

Enabling Efficient Non-Network Solutions

Through Continuous, Constraint-Aware Pricing

Submission from Enleashed

Response to Joint Open Letter on Non-Network Solutions

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1. Executive Summary

Enleashed strongly supports the regulators' position that non-network solutions (NNS) are critical to delivering a least-cost, reliable electricity system under increasing electrification and renewable intermittency.

Flexibility already exists within the system. However, it is not yet:

- economically visible
- locationally precise
- continuously activated

This leads to the central issue:

The electricity system lacks the pricing and coordination mechanisms required to make non-network solutions reliable at scale.

Enleashed proposes a complementary approach:

- continuous, constraint-aware price signals at the feeder level
- real-time conversion of physical constraints into economic signals
- automated, price-responsive flexibility across distributed energy resources (DER)

This enables NNS to evolve from:

- discrete interventions
into
 - **a persistent, system-wide capability**
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2. Framing the Problem

The joint letter identifies a material opportunity:

- ~1.9 GW of shiftable load
- ~\$2 billion in forecast network growth capex

However, current NNS mechanisms face three structural constraints:

2.1 Temporal mismatch

Pricing signals are periodic (e.g. 5-minute intervals), while network constraints are continuous.

2.2 Spatial mismatch

Signals are system-wide or zone-based, while constraints occur at feeder and low-voltage levels.

2.3 Coordination gap

Flexibility is activated via:

- bilateral contracts
- bespoke procurement
- direct load control

These approaches:

- do not scale
- do not enable continuous price discovery
- do not create a persistent flexibility market

3. System-Level Approach

3.1 Core Concept

Enleashed introduces:

Continuous, locational, constraint-aware price formation at the feeder level

This reframes price from:

- an outcome of imbalance
to
 - **a control signal that prevents imbalance**
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3.2 Operational Model (How It Works)

Inputs

- LV telemetry (voltage, loading)
- SCADA / constraint data
- DER signals (solar, EVs, batteries)

Processing

- real-time constraint detection
- continuous price formation

Outputs

- feeder-level price signals distributed via:
 - retailers
 - aggregators
 - APIs

Response

- EV charging shifts
- batteries optimise
- industrial loads adjust

Outcome

- constraints resolved locally
 - reduced upstream stress
 - lower system cost
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4. Alignment with Regulatory Priorities

4.1 Equal consideration of NNS

Current evaluation frameworks undervalue NNS because they:

- treat flexibility as discrete
- ignore coordination effects

Recommendation:

Introduce:

Continuously coordinated flexibility

This represents:

- a system-level capability
 - a multiplier of network utilisation
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4.2 Pricing as an enabler

Current reforms are:

- time-based
- non-locational

Required evolution:

Granular, real-time, constraint-aware pricing

This enables:

- automated response
 - scalable participation
 - reduced need for direct control
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4.3 Market engagement

Procurement-based models:

- assume pre-contracted flexibility
- introduce friction
- limit participation

Alternative:

- continuous participation via price signals
 - open access via APIs
 - real-time price discovery
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4.4 Relationship to existing mechanisms

This approach is **complementary**, not substitutive.

Mechanism	Role	Limitation	Enleashed Contribution
DOEs	Physical constraint limits	Static	Converts to price signals
Flex procurement	Targeted response	Discrete	Enables continuous response
Controlled load	Deterministic	Not scalable	Transitional mechanism
Tariffs	Time-based signals	Non-locational	Adds spatial granularity

5. Reliability and System Impact

5.1 Reliability

Reliability emerges from:

continuous local price signals balancing supply and demand before constraints bind

This produces:

- distributed response
- self-correcting behaviour
- reduced reliance on single assets

DNSPs retain:

- control
 - safety boundaries
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5.2 System-Level Impact

- Reduced curtailment
 - Increased hosting capacity
 - Deferred network investment
 - Improved system utilisation
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5.3 Indicative Order-of-Magnitude Impact

Based on early modelling and comparable systems:

- Curtailment reduction: **5–15%**
- Hosting capacity uplift: **5–20%**
- Capex deferral: **\$0.5m–\$2m per feeder**

Implication:

Small utilisation gains produce disproportionate economic value due to lumpy network investment.

5.4 Investment and Financing Impact

A key constraint in renewable investment is:

lack of revenue certainty

This approach enables:

- locational forward price signals
- visibility of curtailment risk
- improved revenue stability

This leads to:

- higher debt capacity
 - lower cost of capital
 - improved project bankability
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6. Regulatory Support Framework

6.1 Electricity Authority

- enable feeder-level pricing trials
 - support continuous pricing frameworks
 - facilitate forward pricing mechanisms
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6.2 Commerce Commission

- require dynamic NNS modelling in AMPs
- recognise coordination-layer investments

- incentivise capex deferral
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6.3 EECA

- support interoperability standards
 - fund demand response pilots
 - enable consumer participation
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6.4 Cross-Regulator Opportunity

Recognise:

System coordination infrastructure

Including:

- pricing engines
- orchestration layers
- data integration

This is the **missing layer** required to scale NNS.

6.5 Risks and Mitigations

Risk	Description	Mitigation
Price volatility	Local signal instability	smoothing mechanisms
New peaks	synchronised response	staggered pricing
Equity concerns	uneven participation	retailer delivery
Complexity	integration burden	open standards

7. Pilot Proposal

7.1 Suggested Framework

- 10–20 feeders
- integrated with existing telemetry
- 12–18 month duration

Metrics:

- curtailment reduction
- peak demand reduction
- hosting capacity uplift
- capex deferral

Objective:

Validate continuous pricing as a scalable NNS mechanism

8. Key Recommendation

Regulators should explicitly support:

Continuous, locational, constraint-aware pricing as a foundational enabler of scalable non-network solutions

9. Closing Statement

Non-network solutions are not constrained by technology or capital.

They are constrained by:

the absence of a system that continuously coordinates distributed flexibility against physical network limits

Addressing this transforms NNS into:

core system infrastructure

10. About Enleashed

Enleashed is developing an operator-grade coordination and pricing layer for electricity systems.

We enable:

- continuous, constraint-aware price signals
- real-time coordination of distributed energy

- scalable integration of DER

Our core principle:

Binding the economics of electricity to its physical constraints

We are seeking:

- forward-thinking regulators
- distribution network operators

to collaborate on:

- pilot deployments
 - market design
 - regulatory innovation
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