ALECTRIS
SOLAR ASSET CARE INNOVATION.SM

Solar PV O&M Standardization

Brief history, current market and the future of solar O&M. The role of standardization.

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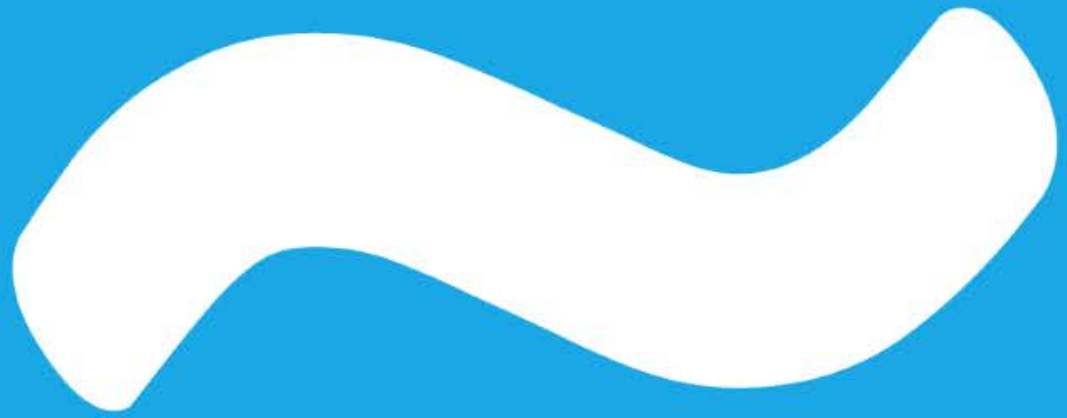
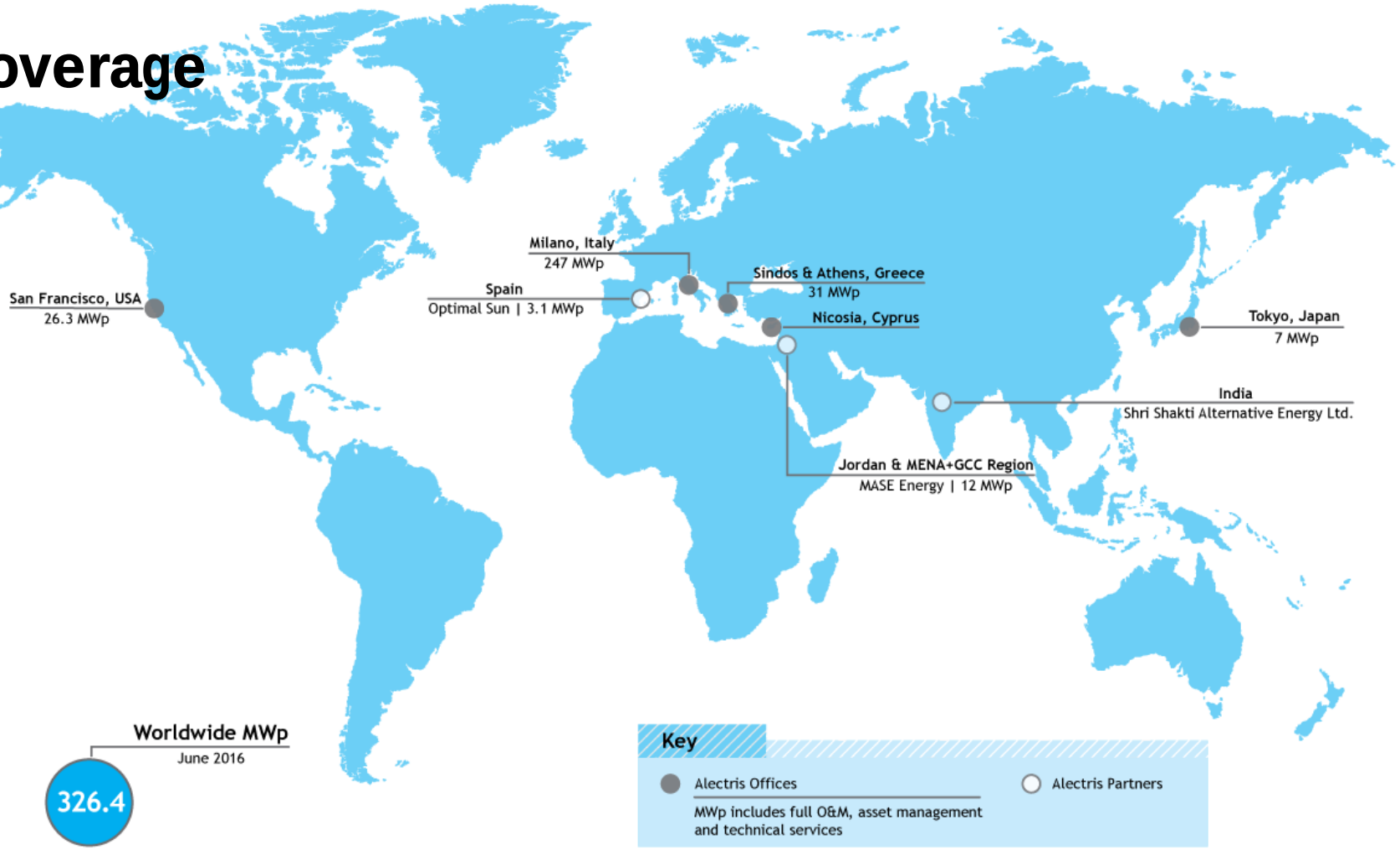


