



2020 West El Camino Avenue, Suite 800
Sacramento, CA 95833
hcai.ca.gov



Hospital Building Safety Board Technology and Research Committee

AMENDED

AGENDA

June 18, 2026

10:00 a.m. – 4:00 p.m.

The Committee may not discuss or act on any matter raised during the public comment section that is not included on this agenda, except to place the matter on a future meeting agenda. (Government Code §§ 11125, 11125.7, subd. (a).)

Locations:

[2020 West El Camino Ave, Conference Room 930, Sacramento, CA 95833](#)

[355 South Grand Avenue, Conference Room 2000, Los Angeles, CA 90071](#)

[Teams Meeting Access](#); Meeting ID: 246 082 870 151 23; Passcode: dm3ow9U2

Call in: (916) 535-0978; Phone Conference ID: 246 000 315#

- Item #1 Call to Order and Welcome
Facilitator: Gary Dunger, Executive Director, Design and Construction, Cedars-Sinai Health System; Committee Chair (or designee)

- Item #2 Roll Call and Meeting Advisories/Expectations
Facilitator: Veronica Yuke, HCAI; HBSB Executive Director (or designee)

Item #1

Call to Order and Welcome

*Facilitator: Gary Dunger, Executive Director, Design and Construction
Cedar-Sinai Health System; Committee Chair (or designee)*

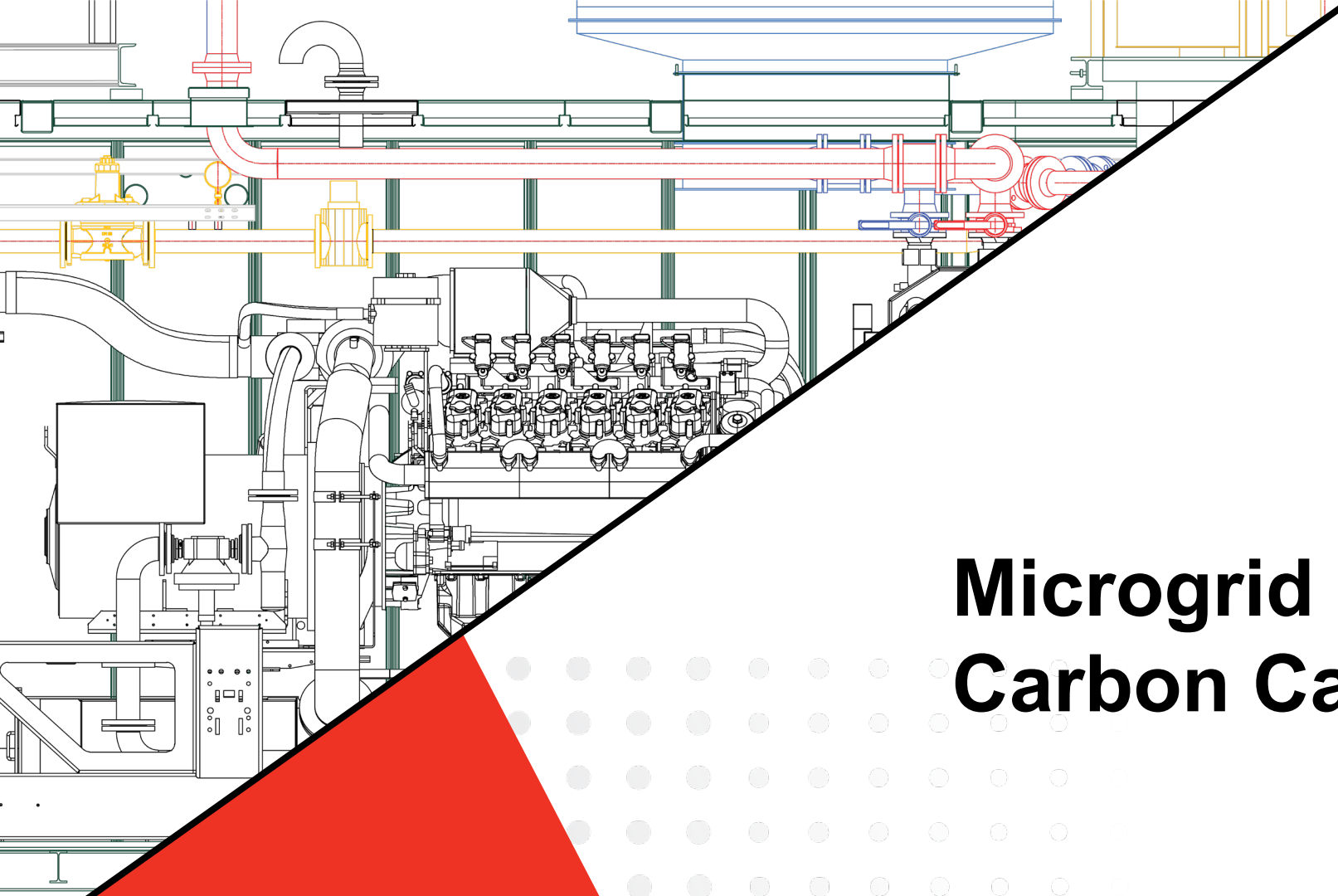
Item #2 Roll Call and Meeting Advisories/Expectations
*Facilitator: Veronica Yuke, HCAI; HBSB Executive Director (or
designee)*

