

# DER process for participation in the 28/29 BRA

PJM Demand Side Response  
Operations

Distributed Resources  
Subcommittee

March 3rd, 2025

This represents PJM's draft approach. This will change and include more details for full implementation.



	Feb/25	Mar/25	Apr/25	May/25	Jun/25	Jul/25	Aug/25	Sep/25	Oct/25	Nov/25	Dec/25	Jan/26	Feb/26	Mar/26	Apr/26	May/26
DER implementation details																
Manual Updates (M18, etc.)																
<b>Key 28/29 BRA activities</b>																
Post DER Plan template																
Submit DER plans																
MOPR certification																
Unit specific MSOC & MOPR request																
28/29 BRA																

Final BRA Pre-auction activity schedule will be posted on [pjm.com](http://pjm.com) in Sep timeframe



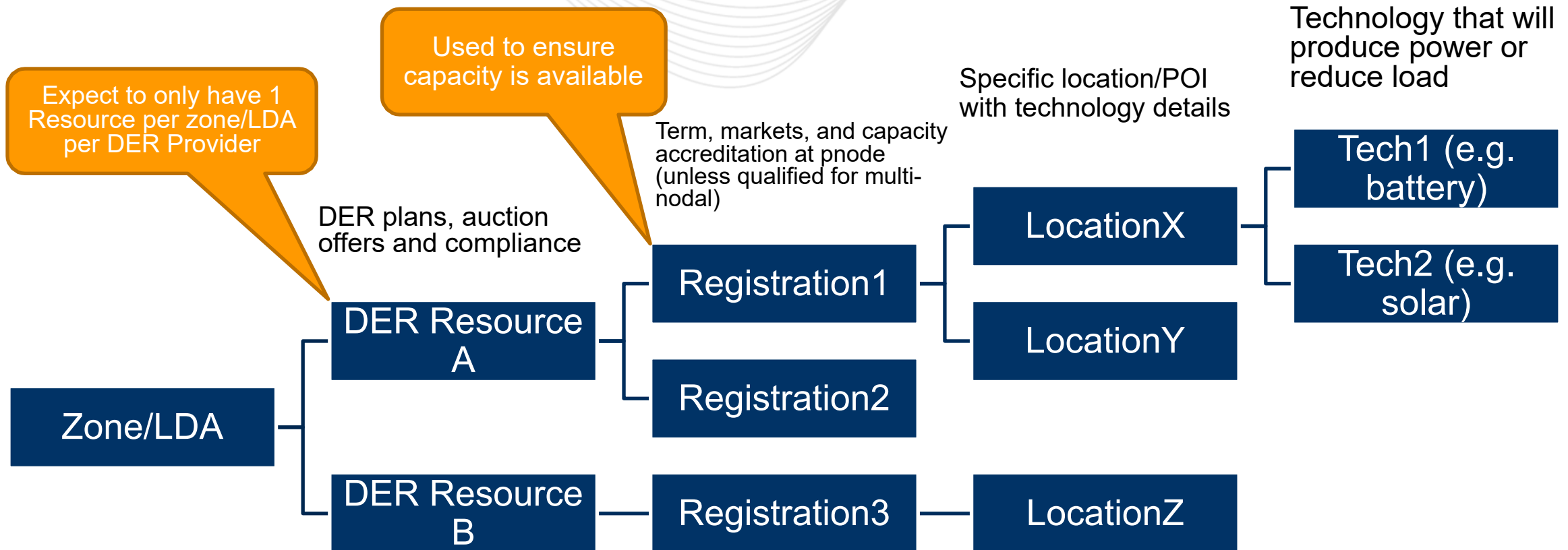
## Nomenclature: PJM plans to standardize across models to help communication process

- Location = Component DER. For DR related activity this is the EDC account number for retail premise. For DG, this is unique EDC reference number for POI.
  - Confirmed by EDC in 15 day location review process prior to registration process.
- Registration = ~DER Aggregation Resource. One of more locations based on the aggregation rule (pnode or zone & EDC). Identifies the markets, time and amount eligible to participate.
  - Reviewed by EDC in 45 day registration review process.
  - Requires PJM final approval based on EDC input
  - May have multiple registrations at same pnode.
- DER Resource = DER Capacity Resource. One or more registrations in the same LDA/Zone. Identifies “resource” that will offer into the capacity market.

