インドにおけるスマコミプロジェクト立ち上げの試み

経済産業省大学連携推進室長
元NEDOニューデリー事務所長
宮本岩男

NEDO's Technology Demonstrations in India

■Energy Efficiency for Steel Plant

■Dual-fuel Generation

■Energy Efficiency for Cement Plant

■Capacity Building

■**EMS for Telecom Towers** (62 Sites)

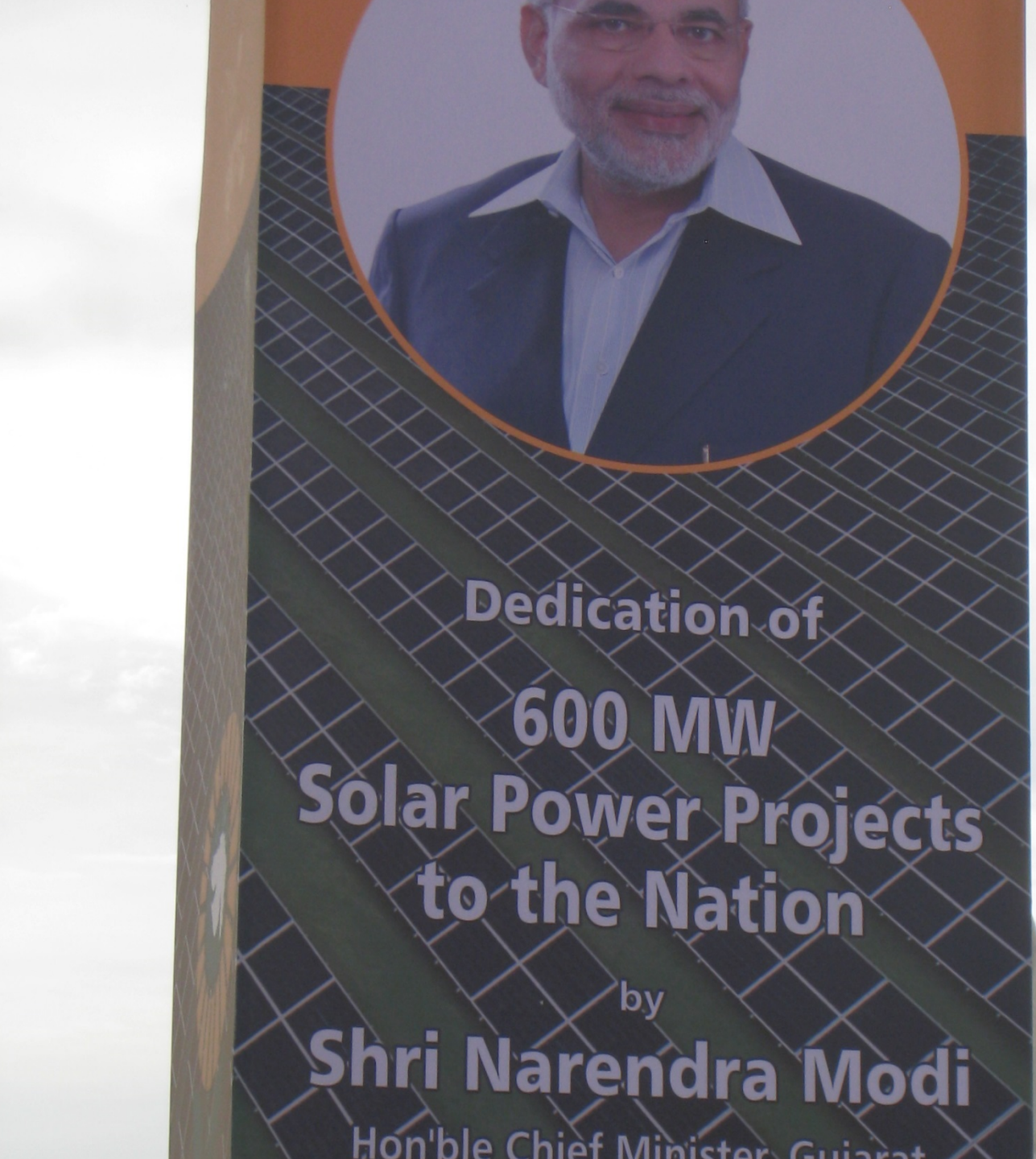
■**Solar Power and Micro-grid for Industrial Park**

