SeaVolt[®]

Offshore PV



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Offshore PV

1. Challenges

2. Consequences

3. Lessons learned: SEAVOLT test installation



1. Challenges

A. Soiling & fouling

B. Offshore reliability

D. Anchoring & mooring

E. Cabling

F. Fabrication



A. Soiling & fouling – PV panels





A. Soiling & fouling – Floating structure







B. Offshore reliability - Movements











B. Offshore reliability – Electrical components







B. Offshore reliability - maintenance operation







C. Anchoring & mooring







D. Cabling







E. Fabrication







2. Consequences



- 1. Impact on light absorbance due to accumulation soiling
- 2. Risk for heat spots leading to potential damages and fire hazards
- 3. Weight increase leading to imbalance

Offshore reliability



- Impact on functionality due to movements, vibrations & offshore enviroment
- 2. Mutiple connection that can come loose
- 3. Risk for fire hazards and electrocution

Fabrication



- Large floater surface requires large fabrication & storage capacity
- 2. Slim floater, mooring & cable design required to reduce price impact
- 3. Lot's of different materials used.



3. Lessons learned – SeaVolt test installation

Foto's toevoegen Xavier



- Active cleaning
 - Manual cleaning
 - Robotic cleaning
 - Brushers
 - Water jets
 - Aerial drones
- Passive cleaning
 - Rain and wind in combination with inclination
 - Anti-soiling/photocatalytic coatings
- Remote monitoring



3. Lessons learned – SeaVolt test installation



- Testing of different PV technology setups
 - Glas-Glas
 - Glas-insulation-Glas
 - Aluminium frame
- No damage yet from wave slamming due to sufficient space between surface and PV panels
- Limited salt deposit on PV panels



3. Lessons learned – SeaVolt test installation





- No electrical parts that have come loose
- All electrical assets (control box, battery etc.) are well protected from seawater
- All structural frames and secondary steel infrastructure are well protected from seawater



3. Lessons learned – Status offshore PV technology









Workgroup 1 PV fouling







Workgroup 3 Fabrication & recycling





Seal