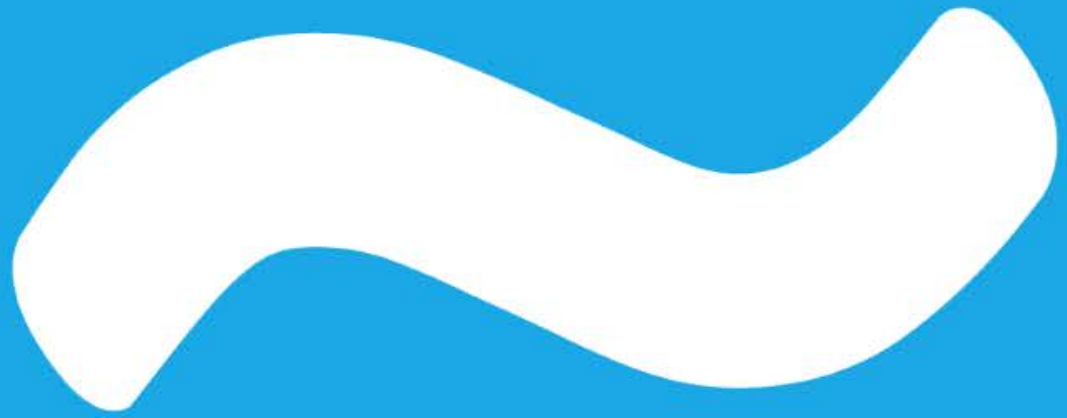
About Alectris

Alectris profile

- Alectris delivers asset care innovation for the global solar industry.
- With our integrated suite of products, services and award-winning software, we empower solar operators to increase plant productivity by providing one source for operations, maintenance and management support.
- With the aim of gradually improving the operational and financial performance of the PV investments entrusted to its services, Alectris has developed an advanced service organization infrastructure, monitoring tools and methodologies devoted to O&M, Asset Management & Improvement activities.
- Alectris is member of SolarPower Europe and Chair of the Best Practices Task Force

Global coverage





History of O&M

The early days

- No distinct market for O&M
- Solar PV geographically contained (mainly Europe)
- O&M perception:
  - A burden for EPCs
  - A pure cost center for Owners
  - A necessity for Lenders
- Small portfolios
- Sole focus on development and construction due to favorable FiTs

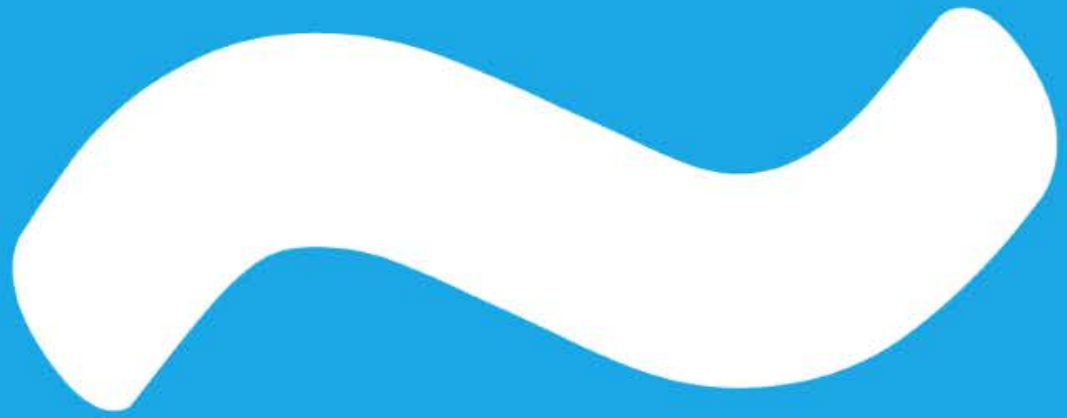
Market structure

- Balance sheet was key criterion
- Lack of long term experience
  - Over-simplified approach
  - Risks were not properly identified
- O&M tied solely to the EPC contractor
- Long term contracts
- No independent third party contractors
- Monitoring and software tools in general were not seriously considered

