1e attentions/ Action perspective

Action perspective at fires

1. Explore incident location and choose a deployment tactic (indoor, outdoor, offensive, defensive)
2. In case of an indoor deployment: switch off the meter cupboard if possible. Pay attention to loose wiring around inverter and roof, do not touch them. With a dry extinguishing suit and dry extinguishing gloves, you are already sufficiently protected against the danger of electrocution.
3. In case of an outdoor deployment: extinguishing of the solar panels. Watch for falling parts as a result of the fire.
4. Always use the following distances: extinguishing live parts (solar panel, wiring, inverter): when spraying min. 0.5 meters distance and with bound radius min. 1 meter away

Note: assume that there is always voltage on the solar panels.

Genaral

Various shapes and sizes possible:

- Processed in the roof or on the roof.
- Alternatives: - noise barrier.
- Incorporated into façade cladding.
- Solar parks (with transformer house).
- Number of solar panels:
  - Small-scale application > private > small businesses > not being industrially expected voltage max. 1000V.
  - Large-scale application > e.g. solar parks > companies with large numbers of panels on the roof > industrial application Voltage possible up to 1500V.
- With large numbers of linked panels, do not come to the installation without expertise. You can always switch off i.o.m. operator/network operator
- Solar panel is always part of a larger system (cabling, inverter, meter cupboard and possibly Electric Storage System (ESS).
- ESS is storage by accu pakkages

Safe operation

- Damaged, melted, falling or loose panels: can be under tension. Be careful with wet clothes and gloves. A dry extinguishing suit with dry extinguishing gloves provide sufficient protection, if desired use 1000V insulated gloves.
- Risk of arc flash due to short circuit, burning away, disassembling cabling or cutting cabling.
- Use standard breathing air, 1000V gloves and insulated cable scissors suitable for min.1000V AC and 1500V DC in connection with sparking or arc flash.
- Glass breakage gives a chance of cuts.
- Solar panels also occur in combination with solar collector (hot water system > 70 degrees Celsius).
- A hybrid inverter is linked to a battery that in some cases continues to power the inverter when switching off the meter cupboard, the system then remains in operation!

Dangerous situations

- Follow flowchart on page 3
- If it is not necessary, do not remove panels and do not pull or cut connectors.

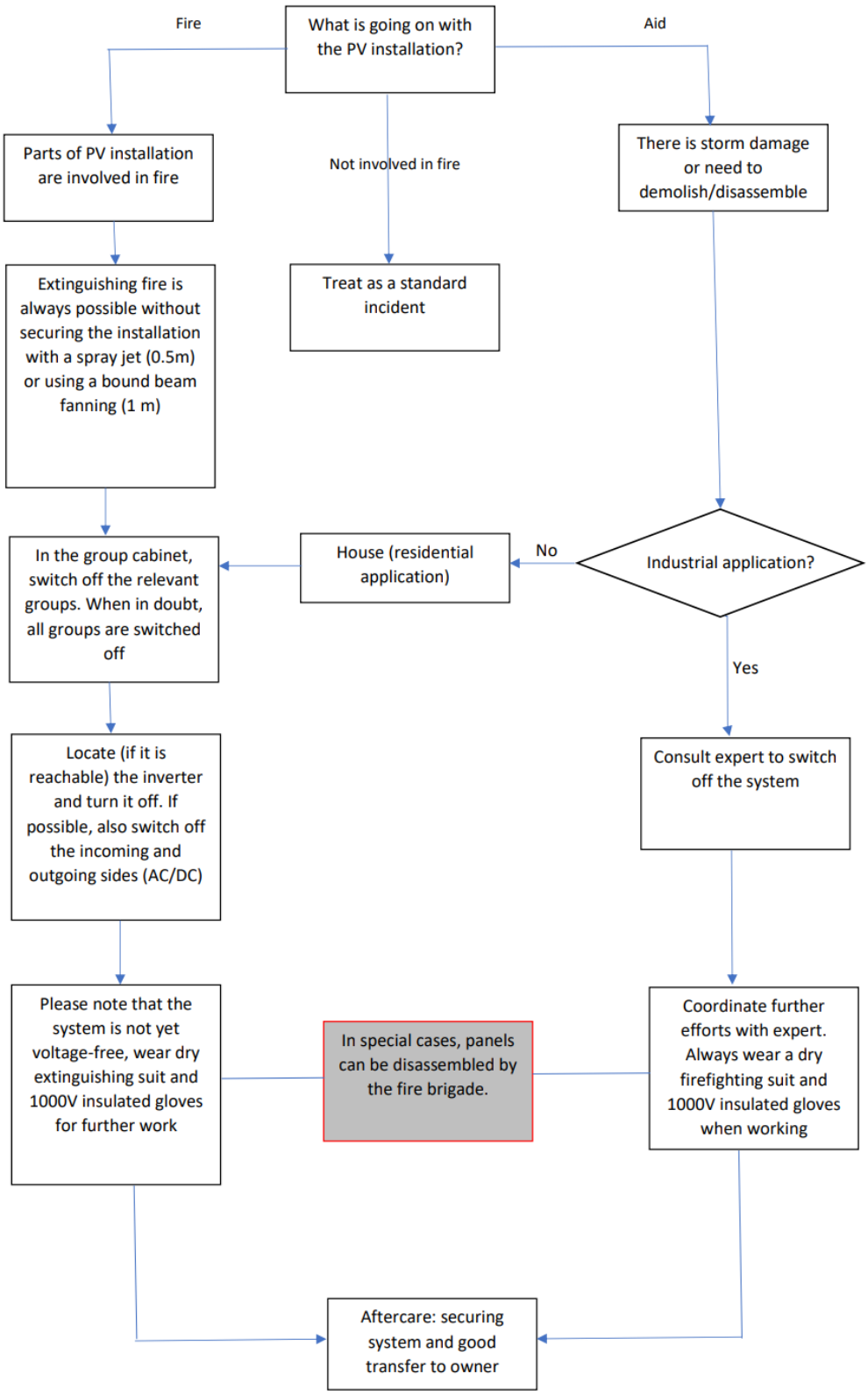
Scenario FIRE

- Switch off the system (group cabinet and inverter)
- Use spray jet or bound jet by "fanning" (A spray jet does not conduct current and a bound beam disintegrates at 1/3 of its throw length and therefore no longer conducts.
- Use standard breathing air protection and follow the occupational hygiene procedure.
- Is demolition necessary? See scenario Aid >

Scenario Aid: Securing / removing solar panels

- **Remove panels with small numbers of solar panels or up to 1000V:** Switch off the system (main switch, inverter and any intermediate switches). Use standard breathing air, dry PPE and possibly 1000V gloves. The connectors can be disconnected with special tools or the cables can be cut with a suitable cutting pliers**.**
  Removing panels with large numbers of solar panels: first consult (company) expert (i.v.m. larger capacities up to 1500V DC) for correct PPE. Turn off the system. Use standard breathing air and dry PPE, 1000V gloves. The connectors can be disconnected with special tools or the cables can be cut with a suitable cutting pliers. When providing access between solar panels, > cut the cabling of panels one by one (= making incident small).
- Larger cable routes under no circumstances cut in combination with high currents > up to a hundred amps or more. These can be recognized by thicker cables than normal and by the combiner boxes (control cabinets where different strings of solar panels come together).

Aftercare phase: Takes into account re-inflammation. Have the object secured. Ensure safety transfer to owner.



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