



REpower Service Strategy

PT26 Wind Energy Seminar
Tokyo 27 October 2009



Full Service Contract



Service Organization of REpower

Full Service Contract



Full Service Contract



Integrated-Service-Package

- Contract duration: 5 Years up to 15 years
- Fixed Price
- Guaranteed Technical Availability

Terms of ISP-Contract:

- **Maintenance**

- professional maintenance; regular intervals in accordance with the valid maintenance specifications

- **Monitoring**

- monitor incoming messages, using its remote monitoring system, 24 hours a day and 365 days a year

- **Repairs**

- undertake immediately all proper and professional repair measures needed for the operational readiness of the WEC
- to keep available, on its service cars or at the service-support bases, all conventional spare parts, and to procure large components (rotor blades, gears, generators) without undue delay

- **Availability**

- guarantees an technical availability rate as averaged over all WECs (park availability)

- **Cooperation of the client**

- **Cost Payable by Repower and Fee Payable by Client**

- **Duration of the Contract**

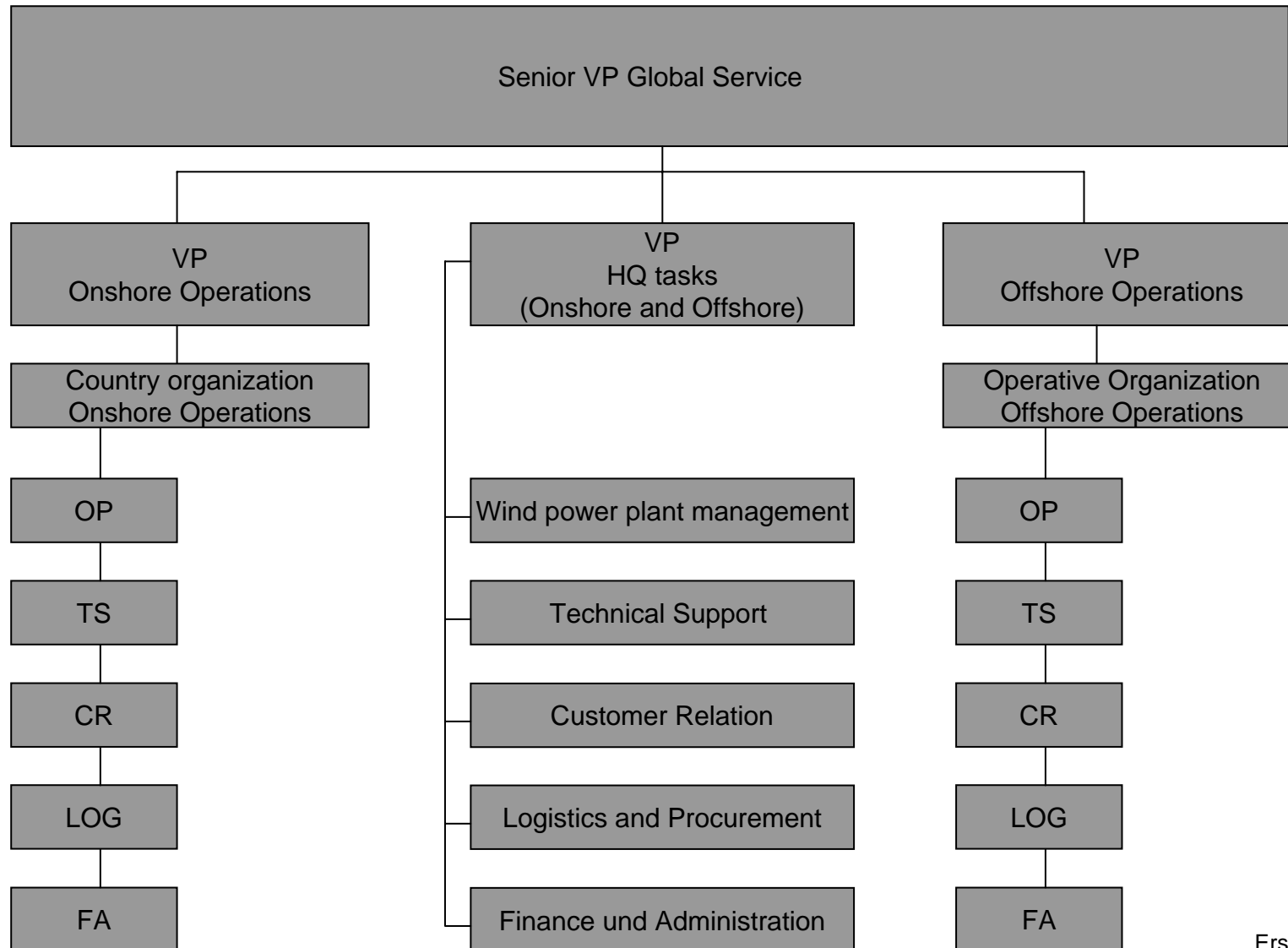


Full Service Contract

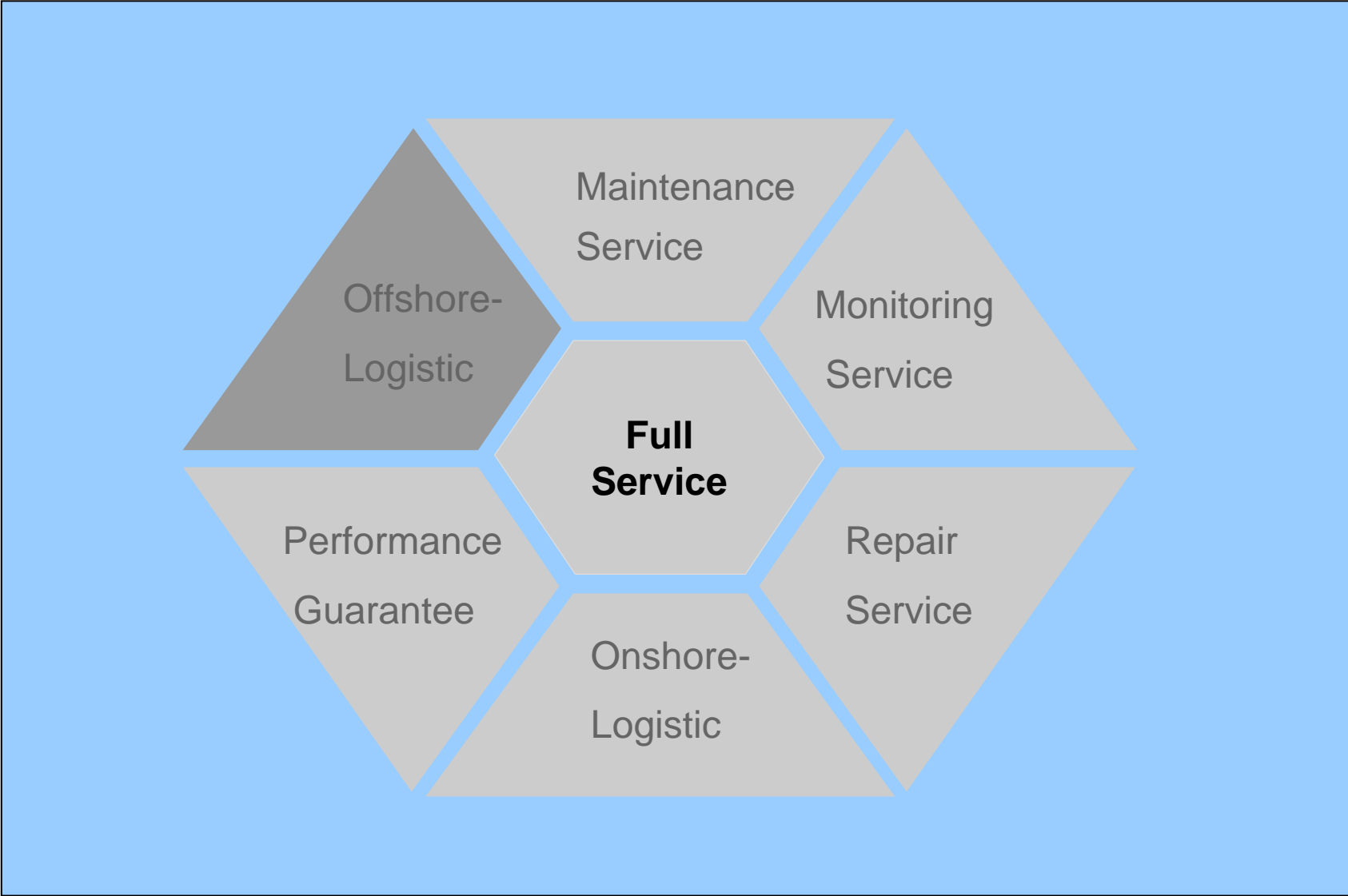


Service Organization of REpower

REpowers Service Organization



Full Service Concept of Repower



REpower Service centers follow REpower wind turbines

- ▶ Service centers at strategic locations to cover regional areas (e.g. Germany, UK)
- ▶ Service centers at the locations of large projects (e.g USA, Canada)
- ▶ Local contact for customers
- ▶ Short travel time for technicians to the project site
- ▶ Secured spare parts delivery on site