O&M Today

- Better awareness of the value of high quality O&M
- Some track record already exists
- Limited trust to contractors
- Lots of bankruptcies (e.g. SunEdison) but also newcomers
- Balance sheet not a major criterion any longer
- Large discrepancies in O&M definition
- Third party contractors – growing global market

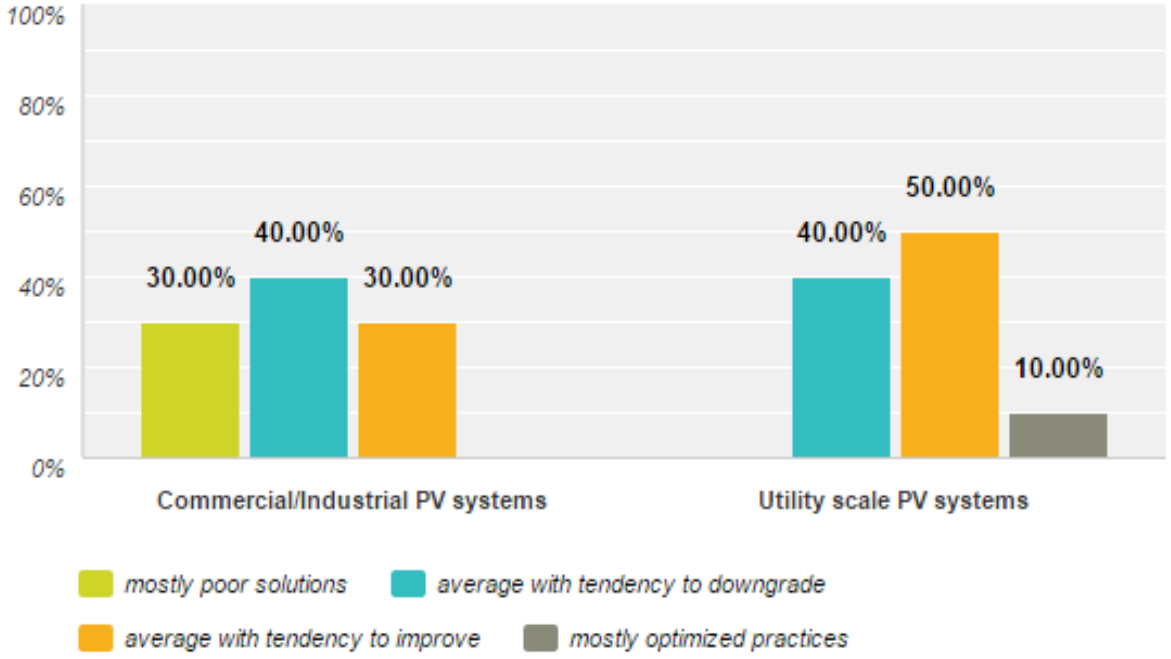
- Global growth of solar PV and hence O&M. Also in regions with zero track record and local knowhow
- Split between EPC and O&M
- Consolidation and growing portfolios local and global
- Evolved monitoring systems including portfolio reporting and activities management
- Solar O&M stand alone market is born. Market still very young and differences in (quality of) offering is huge
- O&M market consolidation (similar to all other solar PV markets)



Current challenges

Current practices

"Do you believe that solar asset owners tend to disregard effective and optimized O&M practices due to deterrent investments costs, adopting only the minimum requirements? (pls. consider the potential returns/value)?"

