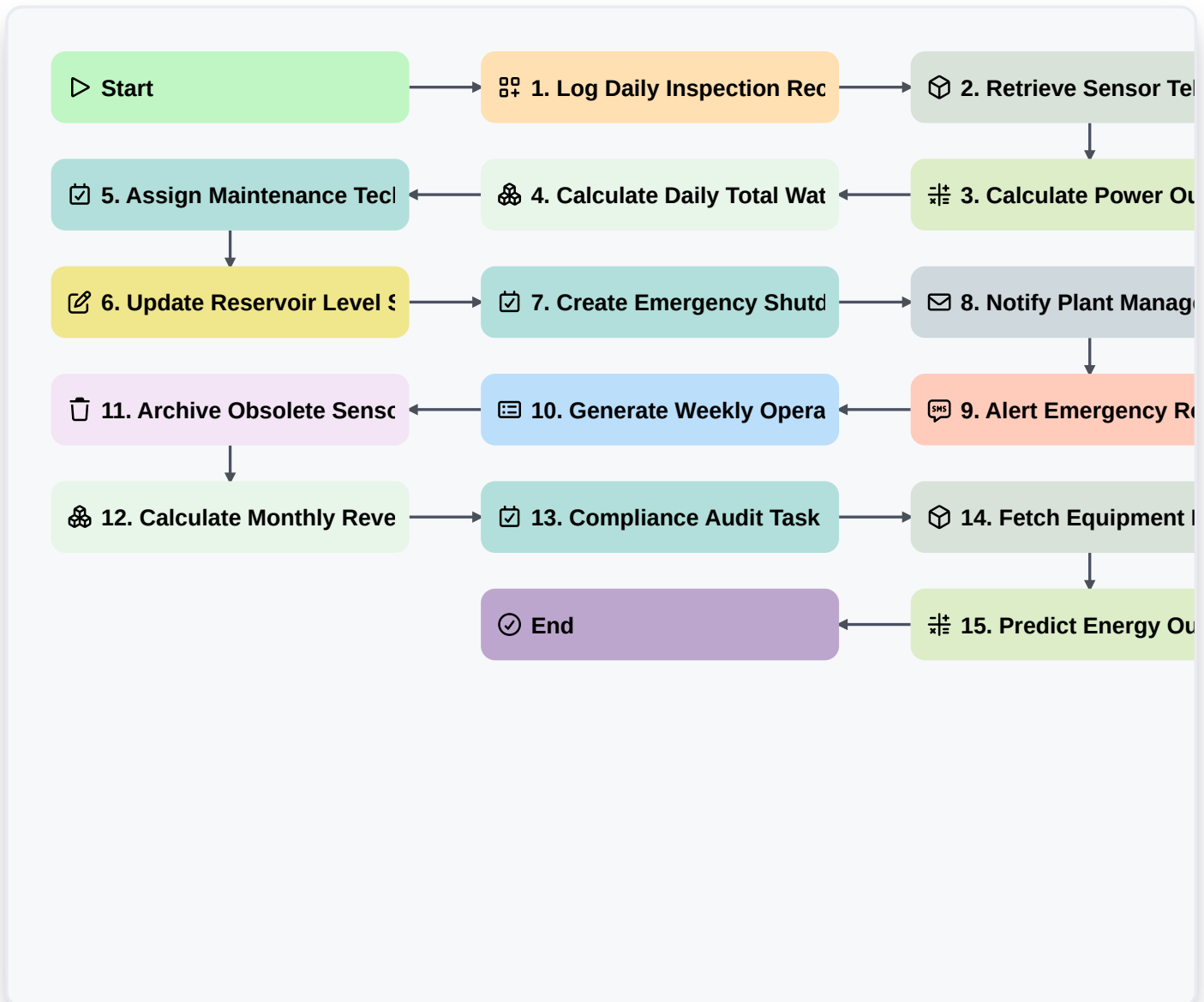


# Hydroelectric Power Plant Management



## ▷ Start

Start of the Workflow/Process.

## 🗒️ 1. Log Daily Inspection Record

Create a new entry in the 'Daily Inspection' data model to record turbine, dam, and spillway status.

## 📦 2. Retrieve Sensor Telemetry Data

Fetch real-time pressure, temperature, and flow rate values from the 'Sensor Readings' data model.

## 📊 3. Calculate Power Output Efficiency

Calculate the efficiency ratio by comparing actual Megawatts generated against theoretical hydraulic head potential.

## 🔗 4. Calculate Daily Total Water Flow

Sum all 'Flow Rate' entries from the 'Water Meter' data model for the last 24-hour period.

## 📅 5. Assign Maintenance Technician

Create a task for the Engineering Team to perform physical inspection of the turbine bearings.

## 📝 6. Update Reservoir Level Status

Update the 'Current Water Level' field in the 'Reservoir Management' data model based on new telemetry.



### **7. Create Emergency Shutdown Protocol Task**

Trigger a high-priority task for the Control Room Operator if sensor thresholds are breached.

### **8. Notify Plant Manager of Anomaly**

Send an automated email to the Plant Manager when critical vibration levels are detected.

### **9. Alert Emergency Response Team**

Send an SMS alert to the rapid response technicians in the event of a structural alert or dam breach warning.

### **10. Generate Weekly Operational Report**

Create a comprehensive PDF report summarizing power generation, downtime, and maintenance costs.

### **11. Archive Obsolete Sensor Logs**

Delete or move outdated sensor entries from the active 'Real-time Monitoring' model to long-term storage.

### **12. Calculate Monthly Revenue Forecast**

Aggregate the 'Energy Produced' entries and multiply by the current 'Market Price' variable.

### **13. Compliance Audit Task**

Create a recurring task for the Safety Officer to verify all regulatory safety checklists are completed.

### **14. Fetch Equipment Maintenance History**

Retrieve all past repair entries from the 'Maintenance Log' associated with a specific Turbine ID.

### **15. Predict Energy Output**

Execute a formula using 'Expected Rainfall' and 'Current Reservoir Volume' to predict next week's generation.

### **End**

End of the Workflow/Process.