Agentic Infrastructure
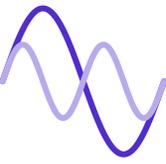
3.13.26 LLWG

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March 2026

LLWG Objectives

- Clarify ERCOT view on BYOG scenarios and required SLF rules
  - *Agentic believes that a G+1 site configuration wouldn't require an SLF limit*

- Clarify CLR and co-location rules
  - *Agentic wants to clarify that CLRs co-located with a ERCOT Resource is allowed*

- Highlight BYOG/CLR overlap and treatment mismatch
  - *Agentic believes that CLR is a better mechanism for BYOG than alternatives*
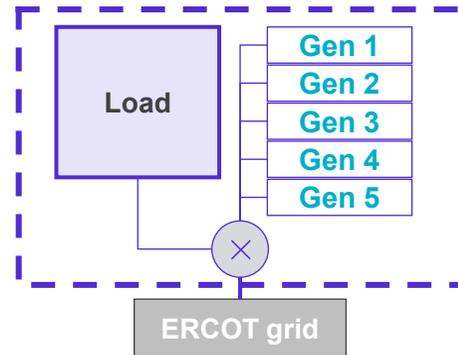
BYOG Scenario 1: No SLF Needed
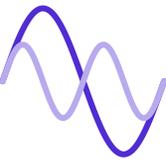
BYOG Scenario 1:

- G+1 Site generation configuration is sized such that on-site generation could serve full energized load even after losing the largest single contingency (largest gen unit G-1, or common electrical element X-1)
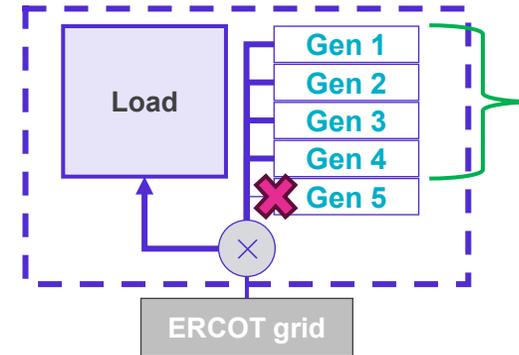
Normal Conditions

Load = 1,000 MW
Gen = 5 x 250 MW = 1,250MW

Contingency Conditions

Load = 1,000 MW
Gen = 4 x 250 MW = 1,000MW
**G-1 compliant** (serve 1,000 MW load) or most limiting contingency

1GW of Gen still available to serve 1GW of load ✓

Agentic Comments:

- This is how the gen and load would be treated on a stand-alone basis assuming the gen and load were both in the same steady state model
- This site design satisfies the G-1, N-1 criteria in ERCOT planning standards and therefore the site could be served *without an SLF concept*
- Only incremental rule change required would be to allow election of combining FIS/LLIS so they are studied in the same steady state study
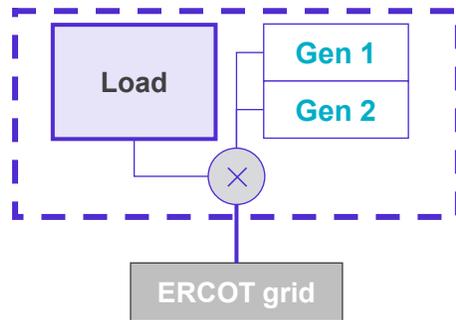
BYOG Scenario 2: SLF Needed
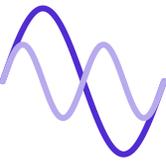
BYOG Scenario 1:

- Anything less than G+1 site design. Configuration is sized such that on-site generation could serve full energized load under normal operating conditions, but under a G-1 scenario the load would draw from the grid

Normal Conditions

Load = 1,000 MW
Gen = 2 x 500 MW

Contingency Conditions

Load = 1,000 MW
Gen = 1 x 500 MW
G-1 compliant (only serve 500 MW load)
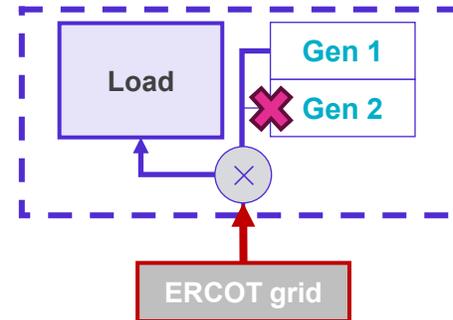
Only 500MW of gen available to serve 1GW of load,