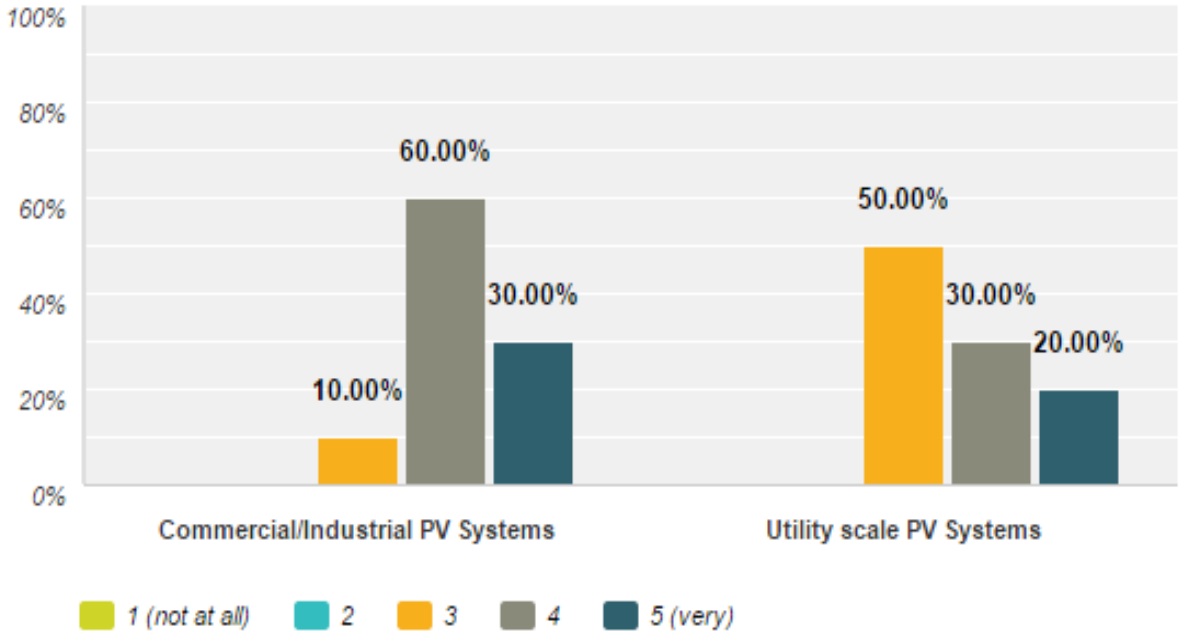


- Different picture between commercial/industrial and utility scale projects
- Better status for utility segment
- The strategy is affected by the country regulation (e.g. Spain where production efficiency doesn't pay)

Survey conducted by: SolarPower Europe

Room for improvement

"Is the room of improvement big concerning the practices included in solar O&M?"

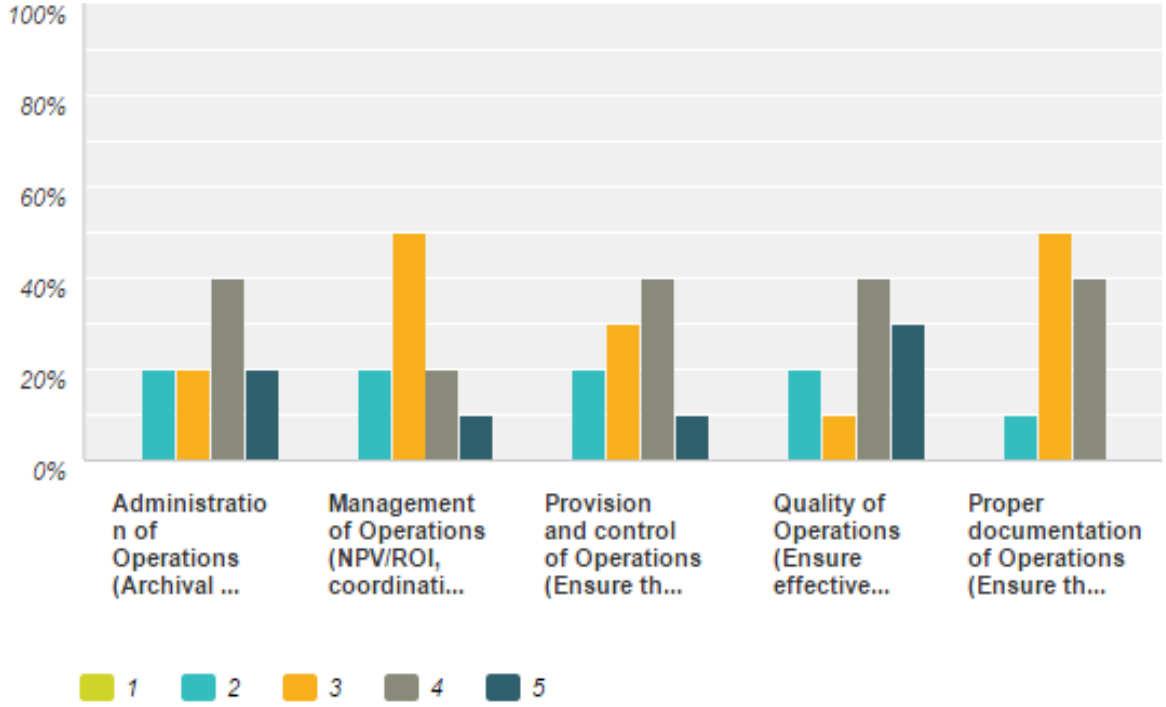


- Still enough to improve in terms of plant controls, meters, analytics, work management etc.
- More attention needed on the commercial/industrial segment
- Example for consideration: "Predictive monitoring and analysis"

