

ALECTRIS

SOLAR ASSET CARE INNOVATION.SM



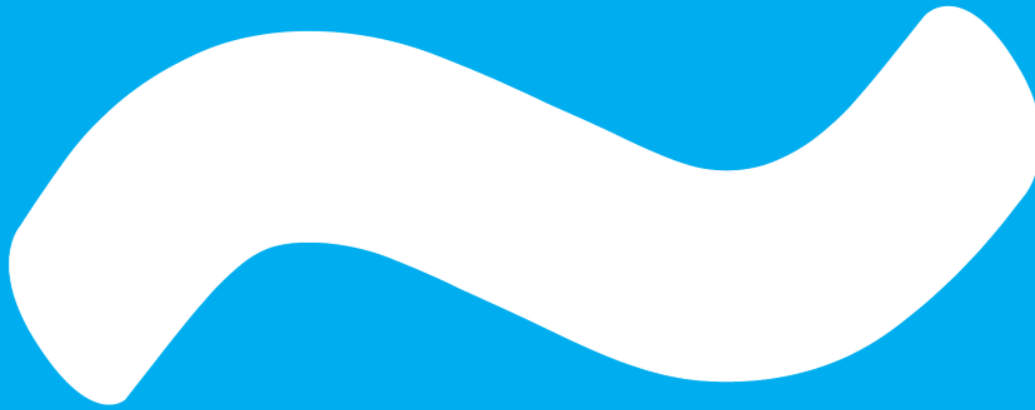
Redefining Solar O&M

How Will Solar O&M Look Like in the Future?



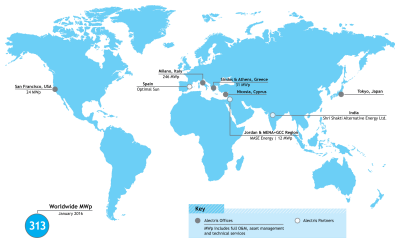
Contents

- About Alectris
- The early days of O&M
- O&M today
- Future requirements
- Supporting initiatives (SolarPower Europe)



About Alectris

Corporate profile



ACTIS



- 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.