This is a transmission security risk, SLF limited required to prevent infeasible grid draw

Agentic Comments:

- *If a BYOG site design is anything less than G+1, a SLF concept is required* to limit draw from the grid (or network upgrades are required to serve load under G-1)
- SLF requires a physical and regulatory compliance mechanism to ensure the load NEVER exceeds grid draw limit

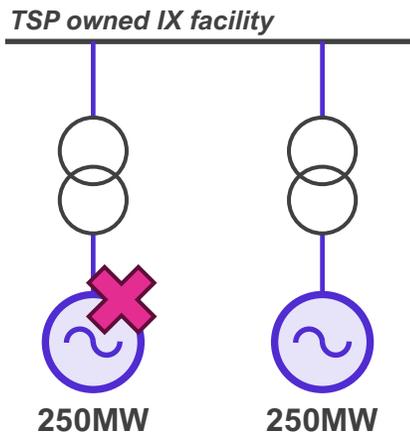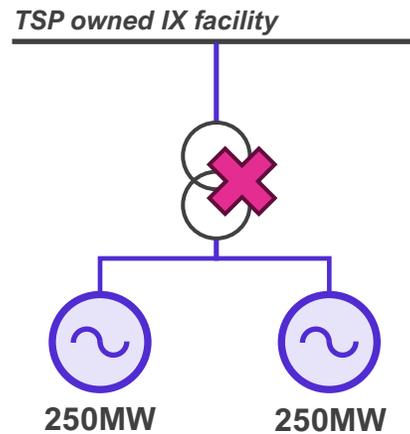# BYOG Clarifications
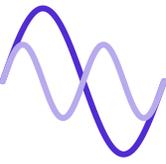
G-1 or single largest contingency

Largest Contingency:
G-1 = 250MW

Largest Contingency:
X-1 = 500MW

TSP owned IX facility

TSP owned IX facility

250MW   **250MW**

250MW   **250MW**

= Generator   = Transformer

Scenario 1 BYOG (No SLF Required)

Scenario 1 as described is already how unaffiliated gen and load is treated under traditional IX today, but… ***this assumes the generator had satisfied PG 6.9 which creates a process timing mismatch***

Conceptual Planning/Interconnection Timelines

PG 6.9
SGIA Signed, FS Posted Necessary Data and Declarations

Generator

Gen included in SSWG cases

Load

Steady State analysis for load
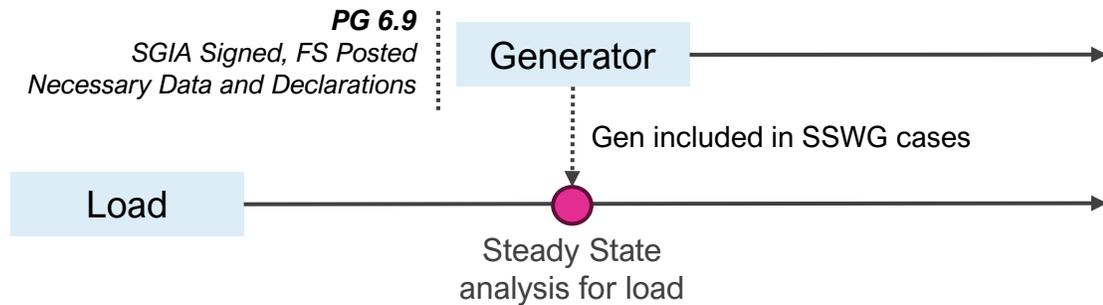
Agentic Opinion:
Only a minor revision to FIS/LLIS procedure should enable this scenario

Generator

Gen + Load included in each others steady state study

LLIA + SGIA awarded and added to models together with service conditional to parallel commissioning