Survey conducted by: SolarPower Europe

Areas of improvement

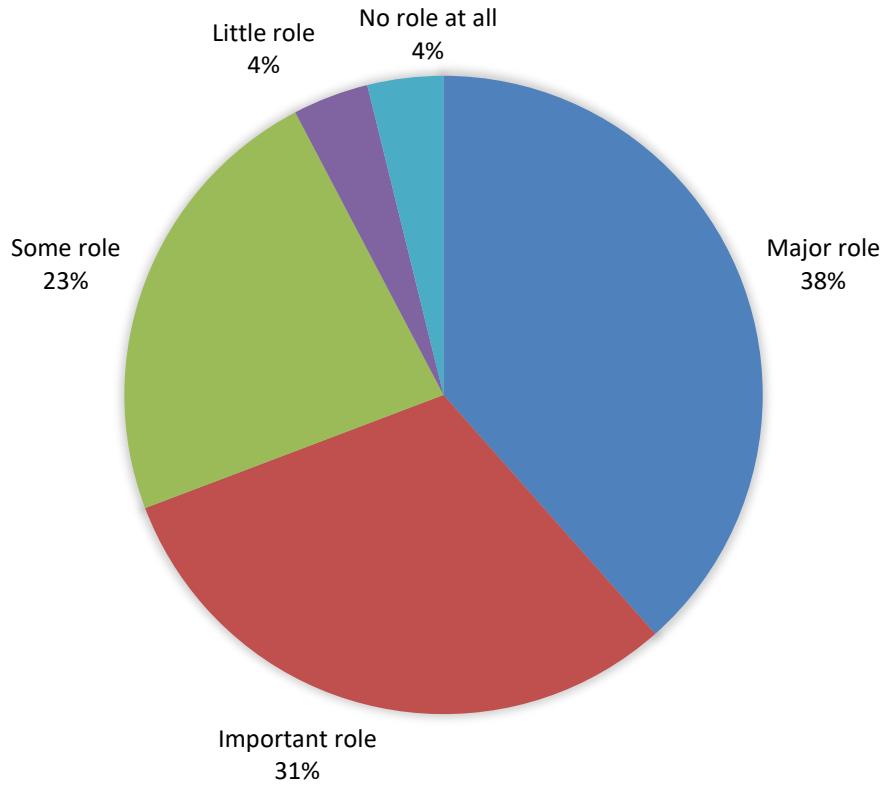
"In which of the following areas more attention and improvements is required? Pls. rank from 1 (no improvement needed) to 5 (much improvement needed)"

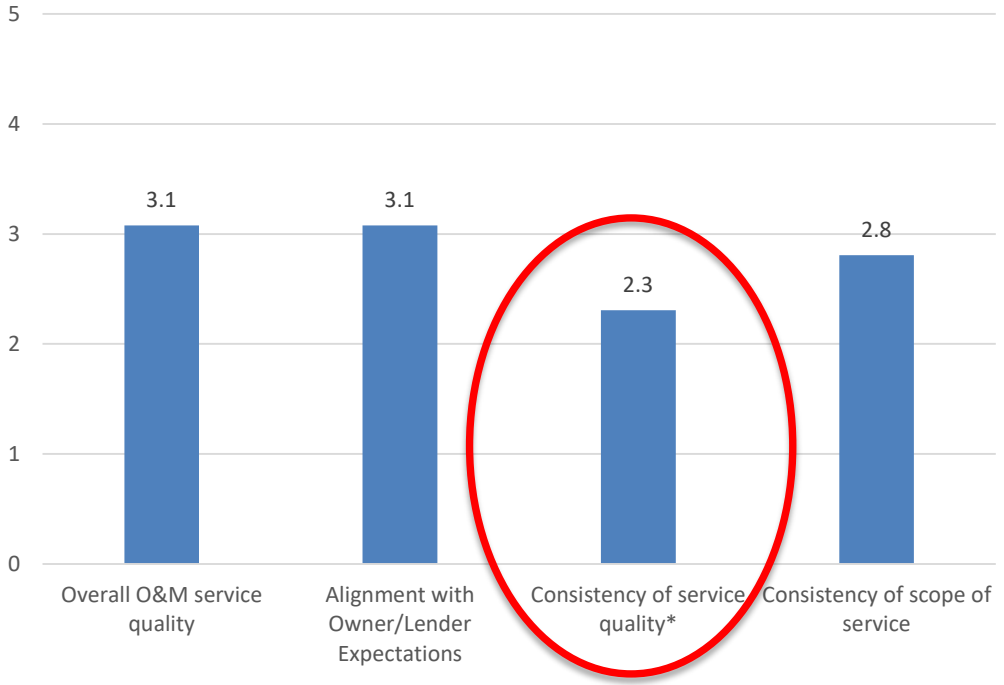


- All areas/steps require improvement
- More attention should be put on the quality of operations - **Ensure effective equipment monitoring and analytics**
- Equal attention to the administration, provision and control

