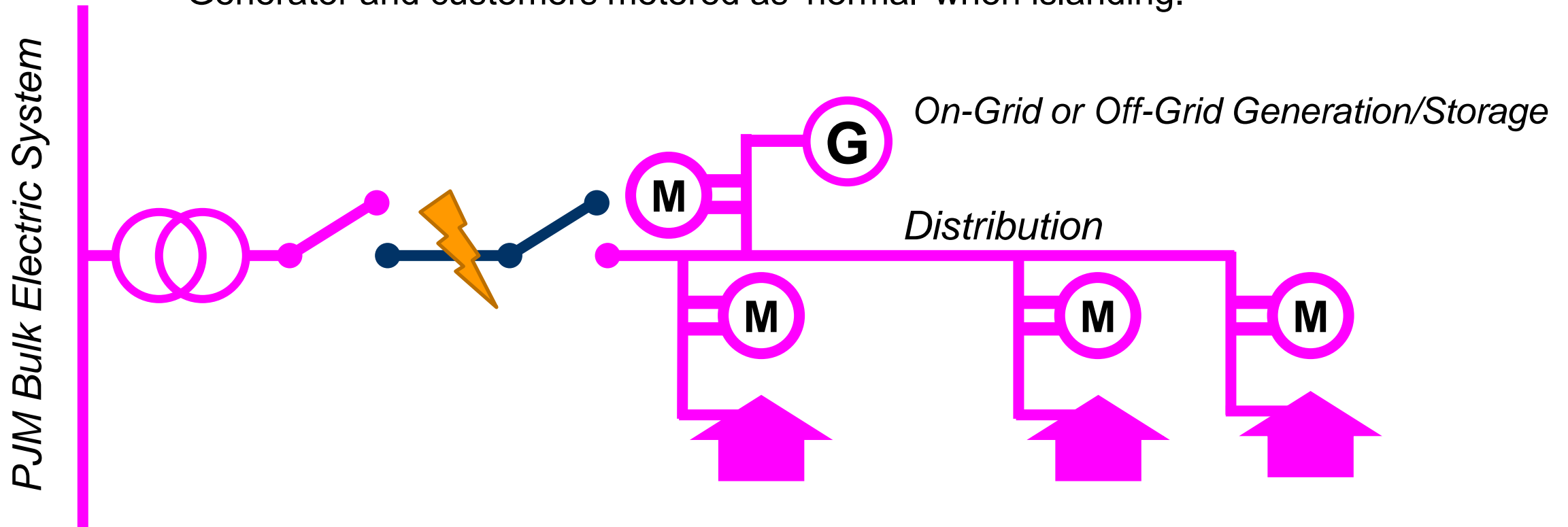


# Utility Microgrids

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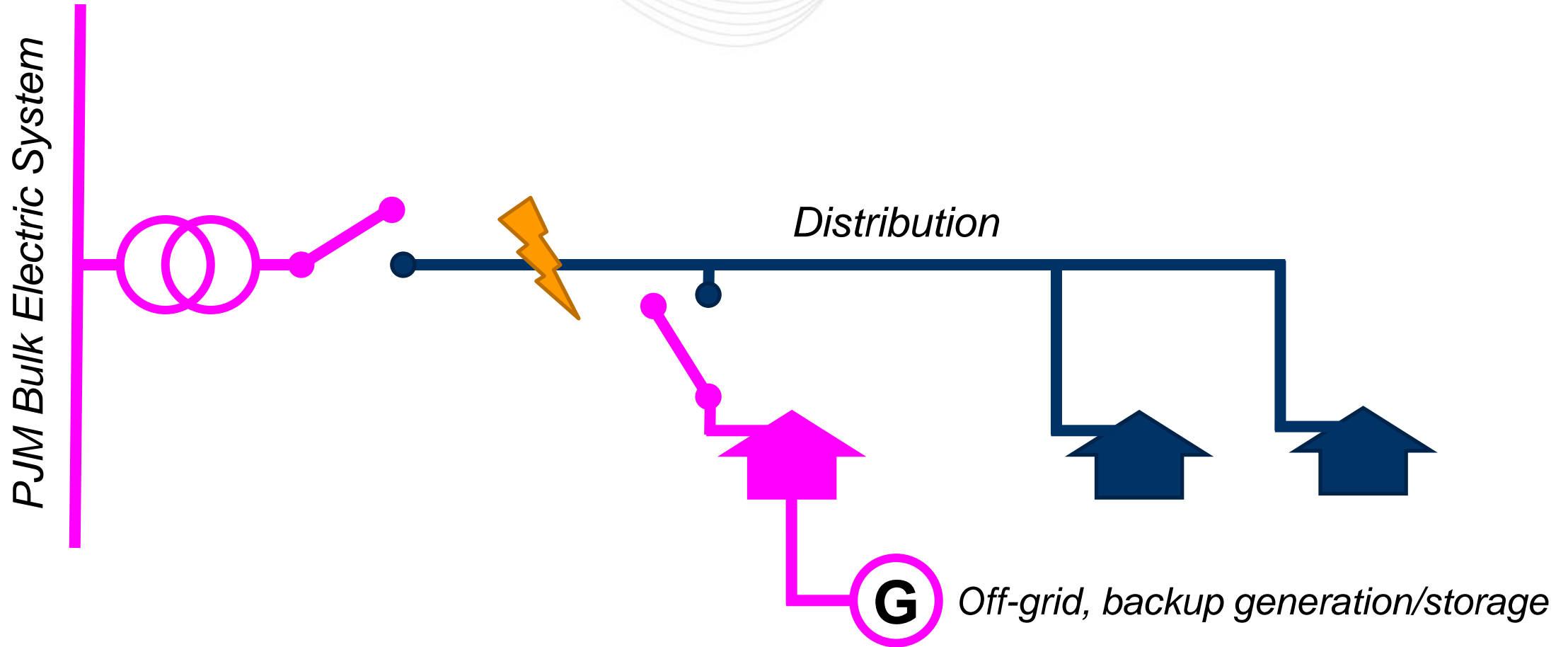
DERS – March 4, 2019

- A 'utility microgrid' uses utility-owned wires to serve load during islanding.
- Generator is PJM wholesale.
- Not a PJM-defined term (not in Tariff or Manuals)
- Generator and customers metered as 'normal' when islanding.



# What it is NOT: Private Emergency Backup Generator

- Example: House, hospital, university or other private 'campus'



- During grid connected mode, front-of-meter generation dispatch will occur.
  - Can microgrid be dispatched by PJM off-cost to address distribution system reliability needs?
- When islanded, Generator is as a 'normal' PJM Generator, but is no longer available for dispatch or reserves.
  - Is this a forced outage?
  - How does the generator indicate off-grid status to PJM? New gen status? eGADS? eDART? Call PJM Operator?
  - In island mode, generation will operate to match load. Deviates from previously sent PJM set point.
- Should there be PJM restrictions on when the microgrid is allowed to operate in island mode?
  - Distribution system outage situation requiring islanded operations only?
  - PJM emergency situation as part of a load shed plan?
  - Other types of emergency declarations – state/federal?
    - How to define these ahead of time?
  - Economic islanding?
- How should microgrid load and generation be modeled in the EMS, especially when in island mode?
- Additional telemetry needs? For example, relay status to determine microgrid status?

- Can wholesale microgrid generator be a Capacity Performance resource?
  - How are Performance Assessment Interval events handled if in island mode?
- How is “off-cost” operation during islanding handled?
- Is islanded utility microgrid load that PJM settles considered served by PJM as part of RTO load?
- Congestion impacts of islanding
- Should additional market parameters be considered for island vs. grid connected mode?

- Any adjustment to contingency planning?
- Additional information requirements needed to perform Interconnection Analysis, such as relaying and protection?
- What happens if another generator wants to connect to a distribution facility that is part of the utility microgrid?
  - Special requirements for that generator to interconnect?
  - Potential for that interconnection to be FERC jurisdictional due to prior wholesale sales?

- Your feedback today and between now and the next meeting
  - What additional questions do you have? What's missing?
- Document interests
- Provide a distilled view of where we think real gaps exist
- Agree on gaps that need to be addressed, and develop a proposal to address (CBIR or proposed manual changes)