- DG – Distributed Generation that interconnects through the State interconnection process (does not go through the PJM queue)
  - Existing BTMG or NRBTMG that will convert to DG must notify PJM by September prior to DY to ensure load forecast and OPL are accurate for future Delivery Year.
  - May not be a PJM Generation resource (Capacity or Energy Only)
- DRwl – DR with injections (same as DR but will participate in the wholesale market with both load reductions and injections)
  - Single DER Component/Location may either participate in DER or DR model
- DR – Demand Response, only reduces load at POI (EDC account number). Does not participate in the market at times when there are injections onto the distribution system.

One location may on participate with one provider as one of the following: DER, DR, PRD, PSA or front of the meter Generation

- PJM member with PJM DER participation agreement
- Size limit - Location  $\leq$  5 MW of capability
- Registration and location data requirements subject to EDC review process
- RERRA approval
  - Small EDC is Opt in
  - Large EDC where location includes DR has opt out
- Settlement and Telemetry data
  - Settlement data by location required 1 business day after dispatch (hourly or more granular)
  - Telemetry by registration required at 1 minute scan or more granular based on market rules (i.e.: regulation)
- Aggregations
  - Energy market (includes must offer requirement for Capacity Resources)
    - location  $\leq$  0.1 MW @ transmission zone and EDC (“multi-nodal aggregation”)
      - One location may be  $>$  0.1 MW
    - location  $>$  0.1 MW @ pnode (typically a load bus on the transmission system)
  - Capacity market = lower of LDA or transmission zone (for example – aggregate to DPL-S). Minimum DER Capacity Resource size is 0.1 MW.
- One Member (“PJM org”) per location for participation across all models
- Location on NEM contract may only participate in ancillary service markets with injection.



# DER Plans consist of Planned and/or Existing DER

*All DER will be considered Planned until registrations are approved*

Existing	Planned
<ul style="list-style-type: none"><li>I. Currently have capability to provide capacity and will provide the capability for DY of RPM Auction</li><li>II. Existing MWs based on pre-registrations in Capacity Exchange. Pre-registrations are based on current DR Hub registrations</li><li>III. No Credit Requirement</li></ul>	<ul style="list-style-type: none"><li>I. Location not registered and approved</li><li>II. Credit Requirement is Pre-Clearing BRA Credit Rate * Number of Planned MWs</li></ul>

DER Provider is required to provide Officer Certification that MWs will be delivered in the DY (similar to DR Plan)