Key



Alectris Offices



Alectris Partners

MWp includes full O&M, asset management and technical services

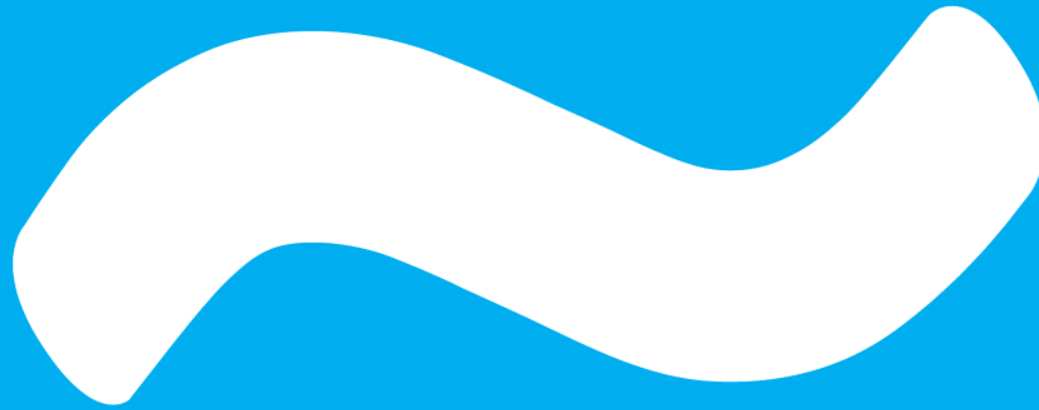


Affiliations & Memberships



Member of Task Force Best Practices Guidelines for O&M





The early days of O&M

The early days

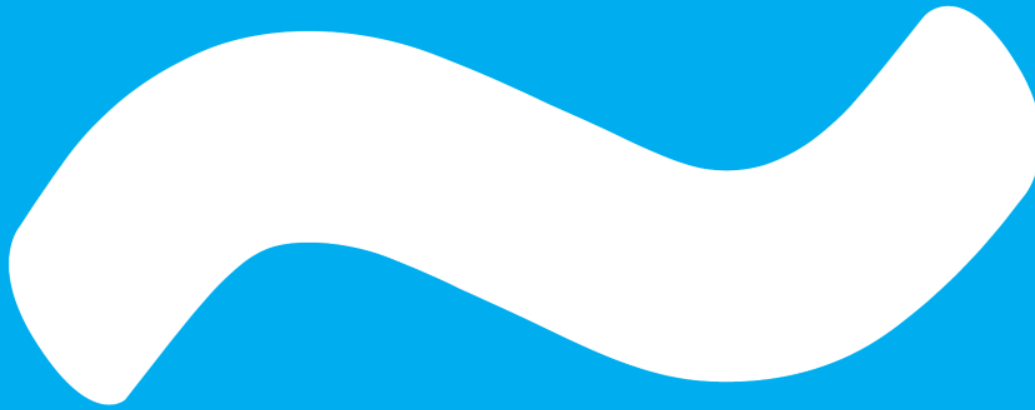
- No distinct market for O&M
- Solar PV geographically contained (mainly Europe)
- O&M perception:
 - A burden for EPCs
 - A pure cost center for Owners
 - A necessity for Lenders
- Small portfolios
- Sole focus on development and construction due to favorable FiTs





Market structure

- Balance sheet was key criterion
- Lack of long term experience
 - Over-simplified approach
 - Risks were not 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



O&M today

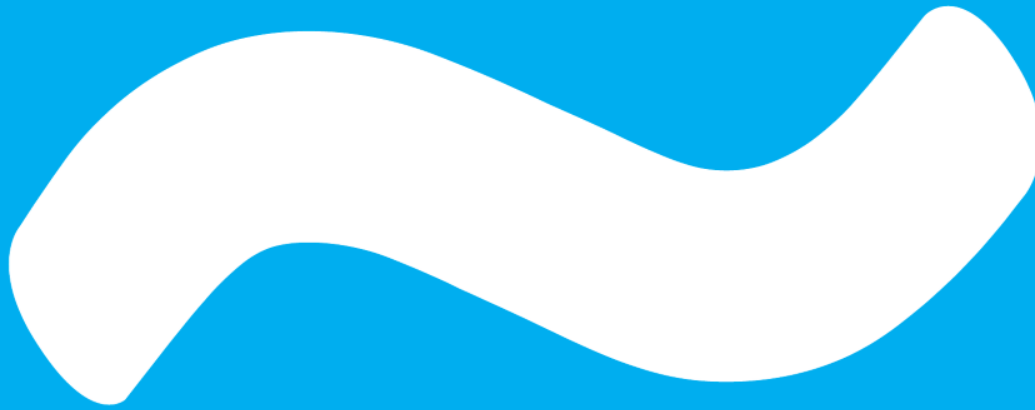
- Better awareness of the value of high quality O&M
- Some track record already exists
- Limited trust to contractors
- Lots of bankruptcies (e.g. SunEdison) but also newcomers
- Balance sheet not a major criterion any longer
- Large discrepancies in O&M definition
- Third party contractors - growing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





O&M today

- 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)