Survey conducted by: SolarPower Europe

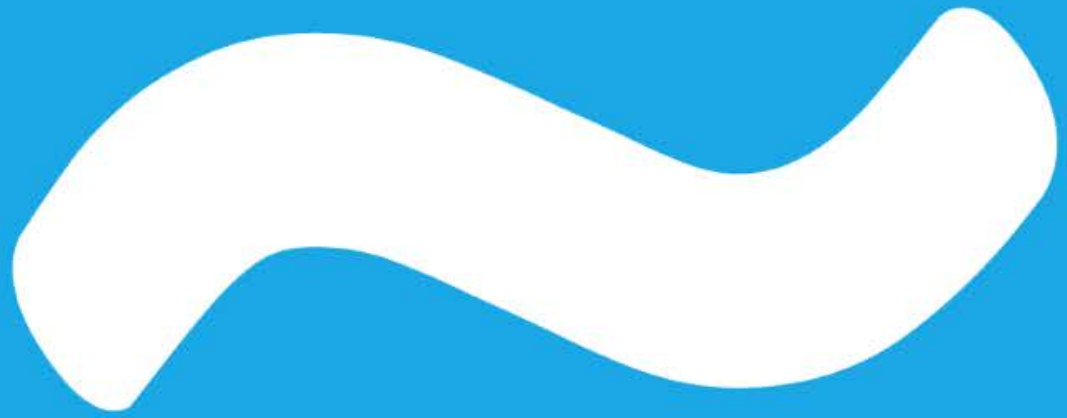
How important is O&M?





- Almost 70% responded that solar O&M is either **important** **or** **very important**
- Main Concern: **Consistency of quality**

Survey conducted by: SolarPower Europe



O&M in the future

O&M in the future

Global market

Solar O&M is a true global market (investment in emerging markets higher than developed markets)

Independent contractors

Established third party O&M market with track record. Track record instead of balance sheet is key

Standardization

Best practices to increase quality of services. Clarity and consensus from all stakeholders leading to increased and healthy competition

Plant management evolution

Evolution from Plant monitoring to Portfolio management – high complexity more difficult to manage

- Cost reduction and rationalization
- Efficiency
- Transparency
- Contractors need to master more skills besides maintenance:
  - ✓Technological solutions
  - ✓Operational excellence
  - ✓Engineering skills
- Software tools need to keep up with the market evolution

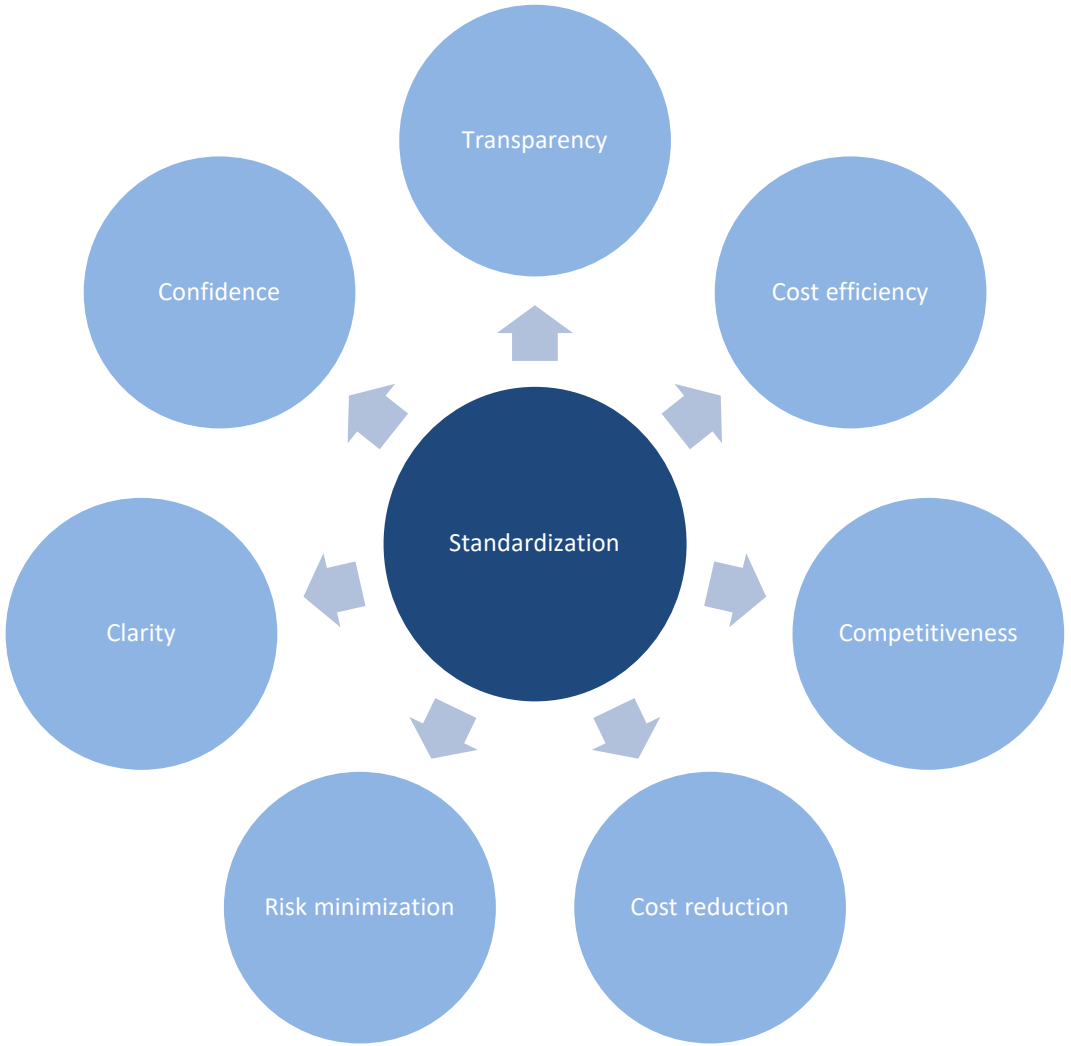
What is Standardization good for?