Load

Steady State analysis for load
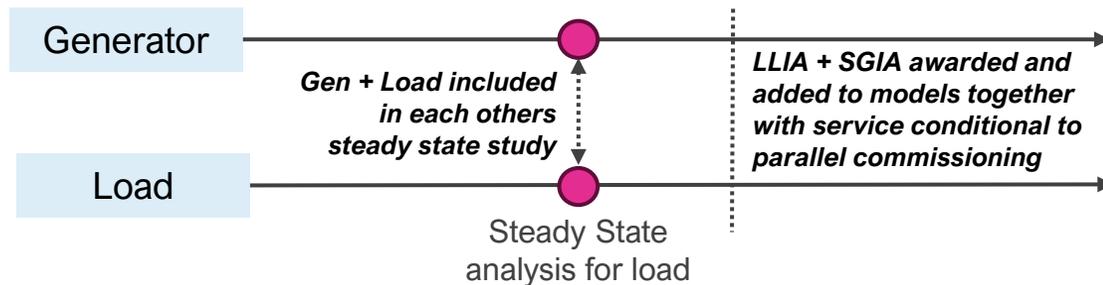
1A Load-Only CLR *Agentic CLR Clarifications*

■ CLR Load
■ Firm Load
⊗ Point of interconnection

Description

- **Large Load registers entirely as a CLR, with no associated generation or storage behind the POI**

- Load-Only CLR leverages the existing CLR framework as the simplest near-term option[1], subject to required market/system implementation items (e.g., SCED/mitigation enhancements) before energization

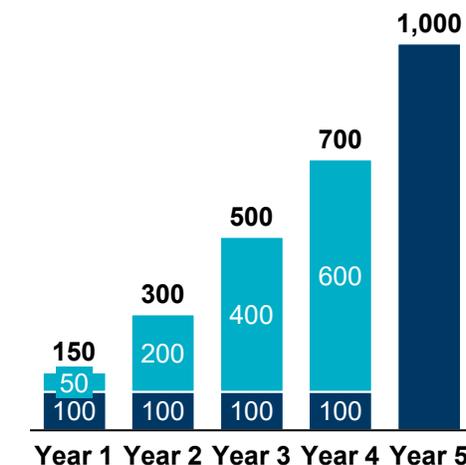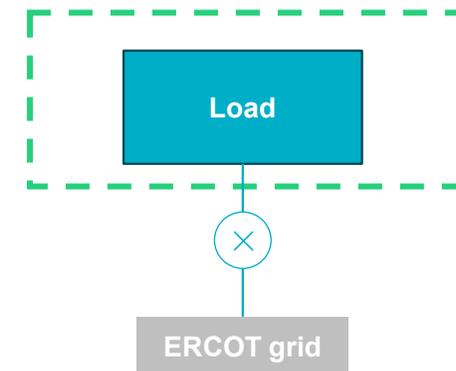- **A separately settled and registered ESR/Generation Resource can be co-located behind the same POI as a CLR, it just cannot be the mechanism by which a load qualifies as a CLR**

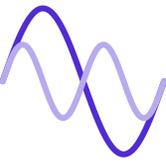*Agentic seeking confirmation from ERCOT Staff*

Details

- **Participates as dispatchable demand and must follow SCED basepoints** within its registered operating range (PC/LPC/MPC)

- **No assurance of service above awarded firm MW**; real-time consumption may be reduced below PC based on system conditions and SCED mitigation

- **ERCOT observes and verifies performance based on net MW at the POI** and adherence to SCED dispatch instructions

- **Must meet existing CLR telemetry and dispatch performance requirements** (subject to SCED instructions and registered operating limits)

- **Load may register operational capability above awarded firm MW**, subject to real-time dispatch and congestion mitigation[2]

- *Illustrative example*
  - 150 MW requested in Year 1
  - ERCOT performs steady-state and stability studies and allocate phased MW (e.g., 100 MW in Years 1–4 until transmission upgrade in Year 5)
  - Operational parameters:
    - PC = 0–100 MW (firm)
    - LPC = 0–100 MW
    - MPC = 150 MW (upper operational capability; not a planning guarantee)
    - CLR quantity may be modified in later years as transmission capability increases

Illustrative scheme

ERCOT grid

	Year 1	Year 2	Year 3	Year 4	Year 5
Total	150	300	500	700	1,000
CLR Load	50	200	400	600	
Firm Load	100	100	100	100	

Source: ERCOT discussions

Public - Prepared for ERCOT 3.13.26 LLWG - Agentic Infrastructure LLC

PUBLIC

CLRs can enables all BYOG Configurations

CLR and BYOG seek to achieve the same objective:

Receive as-available service from the grid until firm service can be delivered

Bring Your Own Generation (BYOG)

1GW As-available

1GW As-needed

Generator

ERCOT Wholesale Grid

1GW As-available

Large Load

Controllable Load Resource (CLR)

With New Generation

1GW As-available

1GW As-needed

This becomes a private commercial arrangement!

