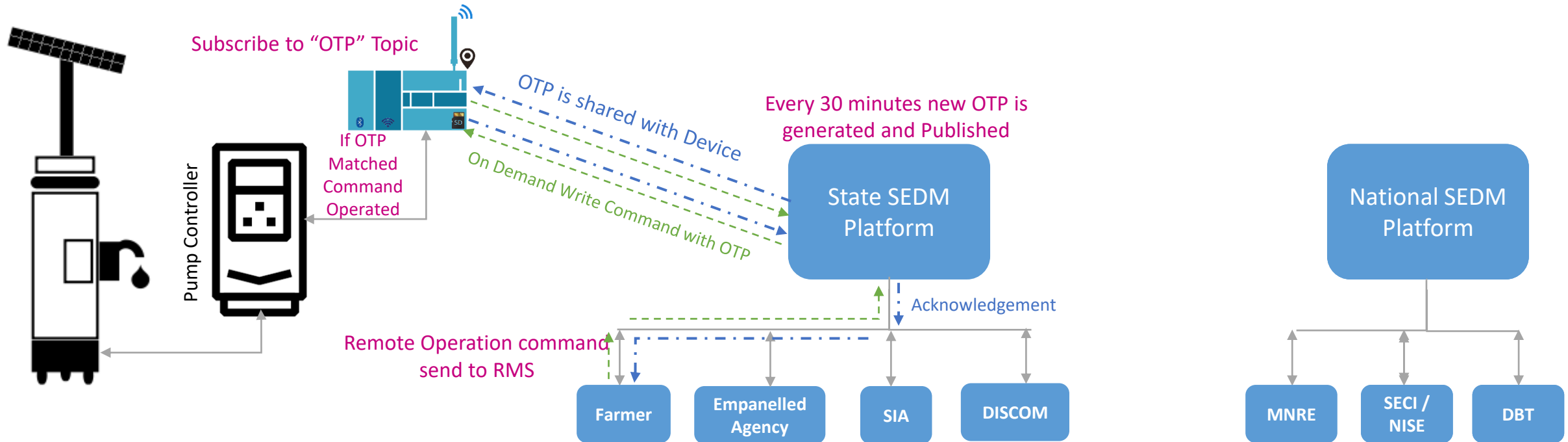


Unified Data Integration Architecture for Solar Energy Data Management (SEDM) Platform

SECURITY ARCHITECTURE

Identification & Registration | Certification | Authentication | Encryption | Authorization | OTP

#6 One Time Password (OTP) Mechanism for command and Configuration Updates



Unified Data Integration Architecture for Solar Energy Data Management (SEDM) Platform

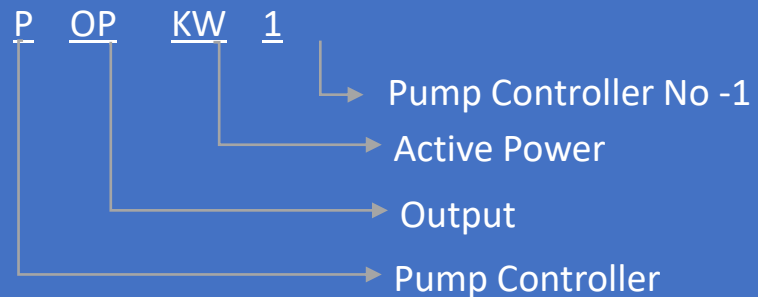
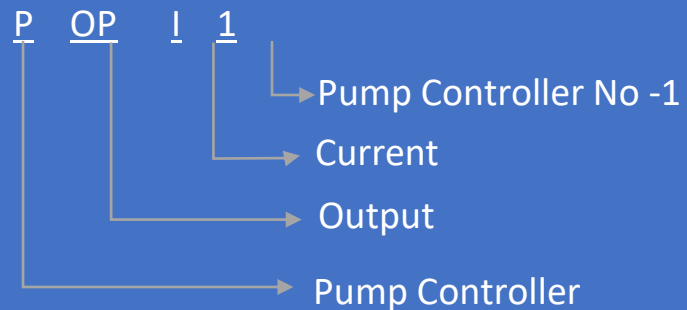
JSON MESSAGE STRUCTURE (with reference to EESL Tender Annexure 8 – clause 4.e)

