

# DER Interconnection

MIC DER Session  
November 6, 2017

# Scope and Goals

- Update to proposal made at August meeting
- Addresses resources located behind a retail meter.
- Aim is to simplify as much as possible.

Interconnection should take weeks, not years.

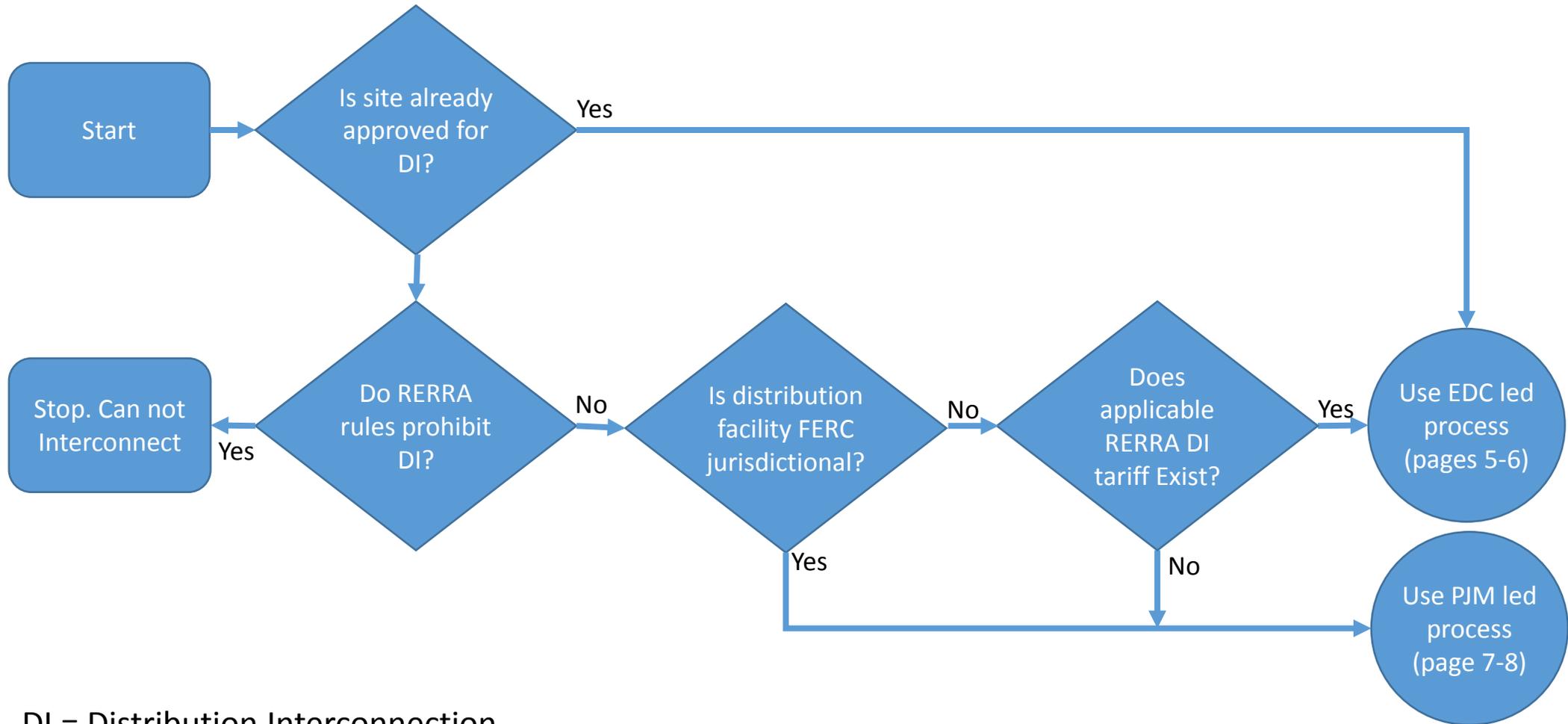
# Approach

- Respect and clarify jurisdictional boundaries.

	Distribution System	Transmission System	Wholesale Market
EDC	✓		
TO		✓	
PJM		✓	✓

- Comparable treatment for all resources regardless of market participant. Net-metered resources, QF's and merchant DERS are all physically similar; interconnection requirements should not be dramatically different.