Standardization defines **HOW** and less **WHAT** actions are taken, while at the same time listing a **minimum set of activities**.

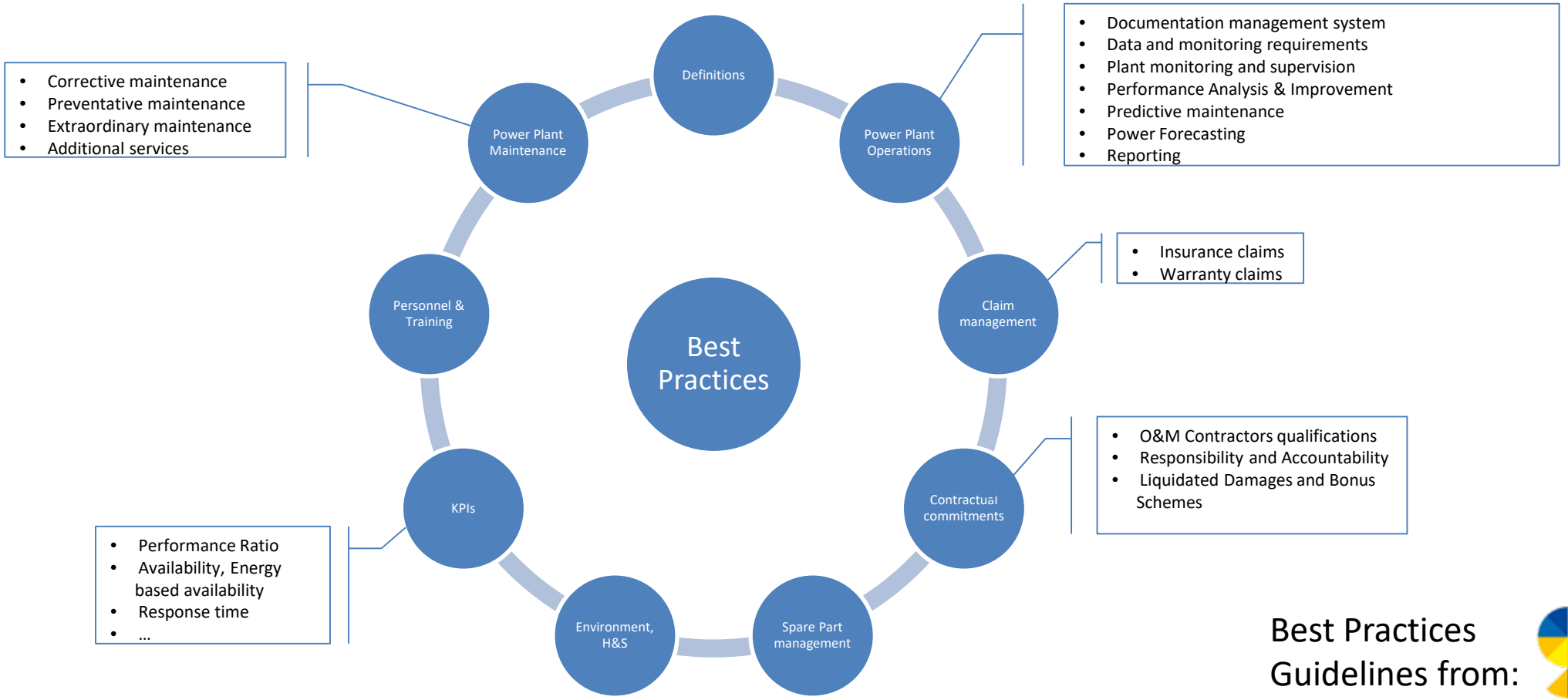
Standardization is a key element for the maturation of the O&M market