Generator

ERCOT Wholesale Grid

1GW As-available

Large Load CLR
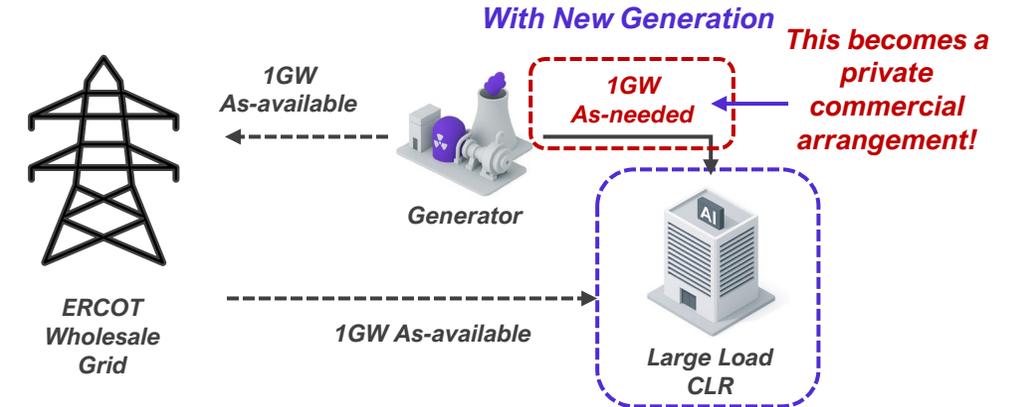
CLR + co-located generation can enable all BYOG configurations to achieve speed to power

Basis for advancing load is knowing that load will curtail if transmission system requires it

Private actors can firm with co-located/regional new generation under any redundancy scheme and consume from the grid when unconstrained*

*Features limited under the SLF framework

Base-Point Deviation & Ramping

Base Point Management:
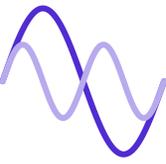CLRs must maintain consumption at the SCED dispatched base point MW within a margin of error over a ~5min interval
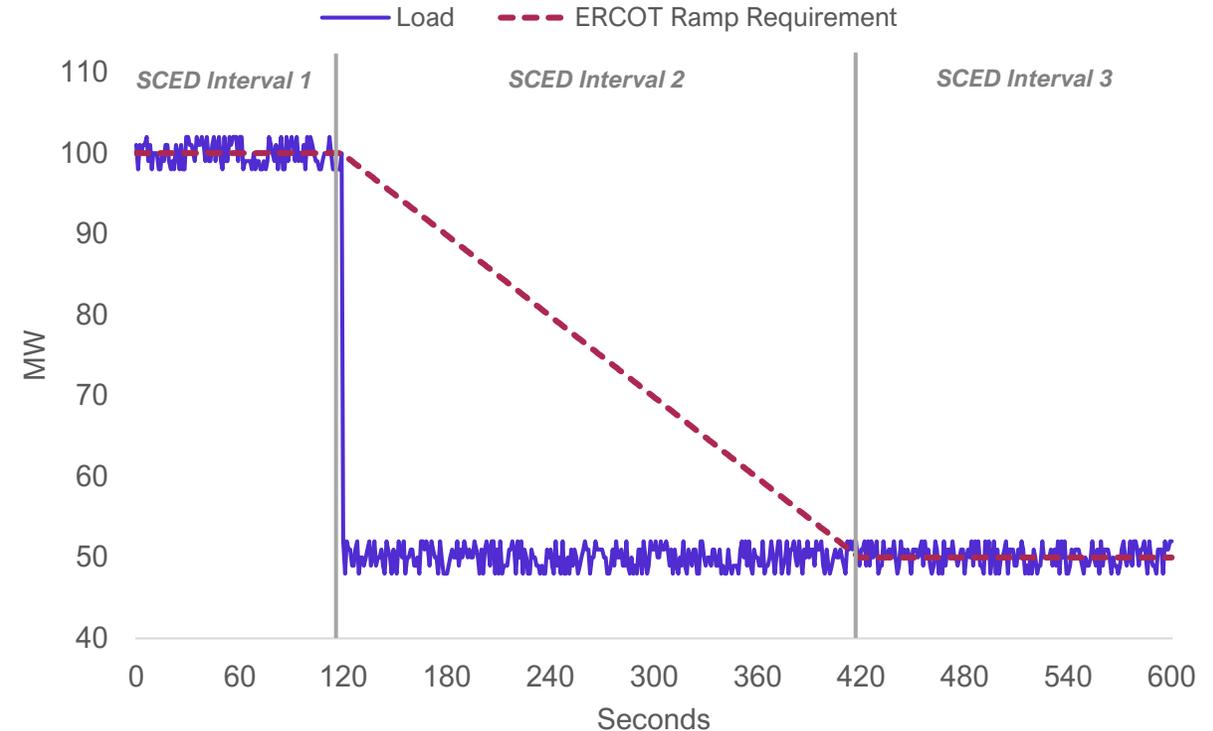
Ramping:
CLRs must ramp load in a linear fashion when dispatched to new base points between SCED intervals
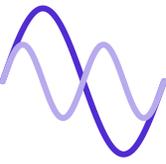