# Process



DI = Distribution Interconnection

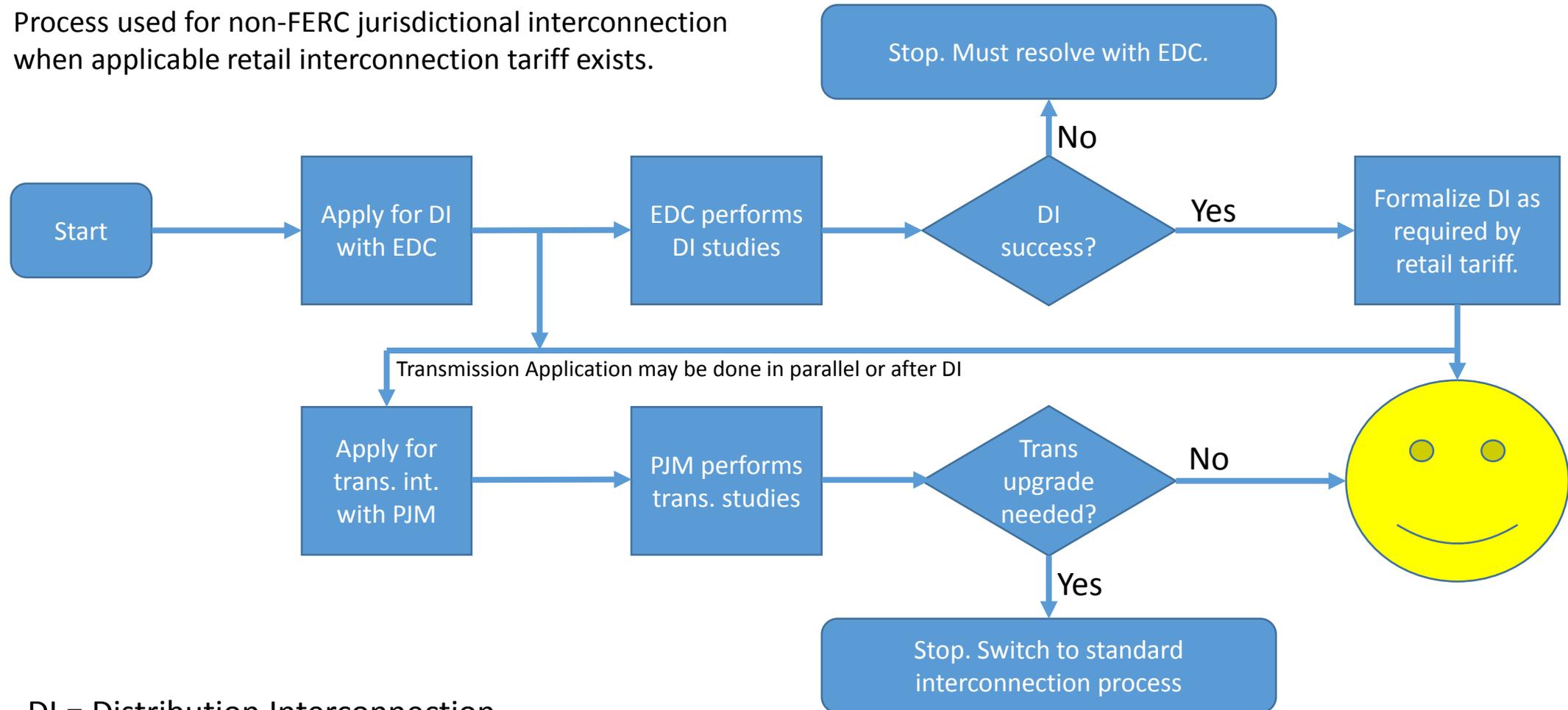
# Interconnection 1: EDC Led

Process when distribution interconnection falls under EDC Tariff.

- Distribution interconnection handled by EDC under their tariff.
- PJM silent on distribution system requirements.
- Distribution interconnection must be approved or applied for before PJM process starts.
- EDC may not place additional conditions on wholesale market participation.
- Resources that are already approved for distribution injection tariffs (e.g., QF's, net metering) do not require a new agreement simply to change their market participation.

# EDC Led Process

Process used for non-FERC jurisdictional interconnection when applicable retail interconnection tariff exists.