Service level

Level 1: Scheduled Maintenance

Level 2: Unscheduled and scheduled fault clearance; maintenance of special components

Level 3: Commissioning

Level 4: Special inspections

Level 5: Major overhaul

Maintenance Service = scheduled

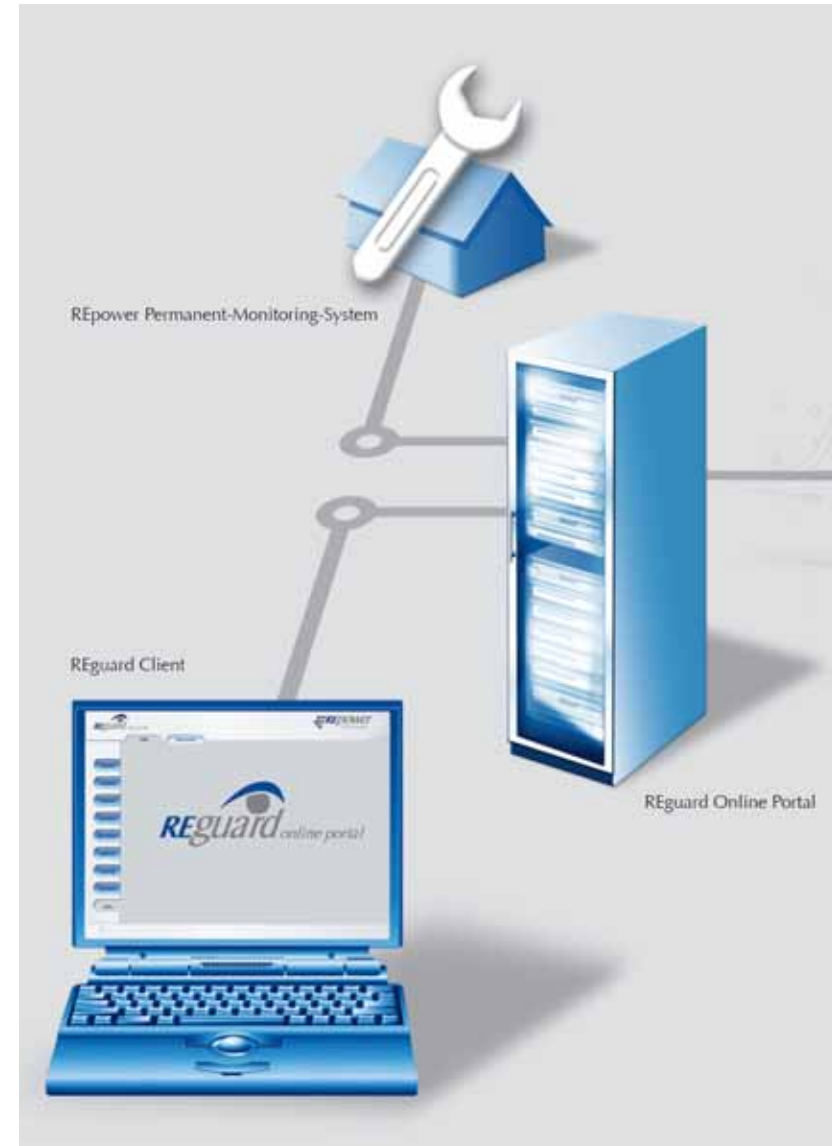


- ▶ Ensuring the nominal condition
- ▶ Visual, functional testing
- ▶ Various inspections (bolt connections, substances and consumables, lubricants and filters etc.)
- ▶ Minor technical adjustments

Monitoring Service



- ▶ 24 hours
- ▶ 7 days a week
- ▶ 365 days a year
- ▶ Check data connection (3x a.d.)
- ▶ Hotline/email for queries



REpower Repair Service = unscheduled



- ▶ Online rectification
- ▶ Repair or replacement of all components
- ▶ Delivery of large components
- ▶ Availability of spare parts, consumables and trained personnel
- ▶ Exceptions of the obligation to perform Repair Service e.g. Force Majeure, terrorism etc.