Item #3

Presentation: Affordable Clean Energy for Supplemental and Emergency Back Up Power

- This presentation will review new technologies for generating onsite electric and thermal energy utilizing renewable natural gas and carbon capture. This will help the facility to reach 2045 carbon neutral goals and qualify for multiple federal subsidies.
- Discussion on how to utilize the project in both supplemental and emergency backup power scenarios.
- Discussion and public input

Facilitator: Jeff Blair, President, BSD Builders, Inc. (or designee)



Microgrid Cogeneration Carbon Capture System

Presented By

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Principal

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Generating Onsite Renewable Electric & Thermal Energy



What is a Microgrid Cogeneration Carbon Capture System?

Our Microgrid Cogeneration Carbon Capture System (MCCCS) is comprised of 3 to 4 components that operate together to create a small power plant that produces power for a facility in place of the electric grid.

- 1) Combined Heat and Power Plant (DER)
- 2) Microgrid Controller
- 3) Carbon Capture System
- 4) Back Up Fuel System (when required)

MICROGRID SYSTEM COMPONENTS



Fuel Storage
System
OSP-0826



Microgrid Power Plant
OSP-0826



Microgrid Controller
OSP-0010

Microgrid Power Plant

- The power plant is a natural gas reciprocating engine that runs 24/7 producing kilowatt hours which provides all electrical power for the facility eliminating their need to purchase energy from the electrical grid.
- The power plant has a heat recovery system included that takes the engine heat and exhaust heat and sends it through a double walled heat exchanger and the heat can be used for hot water, heating, cooling and steam generation which saves the facility from having to use their boilers or chillers.
- This power plant produces kilowatt hours (kWh) at 4 to 6 cents per kWh. Most facilities are paying 28 to 40 cents per kWh to their utility company.
- With Long Term Operation and Maintenance these power plants can run indefinitely.