DI = Distribution Interconnection

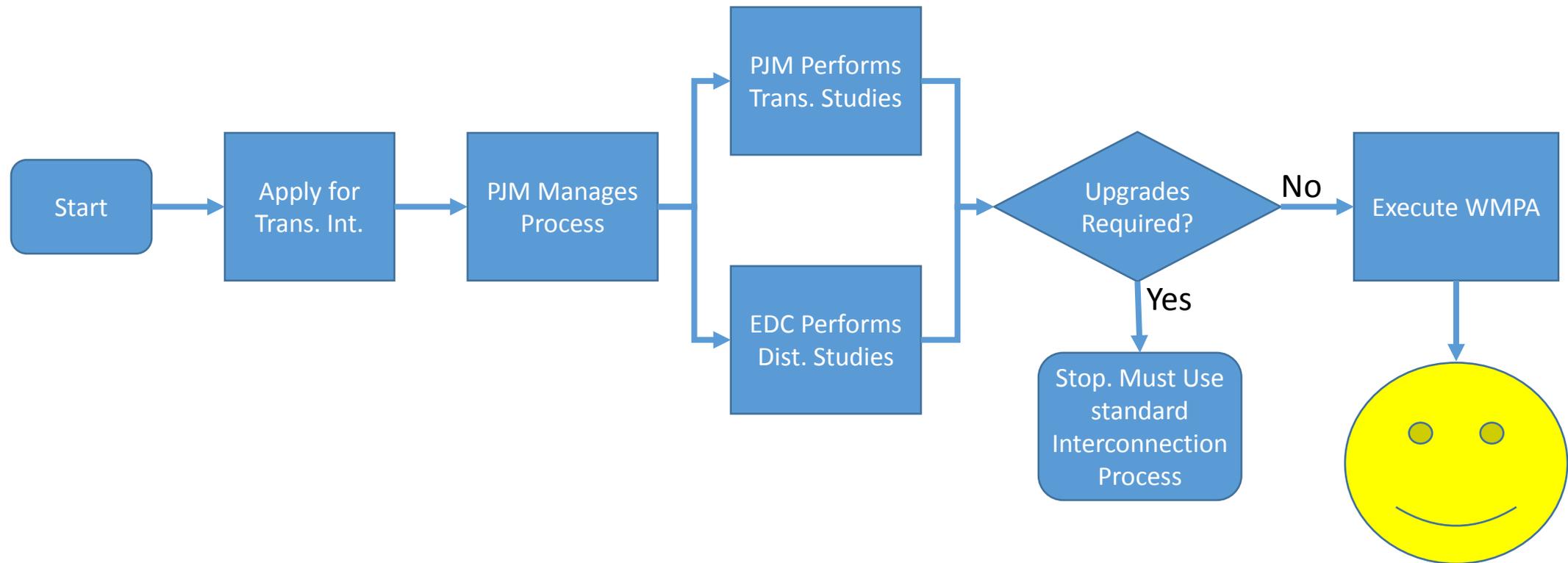
# Interconnection 2: PJM Led

When distribution interconnection does not fall under EDC Tariff.

- Apply through PJM SGIP.
- PJM “delegates” distribution study to EDC.
- EDC must carry out study under same terms as tariffs they have applying to similarly sized resources.
- If no such EDC tariff exists, time and cost set in PJM tariff.

# PJM Led Process

Process used for FERC jurisdictional interconnection or when no applicable retail interconnection tariff exists.



DI = Distribution Interconnection

# Transmission Study

Why a transmission study at all?

- DERs injecting under retail tariffs do not go through the PJM queue.
- Consensus of Net Energy Metering Sr. Task Force was that net metered projects are not required to apply for PJM interconnection.
- FERC order 2003 has determined that systems that are already injecting should not require further study:
  - “When the owner of a QF that was formerly interconnected to a Transmission System seeks to sell energy at wholesale and represents that the output of its generator will be substantially the same after conversion, it would be unreasonable for a Transmission Provider to require the former QF to join the interconnection queue.” (Order 2003 at 815)

Requiring an interconnection study for some resources but not others based solely on who is selling the power appears discriminatory.

# Transmission Study

Nonetheless, PJM has stated a strong preference for visibility into DERs. We propose DER Transmission Study based on existing SGIP rules, except:

- For study purposes, interconnection point treated as distribution-transmission handoff.
- Jurisdiction of POI thus not a factor in PJM using screens or SGIP.
- PJM study limited to transmission system.
- Limited power flow and stability analysis, along lines of SGIP procedures (Manual 14A Sect. 3.3.1)
  - Power flow analysis will be performed based on a limited contingency set to identify the impact of the resource on the local system and any known violations in the area. Deliverability tests will only be performed for small capacity resources in areas where margins are known to be limited. Similarly, stability analysis will only be performed for small resources where existing stability margins are limited.
- No facilities study. If transmission upgrades are needed, project no longer falls under these rules.

# Agreements

We believe that most of the agreements currently needed can be eliminated:

- Terms of distribution interconnection covered by retail tariff (which may require agreements).
- Terms of transmission interconnection can be standardized and included in PJM tariff.
- WMPA probably still required when interconnection over non-FERC jurisdictional facilities not covered by retail tariff.

# Metering

- Any EDC metering requirements as set by their distribution interconnection tariffs.
- EDCs may not impose additional requirements based on a site's decision to participate in wholesale markets.
- PJM metering requirements follow existing DR rules
  - Generally meter at retail billing point, with an exception for regulation.
  - Meter resolution and telemetry depend on market.
- Telemetry as per existing PJM rules based on maximum approved injection.

# Post-Interconnection Activities

- If a facility at the site is registered in GATS, a courtesy copy of the DER Interconnection is sent to the governing authority for the attributes the site receives. That authority does not approve or reject the interconnection application, but may review eligibility for attributes based on the new information.
- Once DER Interconnection is approved, site registers with PJM as “DER resource” and follows administrative procedures from then on.
- Once interconnection is done, it is done. New studies may be triggered by:
  - Desire for site to increase maximum injection MW.
  - Desire for site to operate outside limits of original interconnection. Examples:
    - retail tariff allows for “no regulation” interconnections
    - energy-only resource desires to upgrade to capacity
- If a QF will sell energy to PJM, EDC must cease purchase of power.
- If a net-metered or other facility will sell energy to PJM, EDC should remove facility from any retail rate that would result in double counting.