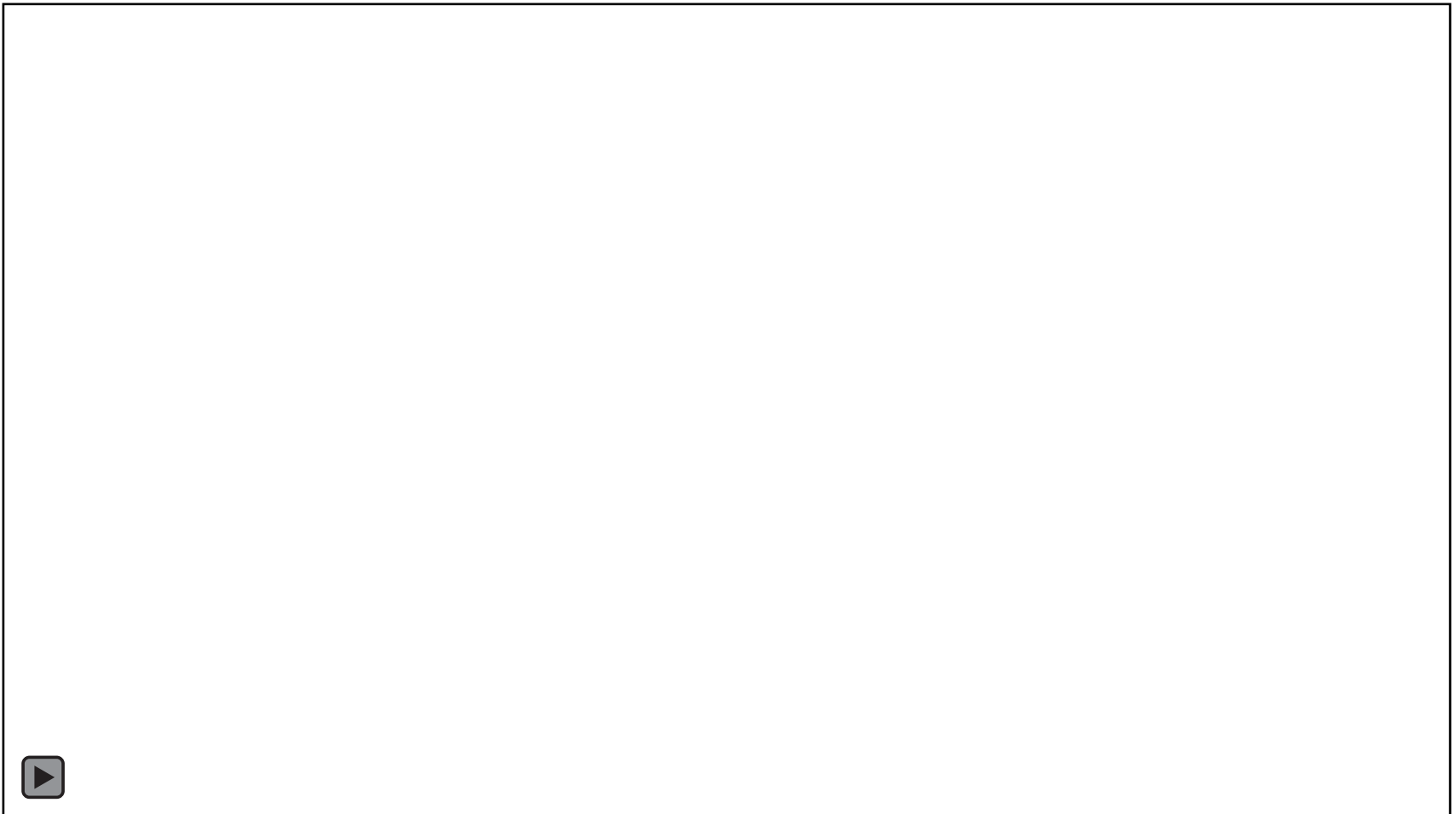


Flickering lights - What happens when flicker

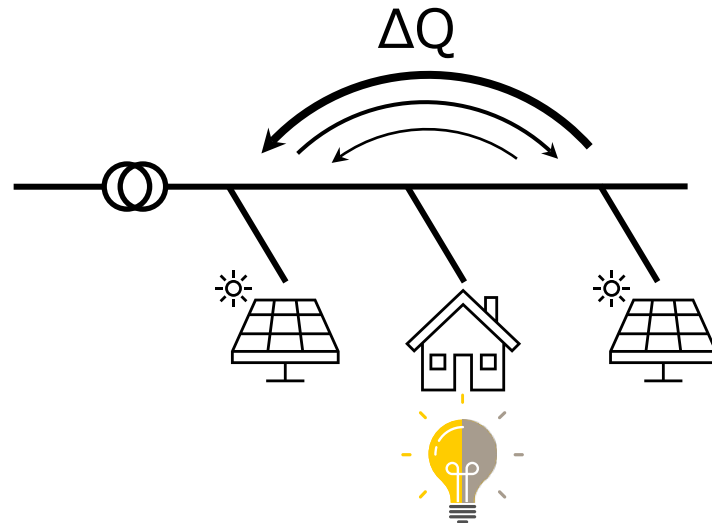
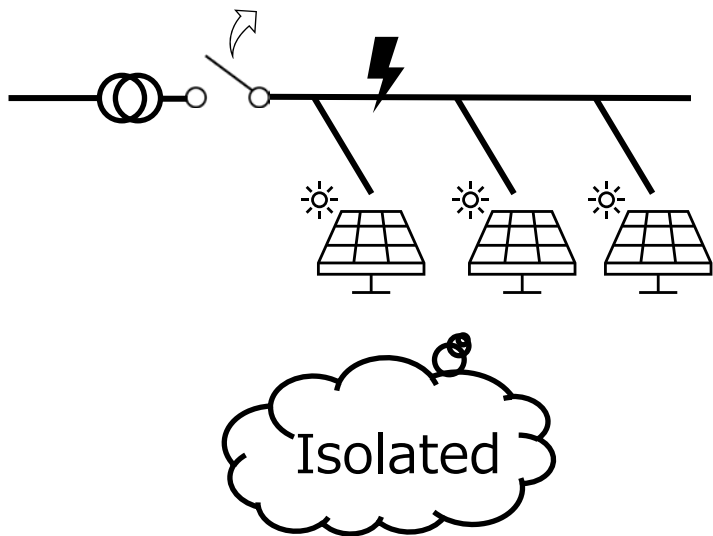
- Lights flicker or blink where PV interconnections are dense.
- Q outputs from PV PCS raise and drop voltage periodically, which is flickering as a phenomenon.



Flickering lights - Why does flicker happen?



- Implementation of isolated detection is required by Grid-interconnection Code which is based on ministerial ordinance
- The recent Isolated detection method enhances frequency deviation by reactive power output.