Future requirements

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

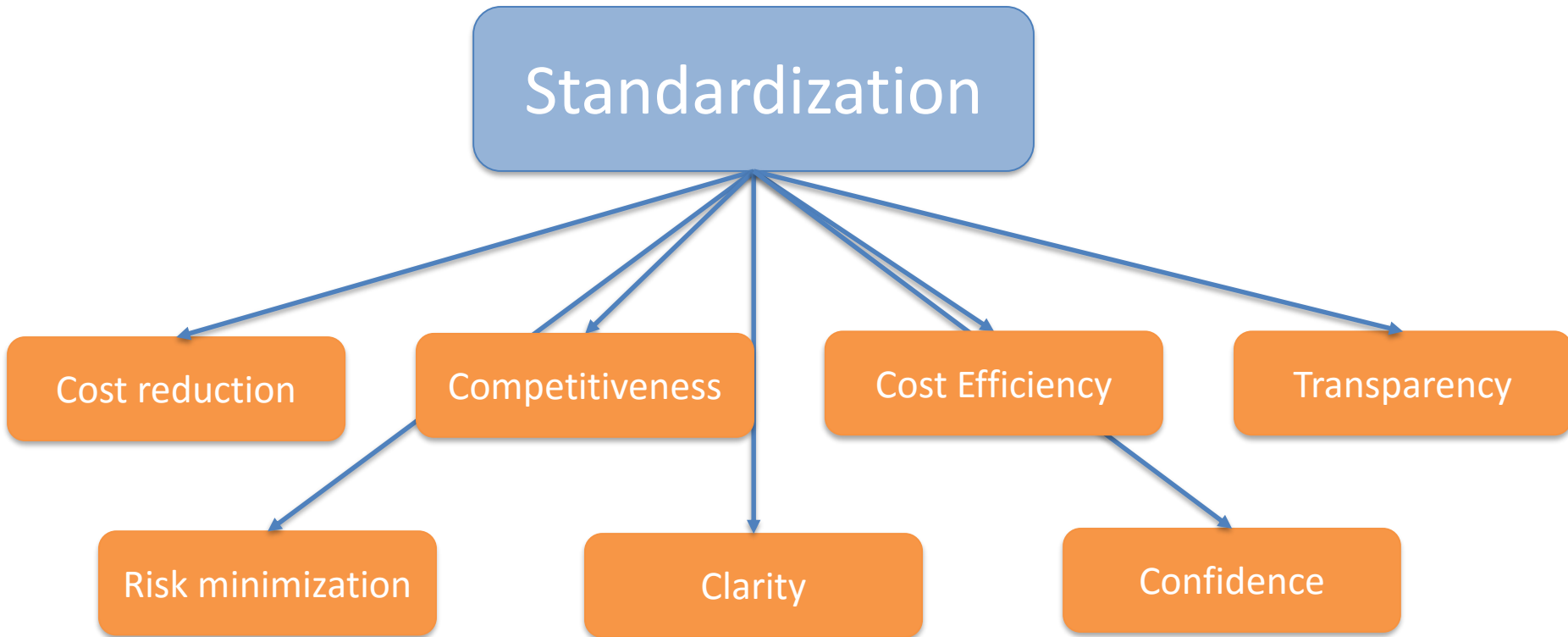
Challenges

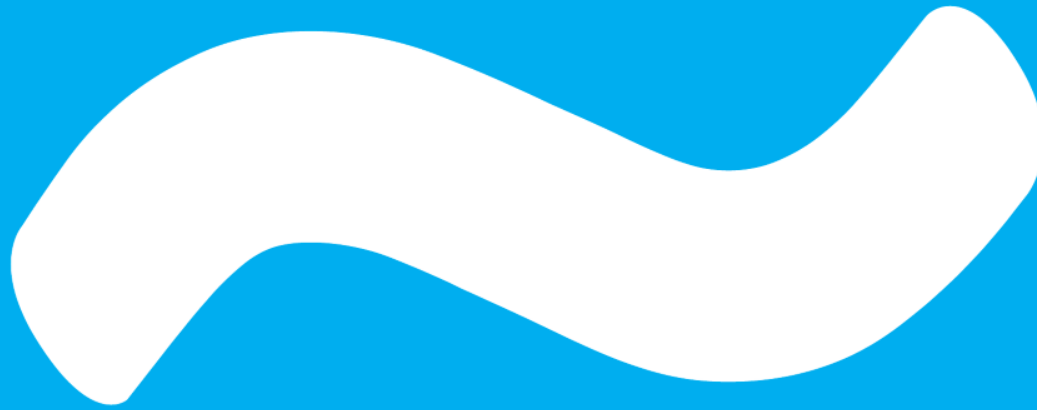
- Cost reduction and rationalization
- Efficiency
- Transparency
- Contractors need to master more skills besides maintenance:
 - ✓ Technological solutions
 - ✓ Operational excellence
 - ✓ Engineering skills
- Software tools need to keep up with the market evolution



Future predictions

Standardization is key





Supporting initiatives



O&M Task Force



- Create a first version of important industry-led guidelines
- Identify minimum requirements for O&M – quality benchmark
- Provide in cases best practices
- Clarify roles and responsibilities of different stakeholders
- Strive for business relevance (reality check)
- Facilitate and stir the discussion among the experts and relevant stakeholders
- Better understanding by investors, owners and primary stakeholders
- Acknowledge O&M as part of the industry that can maximize ROI and bring profits and NOT as cost
- Increase consensus – create EU de facto standards (e.g. inputs for certification scheme for PV O&M personnel)
- Ensure high performance levels (technical and economical)
- Increase bankability, especially in emerging solar markets
- Professionalize our industry