■**Clean Coal for Thermal Plant**

■**Consumer Electronics Product Recycling**

■**Energy Efficiency for Steel Plant**

■**Smart Community Project with India DISCOM**


Dedication of
600 MW
Solar Power Projects
to the Nation
by
Shri Narendra Modi
Hon'ble Chief Minister, Gujarat

The Model Project for Micro-grid System using Large-scale PV Power generation and Related Technologies.

Project Overview

The objective of this project is to stabilize solar generated electricity to be able to be used in manufacturing companies. Large-scale (6MW) PV Power Generation station will be installed along with advanced micro grid control system for diesel generators at Neemrana Industrial Park.

Implementation site	Neemrana Industrial Park
Counterparts	Department of Economic Affairs/Ministry of Finance Ministry of New & Renewable Energy DMICDC
Alternative energy savings	Approx. 2000 t/yr (Crude Oil Equivalent)
CO_2 reduction volume	Approx. 8000 t/yr
Estimated budget (NEDO's share)	3.4 billion yen (2.8 billion yen)

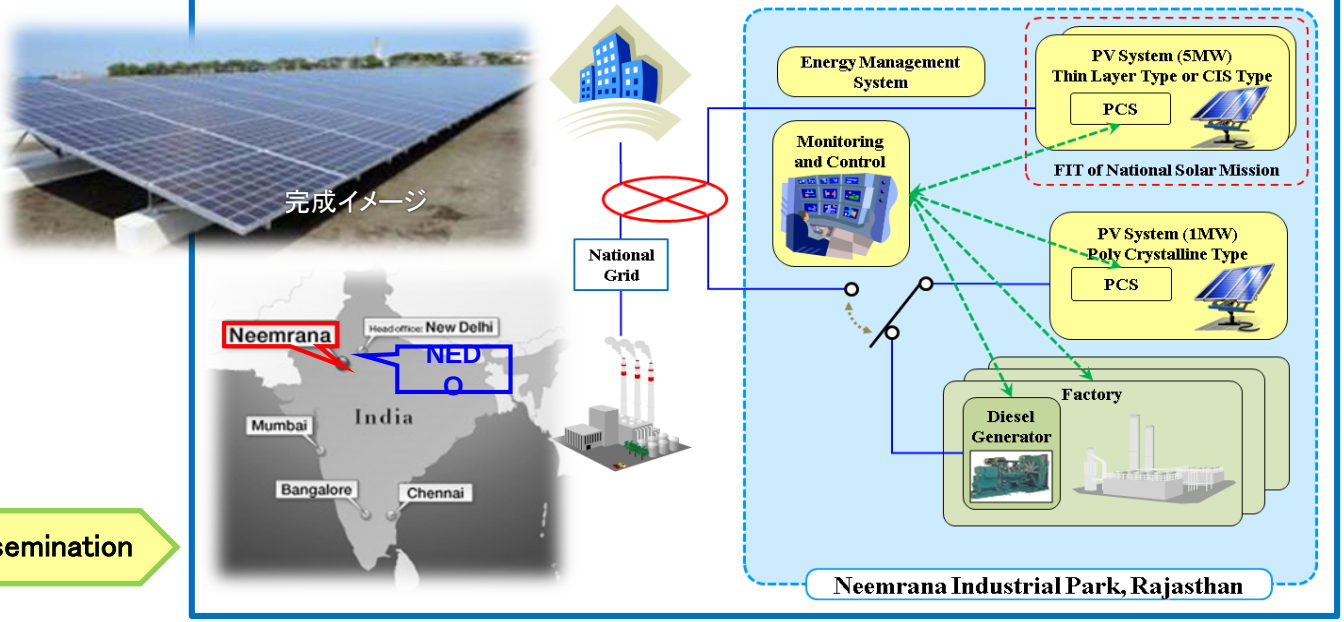
Entrusted Company:
Hitachi, Ltd.