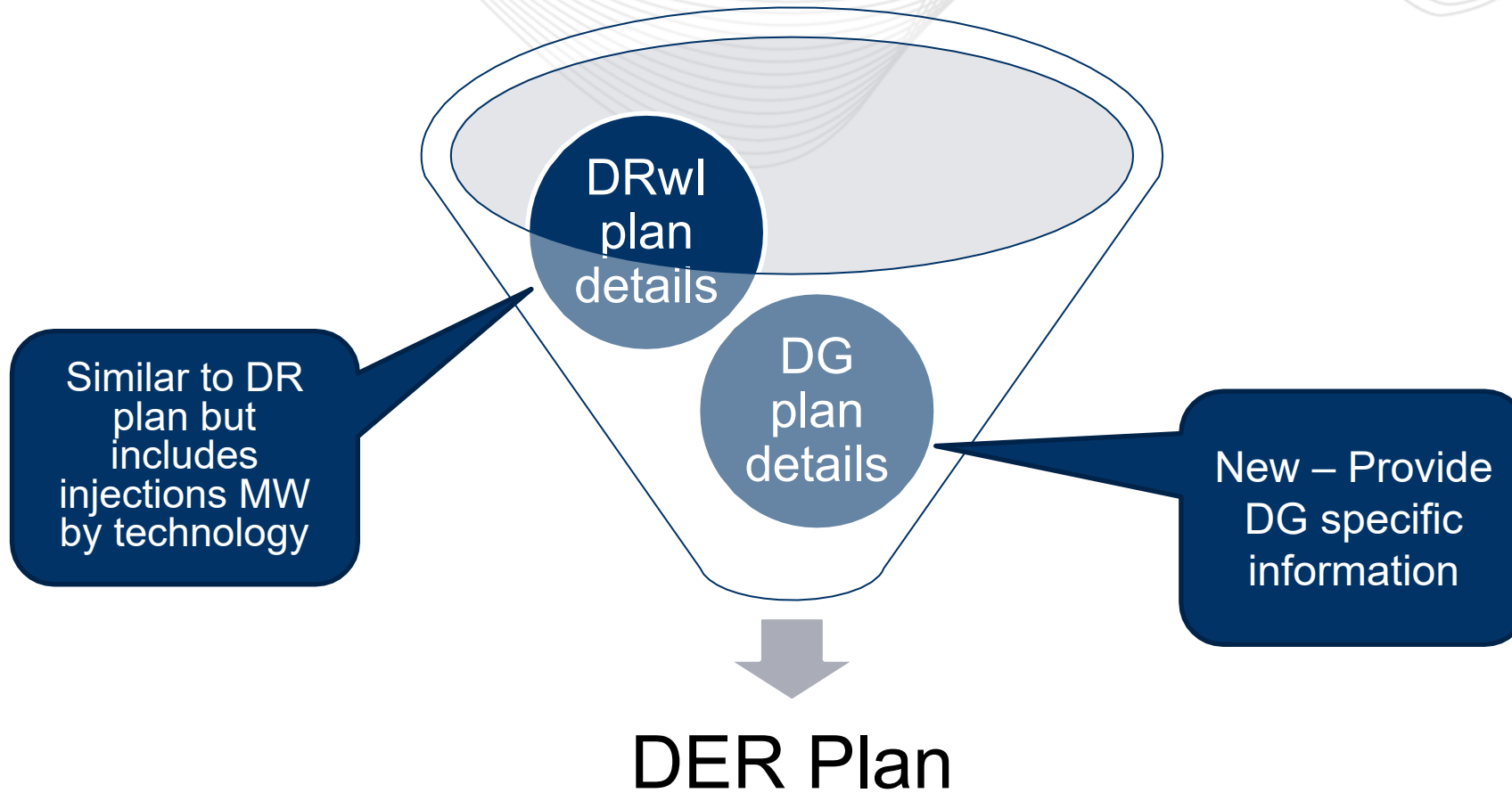
- DG and Injection portion of DRwl:  $\text{Nominated ICAP} * \text{ELCC class average} * \text{Unit Specific Performance Factor} = \text{Nominated UCAP}$ 
  - ICAP = Min (Nameplate or amount approved by EDC to inject onto the distribution system)
  - Provide additional information about closed or open loop by location during registration process
  - If no published ELCC class then DER Provider will need to request a value from PJM by August 1st prior to calendar year when auction is being conducted
    - DER provider may need to provide unit specific operational data, as needed
- Load Reduction portion of DRwl:  $\text{Nominated ICAP} * \text{ELCC class average} = \text{Nominated UCAP}$ 
  - ICAP - same as DR
    - Summer ICAP =  $\text{PLC} - (\text{FSL} * \text{CLF})$
    - Winter ICAP =  $(\text{WPL} * \text{ZWWAF} * \text{CLF}) - (\text{FSL} * \text{CLF})$
- Registrations – calculate accreditation by location to come up with registration/aggregation UCAP.