REpower advanced technicians



Resource scheduling 100 hours/WEC/year



Payment of expenses for support and trouble shooting based on actual use

- Technician
- Electric Expert
- Electric/mechanic Engineer
- Support/Software Engineer

- ▶ Specific REpower Wind Turbine maintenance training
- ▶ Training in REpower in house training center, including component specific training and fault simulation
- ▶ Validation of training by assessment scheme
- ▶ Multi-level training concept adapted to the requirements of the running turbine fleet

Reaction level on failure notice

Level 1: Permanent Monitoring System (PMS)

Level 2: Remote Emergency Service (RES)

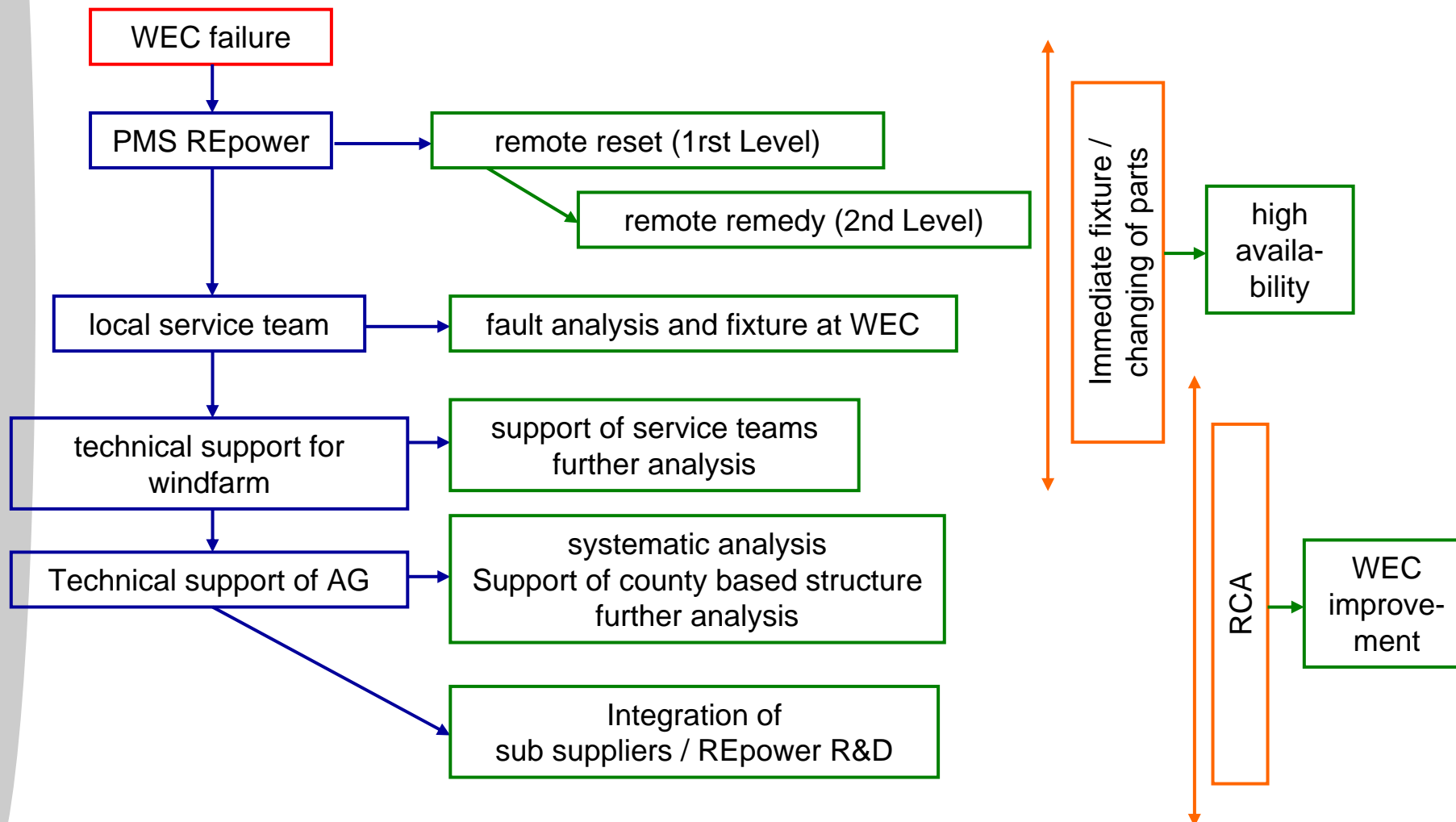
Level 3: on site emergency service (Operations)

Level 4: on site service (Operations)

Level 5: Technical Support (TS)

In case of failure, the turbine will automatically send an alarm message to PMS

Escalation levels for failure fixture on WEC:





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