Project Term

FY2012-2016

FS → MOU → Demonstration → Dissemination

Image of the model project at Neemrana industrial park



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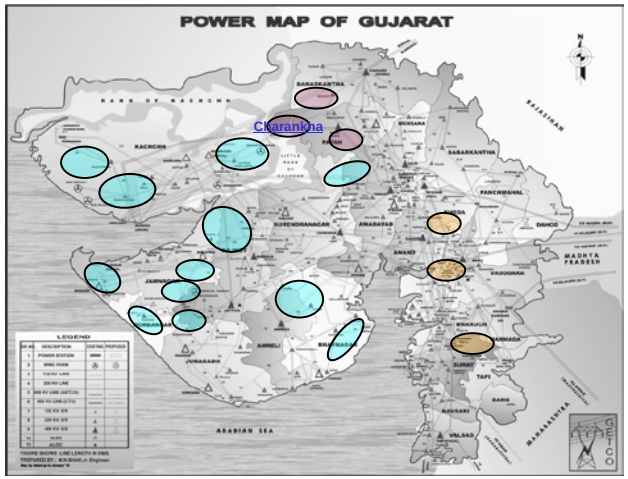
Influence of the RE (Renewable Energy) introduction

Renewable energy occupies 18% of generation capacity in Gujarat



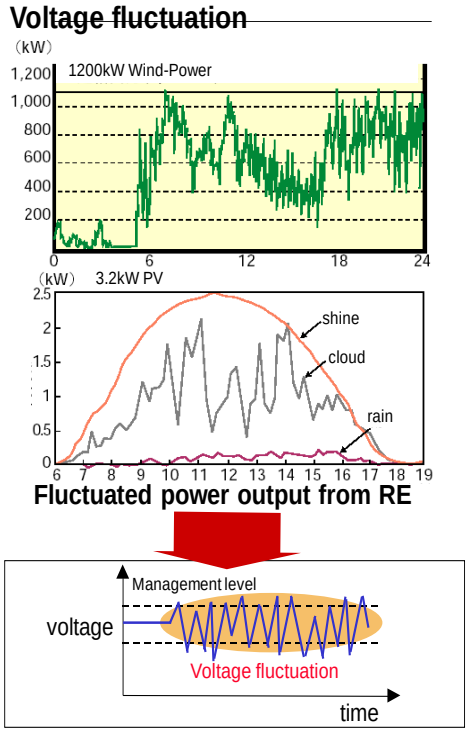
Renewable energy enlargement point of Gujarat

Increase of RE Installation

Solar & Wind

additional 5,000MW(until 2017）

- **Voltage Issue**
  - ✓ Voltage violation (over or under) on distribution network caused by reverse power
  - ✓ Voltage fluctuation by unstable output of renewables
- **System Stability Issue**
  - ✓ Simultaneous disconnection at a power system fault which possibly leads to a massive blackout
- **Demand / Supply imbalance**
  - ✓ Demand / Supply imbalance especially on light-load days



No.	Issues	Countermeasure
1	Imbalance of demand and supply	▪RECC (Renewable energy control center) ▪Battery system
2	Transmission line overload	▪RECC
3	Voltage dropping	▪STATCOM (Static Synchronous Compensator) ▪WASA (Wide Area Situation Awareness)
4	Transient stability issue	▪SIPS (System Integrity Protection Scheme)