	MOPR	MSOC
DG	MW by technology type	MW by technology type
DRwInjection	Injection MW by technology type	Injection MW by technology type
DR	Not applicable	Not applicable

- DG and injection from DRwI are required to provide the following based on the pre-auction activity deadlines if they would like to participate in the auction:
  - Planned and Existing
    - provide MOPR certification prior to deadline
    - Heterogeneous Capacity Resource must submit unit specific MSOC or offer at \$0

DER Resources do not have must offer obligation in the capacity market

- MOPR (planned or existing)
  - if subject to MOPR then must request unit specific price (may use weighted average MOPR price by technology) or is not eligible to participate in auction.
- MSOC (existing)
  - Price taker (\$0 offer price cap) unless unit specific MSOC is requested and approved.
    - Segment based MSOC by technology
    - Weighted Average MSOC



				Existing	Planned	Total
Lower of Zone or LDA	RPM Resource	DER Type	Gen Technology	ICAP(MW)	ICAP(MW)	ICAP(MW)
PSEG PSEG-N	DER_PSEG-N	DR	na	0	1	1
PSEG PSEG-N	DER_PSEG-N	DG	Solar	1	2	3
PSEG PSEG-N	DER_PSEG-N	DG	Wind	0	4	4
PSEG PSEG-N	DER_PSEG-N	DRwl	Solar	0	1	1
			<b>Resource Total</b>			<b>9</b>

Injection portion broken out by technology

ICAP to UCAP conversion for planned DER based on class average technology methodology  
 Registration ICAP to UCAP will include unit specific performance adjustment factor  
 DER ICAP = UCAP in Capacity Exchange

- DER will need to complete modified version of current [DR plan template](#):
  - Updated to include technology specific DRwl ICAP
  - Excludes existing aggregate resource designation
- DG will need to complete new DG plan template
  - All the details about the DG
- Officer Certification will be required for all DER plans

Zone/LDA	EDC	RPM Resource	DER Type	Gen Technology	Status	State Queue #	State Queue status	EDC verified expected interconnection date	EDC Account #	Unit Name	address	Nameplate MFO (ICAP MW)
PSEG/PSEG-N	PSEG	DER_PSEG-N	DG	Solar	planned	ja8898	complete	11/1/2023	8183773	Farmland Solar	123 maple	1
PSEG/PSEG-N	PSEG	DER_PSEG-N	DG	Solar	planned	gja0098	EDC review	4/1/2025	3365878	Joe Solar	435 gramble	4
PSEG/PSEG-N	PSEG	DER_PSEG-N	DG	Solar	planned	ldr00113	EDC review	5/1/2025	5455512	Jill Solar	599 oak	10
PSEG/PSEG-N	PSEG	DER_PSEG-N	DG	Solar	Existing*	ugge00091			5455512	Jill Solar	599 oak	7
											Total	22

\* Existing information will come from an approved registration for the specific location.

Need to ensure DG does not participate as DER and as Generation Capacity Resource

- Committed ICAP must be offered into DA market
  - Cost Based offers based on underlying technology
  - DR cost based offer = \$0

- Gen Rating Test – n/a
- Gen Operational Test – n/a
- All DER Capacity Resources are required to test all locations within the aggregation simultaneously at least once per year; the DER Aggregator may perform an unlimited number of tests.
  - The Aggregator must notify the relevant EDC of a test at least 7 days in advance.
- Test Failure Charge for any shortfall, multiplied by the DER Capacity Aggregation Resource Test Failure Charge rate.
  - The Test Failure Charge rate will equal such Seller's Weighted Daily Revenue Rate in the relevant Zone plus the greater of (0.20 times the Weighted Daily Revenue Rate in such Zone for the product(s) tested or \$20/MW-day).
  - Test Failure Charge revenue will be distributed to LSEs that were charged a Locational Reliability Charge, pro-rata based on the LSE's Daily Unforced Capacity Obligations.