An open Human readable message format, easy to parse in web /mobile/embedded applications

Message Format

```
{  
  "POPI1": 30,  
  "POPKW1": 3.6  
}
```

Keyword Abbreviation



Session-6

SCADA, O&M Services, IT Infrastructure Tender



	Title	Key Consideration	Reference Clause
1	Software Part-1 Business Processes	<ul style="list-style-type: none"> - MNRE will provide the software platform to all states along with configuration, deployment, integration and go live services - GIZ Phase-2 States will also get SCADA deployment, integration, handholding for limited applications 	
2	Software Part-2 Software As A Service Model	<ul style="list-style-type: none"> - State to State Number of systems will vary - SIA need not to invest huge upfront amount for Software, IT Infra, 5 years Services - SIA will come up with tender “Per System” basis for Software, IT Infra, 5 Years Services - Annual Rate Contract Mode – Payment against only for Go Live Systems 	Preface
3	Detail Services are included as a part of Scope	<ul style="list-style-type: none"> - Considering limited Man power at SIA level, Detail Scope for services - No payment release against only SCADA or Software or Supply - Services are envisaged in three parts : <ol style="list-style-type: none"> 1. Configuration Services till Go Live of System 2. Software Operational Services till generation of PCR/JCR Report 3. 5 Years Software maintenance services including security audits, consultancy, training and hand holding 	<ul style="list-style-type: none"> - Clause 5 - Clause 6.1 - Clause 6.2, 6.3, 6.4
4	IT Infrastructure as a Service (part of SaaS)	<ul style="list-style-type: none"> - SIA need not to invest huge upfront amount for setting up data centers - They can use their existing data centers / NIC data center / Cloud whichever is having low cost - MEITY approved, ISO27001, Tier-3 or Higher data centers - Multilayer software architecture - Bidder may design detail system configuration to achieve specified performance in terms of Timing and storage with optimum infrastructure 	- Clause 7
5	Software Platform Specifications : Device Management	<p>Multiple Connectivity: IIoT-MQTT, SMS, FTP communication; JSON Open Message Format Multilayer Security: Identification, Encryption, Authentication, Authorization, OTP; Third Party Security Audit Certificate. Multiple Communication Modes; Communication Indicators</p>	- Clause 4.2.2

Sr. No.	Title	Key Consideration	Reference Clause
1	Price Discovery & Payment	<ul style="list-style-type: none"> - Item-1 SCADA and Configuration Services : Payment against Go Live system in a month for SCADA and Configuration Services - Item-2 Operation Services : Payment against number of application after successful generation of PCR /JCR - Item-3 Maintenance, Consultancy, Training Service : 20% Payment every year - Item-4 Cloud Service : 20% Payment every year 	Schedule-B Clause-9
2	Penalty	<p>Penalty against Late Services for SCADA and Configuration</p> <p>Penalty against non availability of Software and Cloud Service</p>	Clause-3 Clause-8
3	QR	<p>Bidder should have experience of successfully implementation of any of the following systems for Energy Management System of Power Utility for at least ----- no. of Energy Monitoring Devices such as Meters/Inverters/Controller/Drives/String combiner Box during last 2(two) years as on date of publishing of this tender: -</p> <p style="padding-left: 40px;">Supervisory Control and Data Acquisition System (SCADA), or</p> <p style="padding-left: 40px;">Meter Data Acquisition System (MDAS) with remote operation of devices</p> <p>Category-1 States : less than 100o systems – Component A + B + C = 100</p> <p>Category-2 States : 1001-10000 Systems – Component A + B + C = 600</p> <p>Category-3 States : 10001-50000 Systems – Component A + B + C = 3000</p> <p>Category-4 States : More than 50001 Systems – Component A + B + C = 5000</p>	Clause – iii Page no 21
		Proof Of Concept	Clause - 2
		Requirement of Resources or Man Power	Page no 23 (B), (ii)