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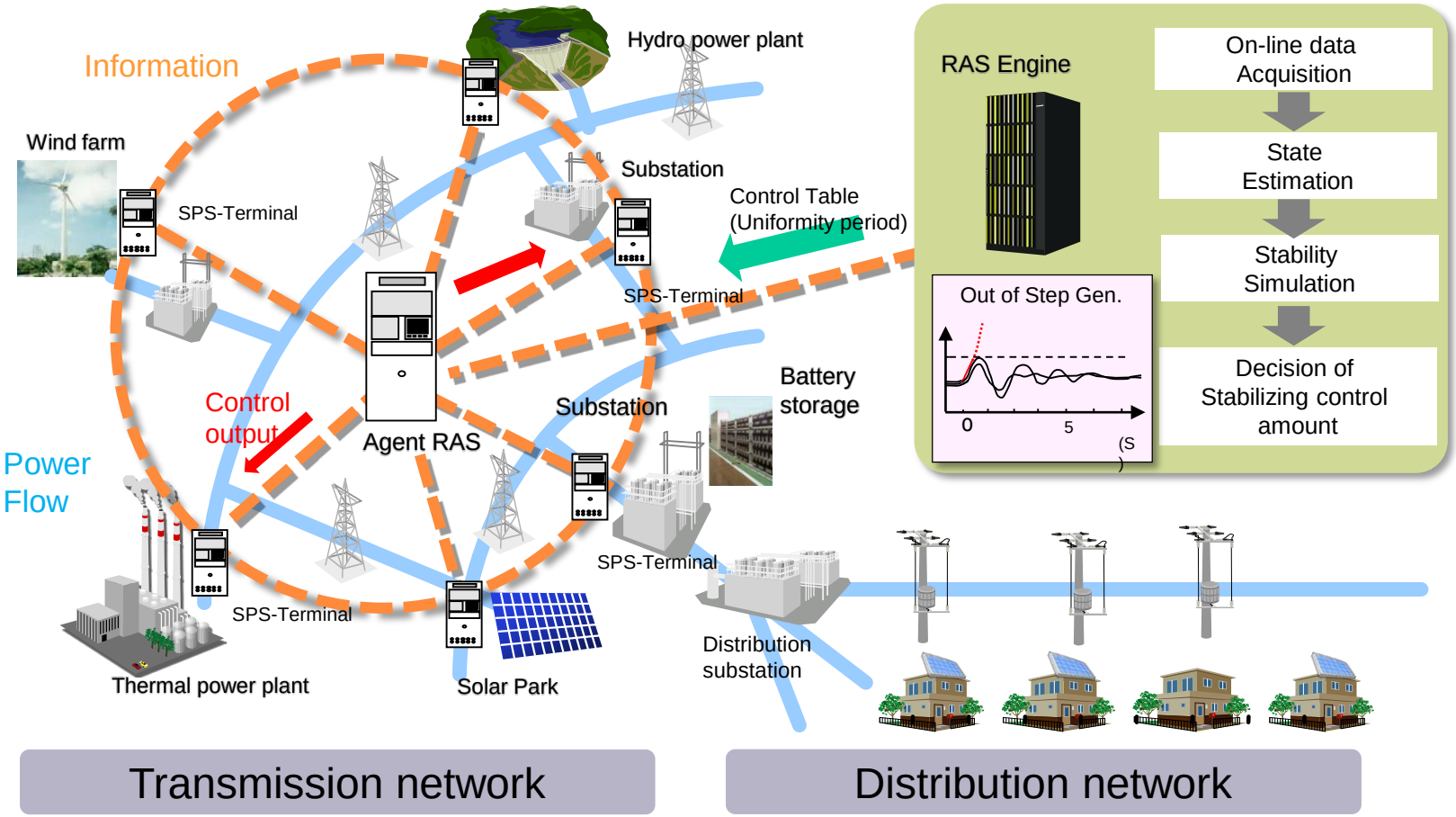
SIPS：System Integrity Protection Scheme

■SIPS supervises the monitoring area and simulates on real-time to formulate the measures for the assumed phenomena (power grid fault, RE output fluctuation) in advance.