Load and Base Point During a Single 5min SCED Interval

Load — Lower Bound — Upper Bound — SCED Base Point
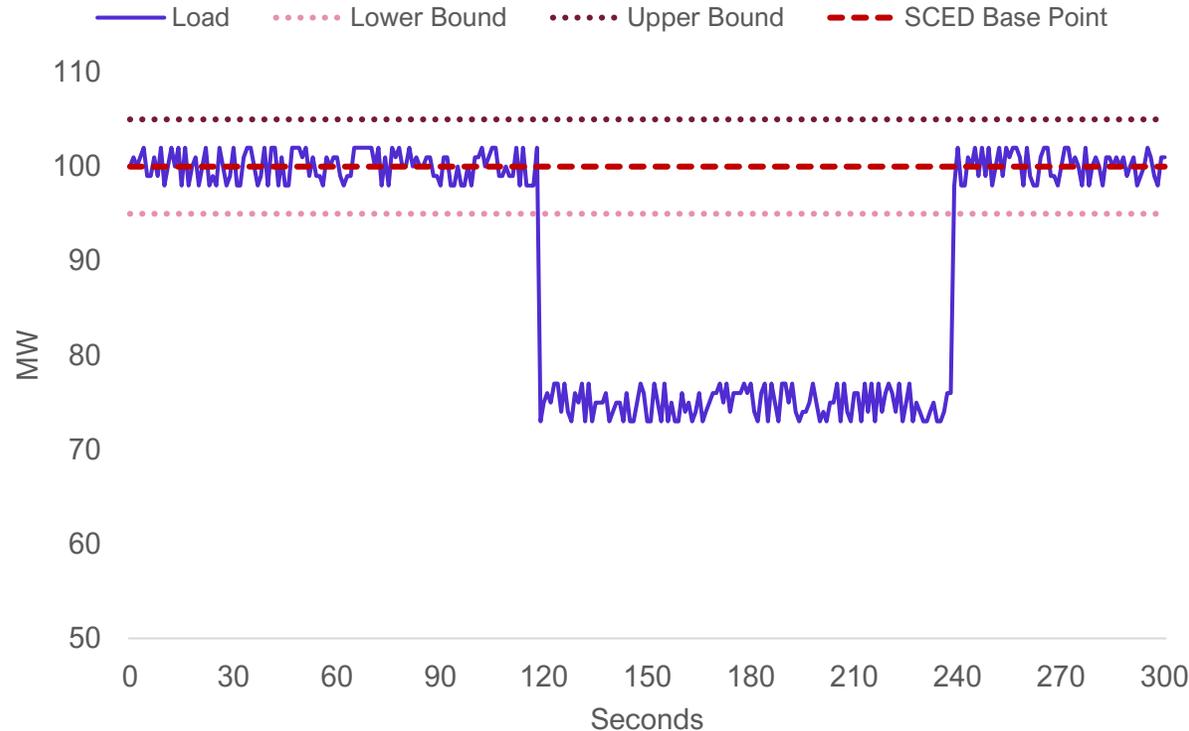
Load and Ramping Between SCED Intervals

