1. Energy Data Acquisition

Ability to collect data from smart meters, IoT sensors, SCADA systems, and utility bills.

Support for multiple data formats and protocols (e.g., Modbus, BACnet, MQTT).

2. Real-Time Monitoring

Continuous tracking of energy consumption and environmental parameters (temperature, humidity, etc.).

Visualizations such as graphs and heatmaps.

3. Data Storage and Management

Efficient and scalable storage system for large volumes of time-series energy data.

Data cleaning and validation mechanisms.

4. Energy Usage Analytics

Tools for trend analysis, baseline creation, and benchmarking.

Load profiling and identification of high-energy-use patterns.

5. Optimization Engine

Algorithms for demand-side management, peak load shaving, and predictive maintenance.

Machine learning models for forecasting and anomaly detection.

6. Reporting and Dashboards

Customizable, user-friendly dashboards.

Automatic generation of daily, weekly, or monthly energy reports.

7. User and Role Management

Secure login and role-based access controls.

Support for multi-user environments.

8. Integration with External Systems

APIs for integration with Building Management Systems (BMS), ERP, and cloud services.

Support for third-party energy analytics platforms.

9. Alerts and Notifications

Configurable alerts for unusual consumption or faults.

Notification via email, SMS, or app notifications.

10. Compliance and Sustainability Tracking

Tools for tracking energy certifications (e.g., LEED, ISO 50001).

CO2 emissions calculation and sustainability goal tracking.