■In the cases of actual grid disturbance, SIPS detects the event immediately and send the control operations at high speed to minimize the impact.



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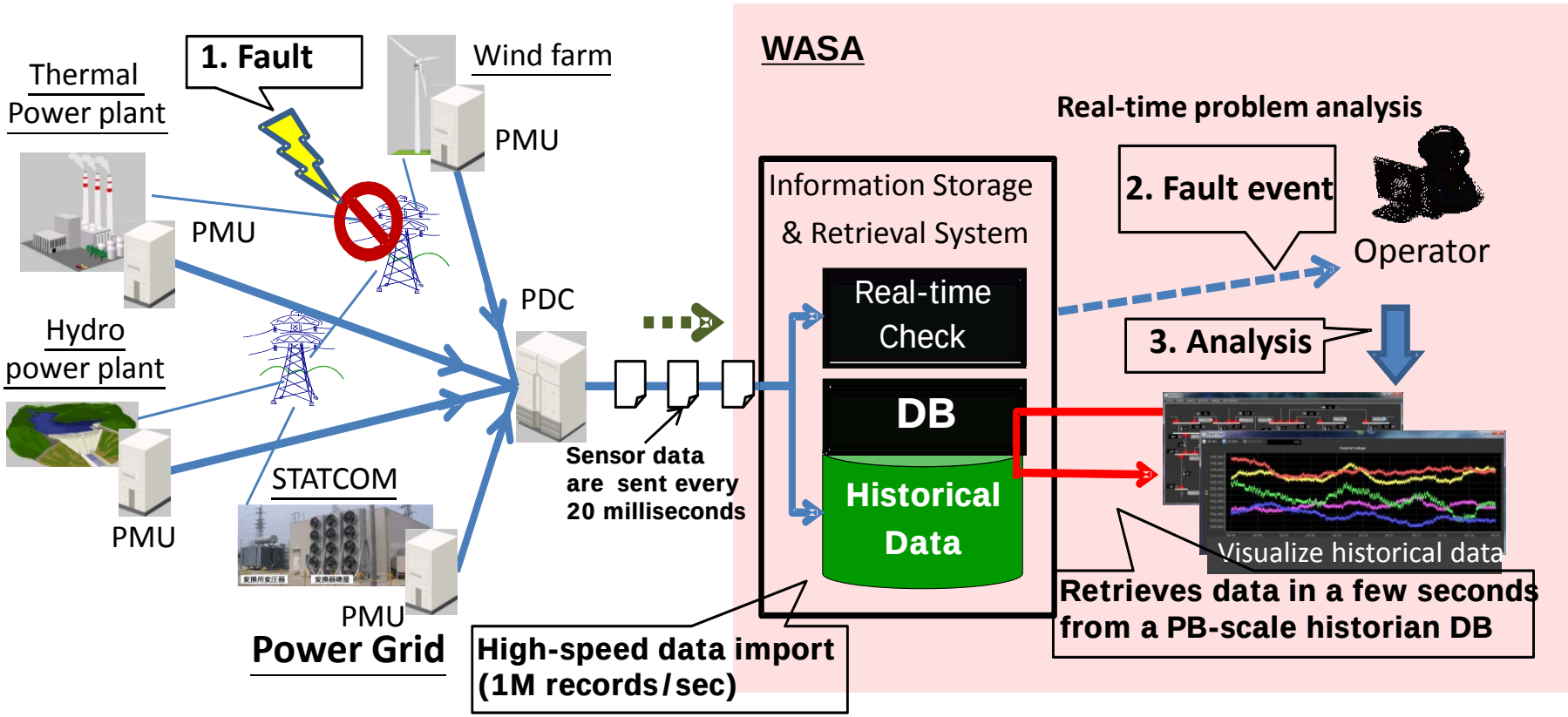
WASA：Wide Area Situation Awareness