Load — ERCOT Ramp Requirement

Possible Relaxed Dispatch Requirements

ERCOT can treat CLRs like Intermittent Renewables Resources (IRR) to maximize load participation as a Resource
- Load doesn't chase base point until behind a binding constraint
- Load follows base point down to Low Power Consumption (LPC) when behind a binding constraint
- Deviation charges only apply when over-consuming while curtailed

IRR with Energy Offer Curve — ercot

Scenario 1 — IRR is available for dispatch and not impacted by any binding constraints

- IRR runs at HSL
- IRR is a "Price-Taker"
- Base Point follows HSL

Energy Offer Curve
0 — HSL — MW
BP
$ / MWh

70

Curtailed IRR with Energy Offer Curve — ercot

Scenario 2 — IRR has positive shift factor on a binding constraint and must be curtailed

- Base Point is less than HSL
- IRR Energy Offer Curve sets LMP
- IRR must comply with Base Point

Energy Offer Curve
0 — HSL — MW
BP
$ / MWh

71

Conditions for Base Point Deviation — ercot

When are IRRs exposed to deviation charges?

	IRR output *within* 5% acceptable range	IRR output *exceeds* 5% acceptable range
Curtailment Flag is not set	No Charge	No Charge
Curtailment Flag *is* set	No Charge	*Charge*

IRR Groups are assessed as an aggregate

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ERCOT 2024 Market Education Materials for IRRs

Last Comments/Thoughts
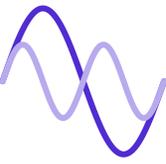
- **Unifying CLR and BYOG into a single concept would afford much greater flexibility to private developers and simplify scope of rule changes for batch zero**
  - This is not feasible due to requiring a System Change Request (SCR), is there market participant appetite to advance this in parallel?

- **If BYOG and CLR are to remain separate mechanisms, what are the dispatch requirements for SLF?**
  - Ramping limits and/or deviation charges during G-1?
  - Same compliance burden as SLF today?

Four different constructs were identified by ERCOT to integrate CLR and BYOG concepts into Batch Zero

Construct	Description	Feasibility
1A **Load-Only CLR** (No Generation/No Batteries Behind the POI)	**Large Load registers entirely as a CLR at the POI.** No generation or storage is electrically connected in a way that can synchronize with, parallel, or export to the ERCOT grid	✓ Potentially feasible
1B **CLR with Non-Synchronous Backup Generation**	**Large Load registers as a CLR and utilizes behind-the-meter backup generation that is not synchronized** with the ERCOT grid	✓ Potentially feasible
2 **BYOG Self-Limiting Facility (SLF)**	**Colocated Large Load and Generation operate behind a single POI under a defined net injection/withdrawal limit** enforced at the POI	✓ Potentially feasible
3 **Netted Network**	**Colocated Large Load and Generation operate behind a single POI (physically similar to SLF), but are permitted to participate simultaneously on both the supply and demand sides** of the ERCOT market, subject to the POI interconnection limit	✗ Not feasible

1A Load-Only CLR (No Generation or Batteries)

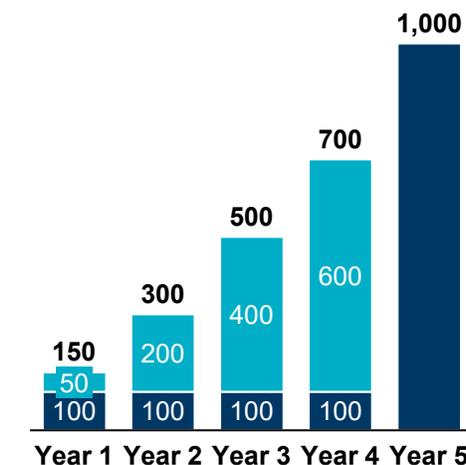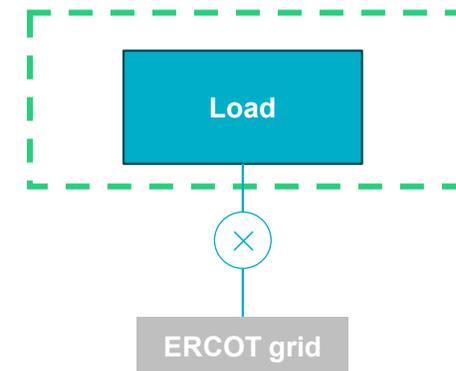- CLR Load
- Firm Load
- ⊗ Point of interconnection

