

DOCKETED

Docket Number:	25-EPIC-01
Project Title:	Electric Program Investment Charge 2026–2030 Investment Plan (EPIC 5)
TN #:	268290
Document Title:	Darren Finch Comments - ADES - Carbon free thermal heat and electricity 25MW, DER,
Description:	N/A
Filer:	System
Organization:	Darren Finch
Submitter Role:	Applicant Representative
Submission Date:	1/23/2026 9:37:26 AM
Docketed Date:	1/23/2026

Comment Received From: Darren Finch
Submitted On: 1/23/2026
Docket Number: 25-EPIC-01

ADES - Carbon free thermal heat and electricity 25MW, DER,

Additional submitted attachment is included below.

1. **Primary Contact Information**

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2. **Organization/Affiliation**

Emerald Horizon – ADES Modular Carbon-Free Power & Storage

3. **Concept Description**

Emerald Horizon proposes the deployment and validation of its Accelerated Driven Energy Source (ADES) system—a modular, carbon-free, behind-the-meter energy solution designed to deliver 15 MWe / 25 MWt of continuous power for 20+ years with zero water use. The system uses high-temperature molten salt to generate heat or electricity on demand, offering unmatched reliability, siting flexibility, and cost predictability. EPIC funds are essential to support demonstration, performance validation, and integration studies across California’s industrial, commercial, and municipal sectors. This funding will accelerate adoption, reduce deployment risk, and validate ADES as a scalable alternative to conventional generation and intermittent renewables.

4. **Technological Advancement and Barrier Reduction**

ADES directly addresses multiple barriers to California’s statutory energy goals:

- **Grid Interconnection Delays:** ADES operates behind-the-meter, bypassing lengthy permitting and interconnection queues.
- **Water Scarcity:** Unlike traditional thermal systems, ADES uses molten salt and requires zero water, critical for arid regions and water-stressed industries.
- **Reliability Gaps in Renewables:** ADES provides 24/7/365 output, solving intermittency and curtailment issues.
- **Cost Volatility:** Long-term fixed pricing reduces exposure to market fluctuations.
- **Siting Constraints:** Compact 40-ft footprint enables deployment at logistics hubs, data centers, and urban facilities.

Performance targets include:

- Delivered cost of energy: \leq \$0.08/kWh
- Availability: \geq 99.5%
- Deployment time: \leq 6 months from contract to commissioning

End users include industrial operators, municipalities, data centers, and commercial facilities seeking resilient, carbon-free energy without grid dependence.

5. Anticipated Outcomes

If successful, ADES will:

- Reduce ratepayer costs through on-site generation and avoided transmission fees
- Improve reliability with continuous baseload output
- Enhance environmental sustainability via zero-carbon, zero-water operation
- Advance equity by enabling deployment in underserved or grid-constrained regions
- Support safety through hardened, modular design with passive thermal regulation

At scale, ADES can displace diesel backup, reduce grid congestion, support DER goals, and accelerate California's path to net-zero.

6. Evaluation Metrics

- Cost per kWh delivered (quantitative)
- System uptime and reliability (quantitative)
- Water savings per site (quantitative)
- GHG emissions avoided (quantitative)
- Stakeholder adoption and satisfaction (qualitative)
- Time-to-deployment (quantitative)

7. Supporting References

- USGS: Thermoelectric power water use statistics
- DOE LPO: Modular energy system eligibility and performance benchmarks
- CAISO: Interconnection queue delays and grid congestion reports
- Emerald Horizon internal performance data and third-party validation studies (available upon request)

8. Strategic Goal Alignment

- a. Transportation Electrification:** ADES supports EV charging hubs with reliable, on-site power independent of grid constraints.
- b. Distributed Energy Resource Integration:** ADES is a dispatchable, behind-the-meter DER that complements solar and storage.
- c. Building Decarbonization:** ADES enables full electrification of heating and cooling loads with zero-carbon thermal energy.
- d. Achieving 100% Net-Zero Carbon Emissions and Coordinated Role of Gas:** ADES replaces fossil-based baseload with modular, carbon-free generation.
- e. Climate Adaptation:** ADES strengthens resilience in water-stressed, fire-prone, and grid-fragile regions through autonomous operation and zero water use.