Autonomous Power Management
Deployment Plan

1. Release Scope and Capabilities to be Deployed

Capabilities: Initial release, features include predictions, scheduling, reactive frequency control, trust management infrastructure
Scope: Full feature release, staged deployment, starting with a subset of about 100 controllable power plants and 200 stochastic powerplants under contractual obligation to utility to comply with release procedures. Deployment of AVPP functionality on dedicated hardware environment at utility.

2. Timing and Dependencies for Deploying Components to Nodes

Stable communication infrastructure must be available. Deployment of AVPP functionality after deployment of power plant functionality.

3. Release Risk Assessment

Issue	Impact	Notes	Mitigation Strategy
Power plant models prove to be inaccurate	High	Control models necessary for good predictions and schedule creation	Verify models for targeted power plants in advance
Communication infrastructure insufficient	High	Pre-deployed communication infrastructure for coordinating power plants and AVPPs shows different characteristics than anticipated	Have communication operators on standby, use redundant communication lines
Simulation results prove to be unrealistic	Low	Results of simulations for impact of frequency control do not fit actual behavior in power grid	Deactivate frequency control until issues resolved, use feedback for improvements

4. Impacted Organisations, Stakeholders, and End-User Community

Utility, Power Generator Operators and Owners, Power Grid, Neighbouring Balancing Groups, Transmission Line Operators, Distribution Grid Operators, Power Consumers, Communication Infrastructure Provider

5. Release Approval

Project Manager, Tester, Executive Board of Utility

6. Delivery Team

Person B, Person H, Person J

7. Handover to Deployment Engineer

Fully tested release package consists of pre-compiled binaries for all target platforms, along with technical documentation and configuration examples. Deployment Engineer is involved in ongoing training procedures and receives detailed instructions on the features and use of the system.

Escalation Procedures: Problems when going live are escalated depending on the issue.

- Communication Issues: Escalate to communication provider
- Control-model related Issues: Escalate to Project Manager
- Frequency-control related issues: Switch-off feature, escalate to Project Manager
- Network stability issues: Escalate to Operations staff

8. Deployment Success Criteria

- Stable network frequency
- All power plants are connected to the control system at the utility
- Power plants are organized in hierarchical AVPP structure
- Stochastic power plants generate predictions in regular intervals
- All controllable power plants are assigned a schedule in regular intervals
- Schedules can be adhered to by controllable power plants