Description

- **Large Load registers entirely as a CLR, with no associated generation or storage behind the POI**
- Load-Only CLR leverages the existing CLR framework as the simplest near-term option[1], subject to required market/system implementation items (e.g., SCED/mitigation enhancements) before energization

Details

- **Participates as dispatchable demand and must follow SCED basepoints** within its registered operating range (PC/LPC/MPC)
- **No assurance of service above awarded firm MW**; real-time consumption may be reduced below PC based on system conditions and SCED mitigation
- **ERCOT observes and verifies performance based on net MW at the POI** and adherence to SCED dispatch instructions
- **Must meet existing CLR telemetry and dispatch performance requirements** (subject to SCED instructions and registered operating limits)
- **Load may register operational capability above awarded firm MW**, subject to real-time dispatch and congestion mitigation[2]
- *Illustrative example*
  - 150 MW requested in Year 1
  - ERCOT performs steady-state and stability studies and allocate phased MW (e.g., 100 MW in Years 1–4 until transmission upgrade in Year 5)
  - Operational parameters:
    - PC = 0–100 MW (firm)
    - LPC = 0–100 MW
    - MPC = 150 MW (upper operational capability; not a planning guarantee)
    - CLR quantity may be modified in later years as transmission capability increases

Illustrative scheme

Load

ERCOT grid

	Year 1	Year 2	Year 3	Year 4	Year 5
Total	150	300	500	700	1,000
CLR Load	50	200	400	600	
Firm Load	100	100	100	100	

⑱ CLR with Non-Synchronous Backup Generation

⊗ Point of interconnection

Description

Large Load registers as a CLR and utilizes behind-the-meter backup generation that is not synchronized[1] with the ERCOT grid
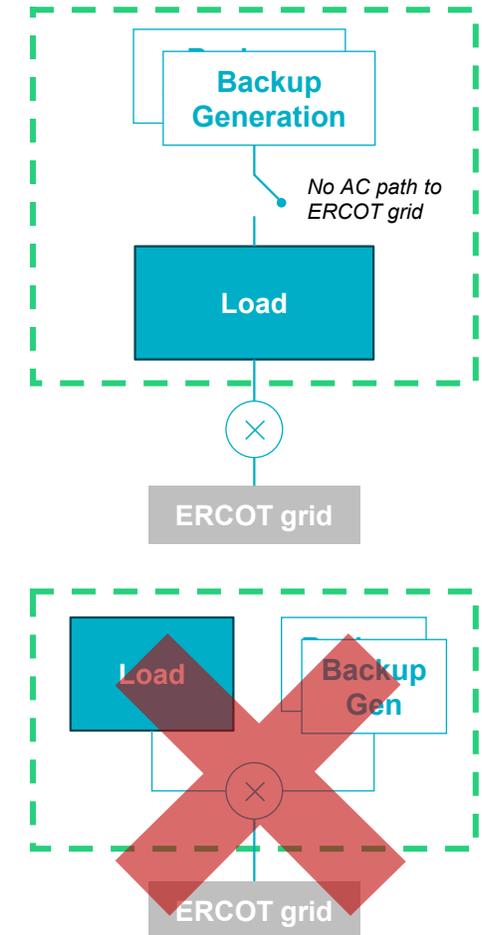
This construct allows internal self-supply during curtailment without parallel operation or export to the ERCOT system

Details

- **To qualify under this construct, backup generation must not be synchronized with or operate in parallel with the ERCOT grid** and must be incapable of exporting power at the POI

- **ERCOT models the facility as load only at the POI** for steady-state and stability studies and observes only net load at the POI

- **Transmission study limits remain binding** on the net load at POI

- **Load must follow SCED basepoints** within its LPC–MPC range

- **Large Load may need to segment internal load into controllable tranches** (e.g., 10 MW blocks) to comply with SCED

- **Any internal switching to backup generation is behind-the-fence and not visible** to ERCOT

- **If backup generation fails, the load remains responsible for meeting SCED** dispatch instructions

- **No export or generation market participation is permitted** under this construct[2]

Illustrative scheme

1. Any behind-the-meter generator or storage that can operate in parallel with the ERCOT grid (i.e., can be synchronized/connected while the POI remains energized) must be registered as a GR/ESR and is not compatible with a Load-Only CLR construct | 2. No energy or ancillary service participation from the backup resource is permitted