- When each PV PCS's reaction (Q output) synchronize and did not converge to 0var output, it develops into a flicker.



Flickering lights - Countermeasure for flicker

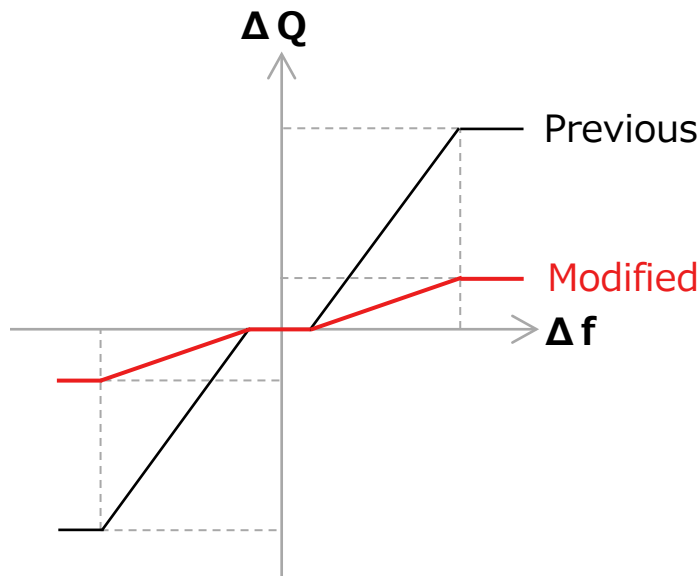
- Introducing specification modified PCS would remove the cause of flicker.
- STATCOM are being introduced as an immediate measure until all existing PCS are modified.

Radical Measure

PCS modification

Reduction of the Q outputs

Flicker detection to stop Q output



Immediate Measure

STATCOM introduction

Offsets excessive Q deviation