- Daily Deficiency
  - Similar to DR process today where shortfall is determined based on sum of registration Nominated UCAP compared to UCAP Capacity commitment on each day.
  - Deficiency Rate is same as DR and Generation today
- PAI - Compliance is aggregated to DER Capacity Resource (typically 1 resource per Zone|LDA per Org)
  - Expected & Actual performance is based on existing technology specific rules
    - DG – approved maintenance and planned outages may be excused
    - DR – subject to DR rules

- Pre-Registration Process
  - All DER will be considered Planned for 28/29 BRA. Firm up any differences from existing DR Pre-Registration process over time
- Outage Reporting
  - eGADS – may not be necessary, expect to use settlement data to determine location specific performance adjustment factor for capacity accreditation.
  - eDART – DG portion of registration (need to firm up if location specific outages are needed)

	DR Capacity and Energy Markets	DER Capacity and Energy Markets	Only applies to capacity
Registrations	Need Pricing Point (usually zone's residual aggregate)	Need PSSE ID from EDC, corresponding pnode from PJM	
	EDC must approve registration	EDC approves location before location can be included on a registration	
	Registration must have appropriate metering (EDC hourly interval)	Registration must have telemetry	
	One location allowed per registration	Multiple locations allowed per registration if at same pnode	
	Locations <= .1 MW are allowed	Locations <= .1 MW may be aggregated zonally (multi-nodally), with same EDC and state.	
	Locations have no MW limit	Locations have a 5 MW limit	
	Two-Provider rule - 1 for capacity, 1 for energy allowed	One provider per location	
	No injections allowed	Injections allowed	
	Not subject to MOPR Or MSOC	Subject to MOPR and MSOC	X
	ICAP to UCAP conversion uses Demand Response Class Average	ICAP to UCAP conversion depends on underlying technology and Performance Adjustment	

	DR Capacity and Energy Markets	DER Capacity and Energy Markets	Only applies to capacity
Events	Dispatch comes from DR Hub via electronic notification (Web Services)	Telemetry signal	
	No must offer in energy market	Has must offer in Day-Ahead energy market	X
	In the absence of a PAI Load Management event, all registrations in a zone test for 2 hours at a time designated by PJM. Depending on performance, 1 PJM Re-test may be allowed or multip CSP Re-tests are allowed	All DER Capacity Resources are required to test all locations within the aggregation simultaneously at least once per year. The number of tests is unlimited.	X
	EDC does not have a role in dispatch	EDC may override dispatch for reliability concerns	
	No PAI excusals	Maintenance and Planned Outages approved by PJM are excused for PAI event. Only applies to generator portion	X
Settlements	Meter data due 60 days from event date	Meter data due 1 calendar day from event date	
Compliance	Meter data due 45 days from end of month of event date	Meter data due 1 calendar day from event date	
	Compliance is based on Demand Response rules	Compliance rules are based on underlying technology	

- Draft DER plan template
- PAI examples
- DR vs DER comparison
- Provide draft registration and location details

- Consider other changes to BTMG or NRBTMG conversion to DER (coordination with TO, move up timing to prior to BRA, etc.)
- Consolidate DER information on pjm webpage (DR, DER, PRD, etc.)

## Information

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**2222 implementation – DER plans for  
capacity auction**



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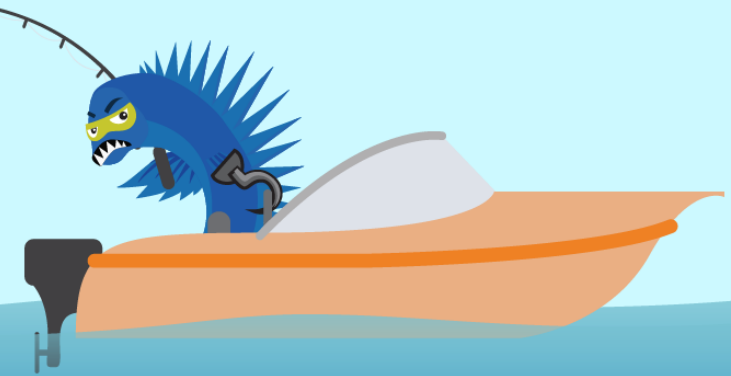
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