■WASA provides real-time streaming process for the phasor data. In the case of the long period oscillation or voltage/power flow fluctuation, WASA detects and analyzes the event from the data and sends the alert and decision support to the operator. Required functions are as follows;

1. Visualization of the phasor data
2. Oscillation analysis
3. Stability alarming

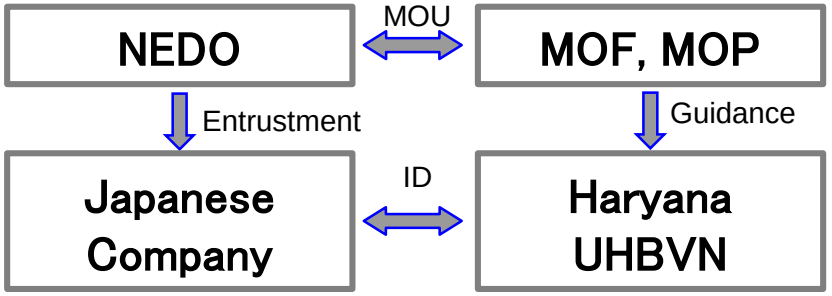


Smart Community Project in Panipat (Haryana) with UHBVN (2014-)

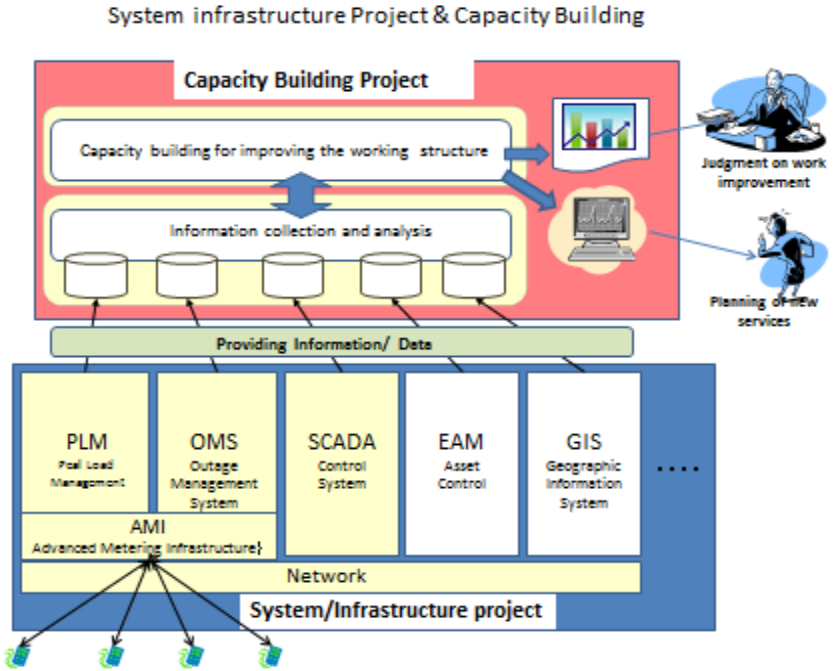
1. Background and Technology

- NEDO has agreed to initiate a pre feasibility study with Ministry of Power to create a smart community project in Panipat (Haryana) using Japanese smart community technologies. This is one among the 14 smart community projects which is being implemented by MOP.
- The pre feasibility study will be executed with UHBVN and will propose to include Japanese technologies in the areas such as AMI: Advanced Metering Infrastructure, OMS: Outage Management System, PLM: Peak Load Management System.
- Capacity building activities for utilizing smart grid related technologies will also be executed under this study.
- Fuji Electric, NTT Communications, PWCC and THE Power Grid Solution (joint company of Hitachi and TEPCO) will be executing the study.

2. Implementation structure



3. Image of the Project



Fundamental Research | FS | MOU | Demonstration | Dissemination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