By SolarPower Europe

ALECTRIS



SolarPower
Europe

O&M Task Force

Technology providers

Institutions &
Standardization Institutes



Investors & banks

O&M companies

By SolarPower Europe

End users/Owners/IPPs

Component manufacturers

Grid operators

Utilities

Technical Advisors

EPCs

Asset managers

Supporting initiatives



Coordinator

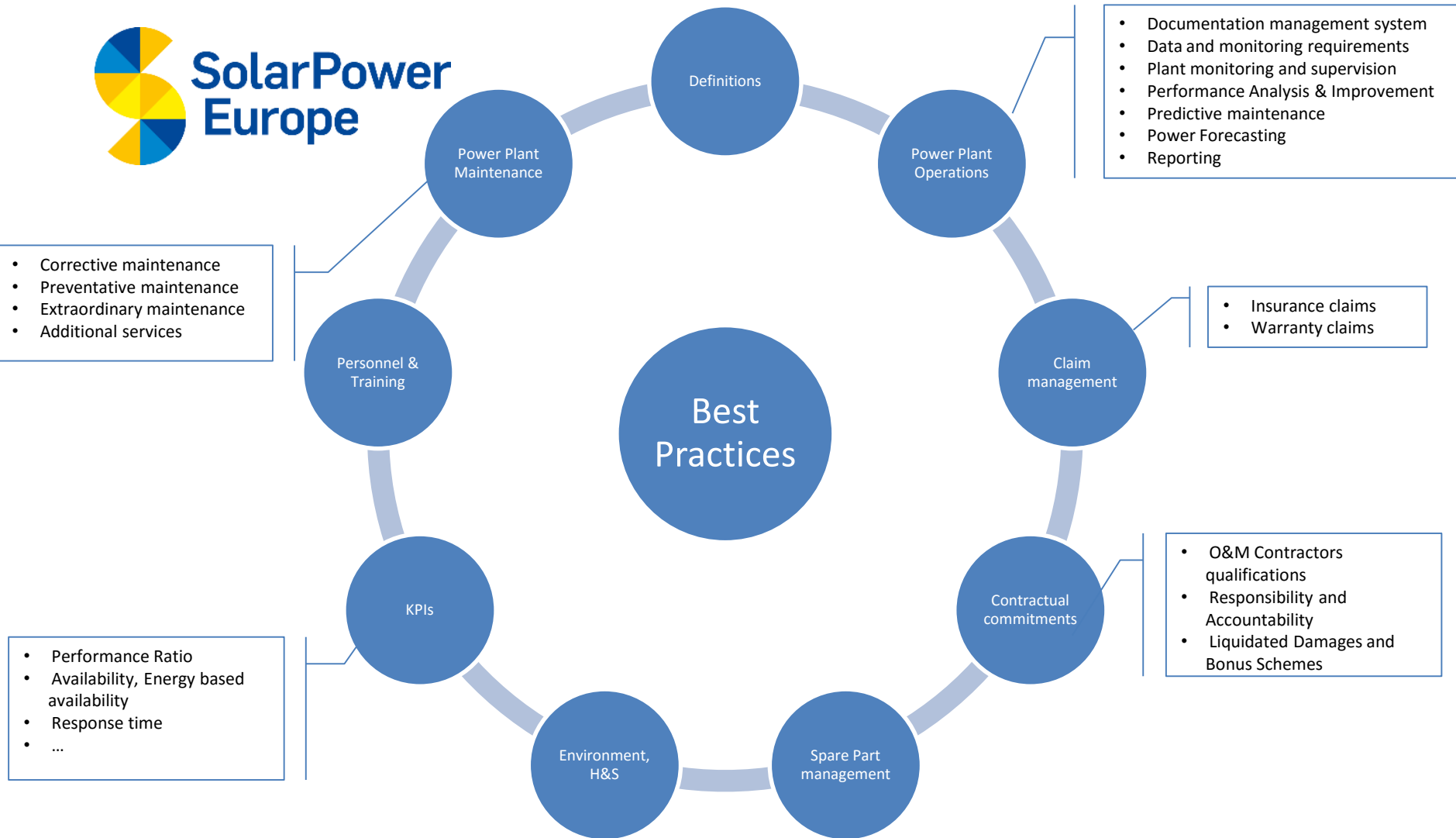
Task Force Leader



Members



Supporting initiatives



Your Alectris Team



Emanuele Tacchino
emanuele.tacchino@alectris.com
Western Europe & Middle East
Mobile: +39-342-8835856



Makis Tzierakis
makis.tzierakis@alectris.com
Eastern Europe & Africa
Mobile: +30-6936-172152



Laks M. Sampath
Laks.Sampath@alectris.com
US & LATAM
Mobile: +1 415 299 9991



Vassilis Papaeconomou
v.papaeconomou@alectris.com
Global Managing Director
Mobile: +30-6944-464679
Direct: +30-2311-998698

New! The Solar O&M Insider Podcast Series

Connect with Us Online



Subscribe to Our Solar O&M Insider Newsletter

ALECTRIS

SOLAR
O&M
INSIDER

PODCAST