- Increases confidence and transparency
- Lowers costs and risks
- Allows for easier entry in the market (new investors)
- Facilitates transactions

Experience has shown: Industries that managed to standardize experienced exponential growth



Best Practices as the foundation of Standardization



Best Practices Guidelines from: SolarPower Europe

The path from SolarPower Europe Best Practices to Standardization

Revision of first draft – incorporate additional comments from new experts

Extend the scope of work – **Lead the work of IRENA/TWI on creating contract template for O&M**

Potentially create country annexes to touch upon local specifics

- EU funded project Solar Bankability - reducing the risks associated with investments in PV projects
- TWI/IRENA solar standardization initiative

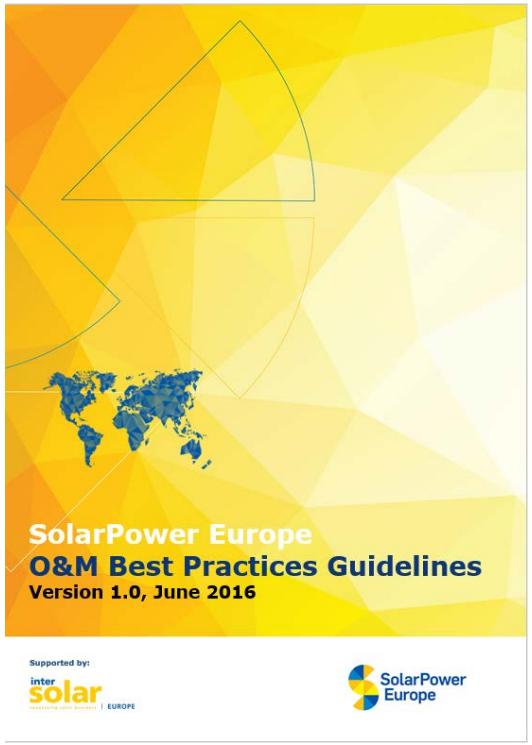
Stakeholders to endorse and adopt SolarPower Europe Guidelines – create common reference

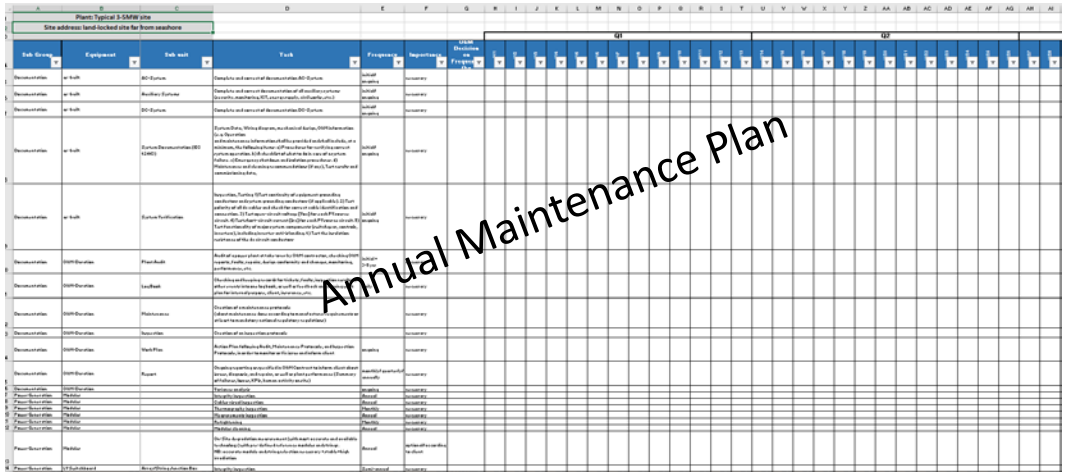
Seek synergies with national initiatives – address local requirements

Influence on-going work and projects

Dissemination – increase outreach and consensus inside and outside of Europe

Materials available





You may download both files from SolarPower Europe website:
http://www.solarpowereurope.org/what-we-do/member-activities/operations-and-maintenance-task-force/
or contact me or any team member from SolarPower Europe

Question to the audience

Should the ultimate goal be Certification?