Source: ERCOT discussions

2 BYOG Self-Limiting Facility (SLF)

⊗ Point of interconnection

Description

Colocated Large Load and Generation operate behind a single POI under a defined net injection/ withdrawal limit enforced at the POI

Facility is structured as a PUN with a Self-Limiting Feature (SLF) (consistent with NPRR1026 framework)

The SLF ensures that net real power at the POI never exceeds the approved interconnection limit, regardless of internal load or generation configuration

Details

- **Load and Generation are both registered with ERCOT**
- **Interconnection limit applies to net MW at the POI**
- **Requires operational coordination agreement** between Load and Generator
- **ERCOT models the facility as a net resource at the POI**, subject to the self-limiting cap
- **Facility must ensure net injection/withdrawal does not exceed POI cap at any time** (may require breaker logic and/or reverse power relay to enforce the limit)
- **Transmission planning does not assume simultaneous full load and full generation** at the POI:
  - Either supply-side (GR/ESR) or demand-side (CLR) may participate at a given time
  - Simultaneous full participation on both sides is not permitted unless structured as a Netted Network (separate construct)
- **The largest modeled contingency depends on internal configuration** (e.g., if generators share a common step-up transformer, transformer loss may be most limiting event; if generators are electrically independent, individual G-1 may apply)
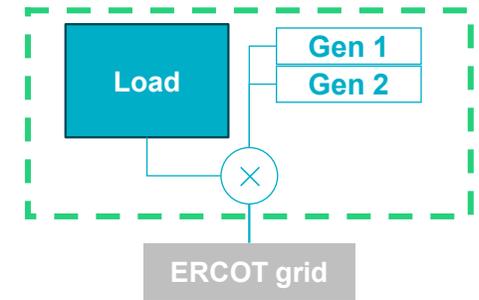
Illustrative scheme

Load = 1,000 MW
Gen = 5 x 250 MW
G-1 compliant (serve 1,000 MW load) or most limiting contingency
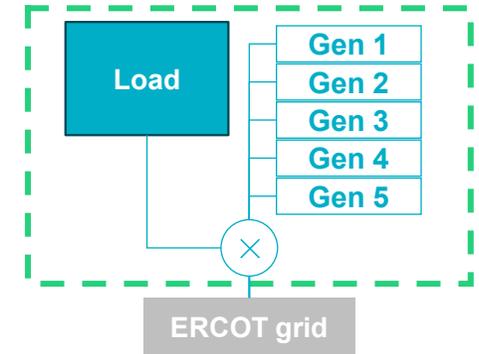
Load = 1,000 MW
Gen = 2 x 500 MW
G-1 compliant (only serve 500 MW load)

3 | # Netted Network

$\bigotimes$ Point of interconnection

Description

Colocated Large Load and Generation operate behind a single POI (physically similar to SLF), but are permitted to participate simultaneously on both the supply and demand sides of the ERCOT market, subject to the POI interconnection limit
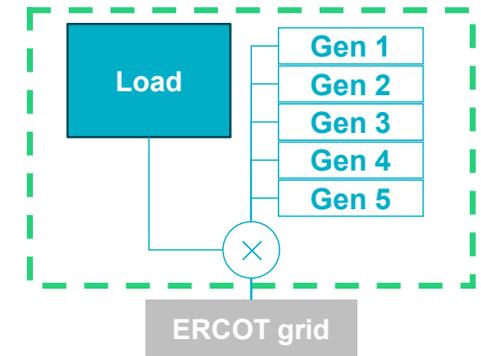
Details

- **Same physical configuration as SLF** (Load and GR/ESR behind one POI)
- **Net injection/withdrawal at the POI remains capped** by the interconnection agreement
- **Unlike SLF:**
  - Supply and demand may participate simultaneously in Energy and AS[1] markets
  - Enables concurrent market activity from load and generation behind the same POI

Illustrative scheme

Load = 1,000 MW
Gen = 5 x 250 MW
G-1 compliant (serve 1,000 MW load) or most limiting contingency

Load = 1,000 MW
Gen = 2 x 500 MW
G-1 compliant (only serve 500 MW load)

1. Ancillary services

Source: ERCOT discussions