Microgrid Controller

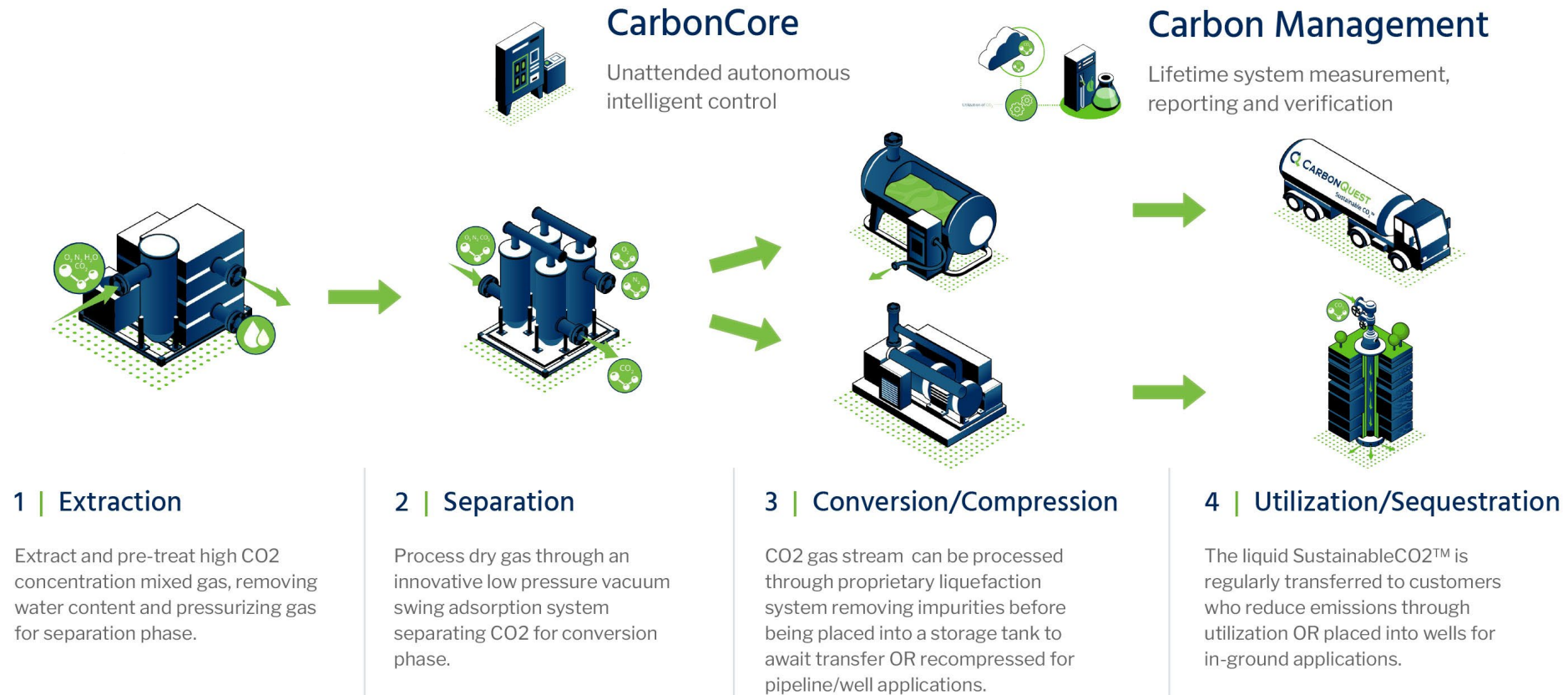
- Provides system optimization, management and balance of Distributed Energy Resources
- Manages grid interconnection and islanding from the grid.
- Stabilizes voltage and frequency and allows for black start capability.



Using Carbon Capture to Reach 2045 GHG Reduction Goals



Carbon Capture Platform for Commercial Infrastructure



Carbon Capture Benefits & Offtake Pathways

Carbon Capture Benefits

- CO2 Offset from 10,000 to 60,000 metric tons
- Achieve 100% of state required GHG reduction goals
- Eligible for 45Q Tax Credit
- New revenue stream from sales of 99.99% pure liquid CO2

Offtake Pathways

- Concrete
- Polymers and Chemicals
- Liquid Fuels
- Cooling
- Geological Sequestration
- Beverage



Comparison of Efficiency and Environmental Effect of Carbon-Based Systems



800 kW Micro Cogeneration vs 800 kW Fuel Cell

Micro Cogeneration

Combined Heat and Power. CHP

What it is

- Natural-gas generator
- Electric power and heat
- CHP

Key points

- Modular with OSP
- Heat recovery
- Microgrid, black start
- Resiliency + heat recovery



Fuel Cell

Solid Oxide Fuel Cell, SOFC

What it is

- On-site power system
- Converts fuel to electric
- Non-combustion process

Key points

- Higher electrical efficiency
- Low NO_x / CO and quiet o
- Best for steady base-load
- No OSP confirmed



Summary, 800 kW Micro Cogeneration vs Fuel Cell

Item	Micro Cogeneration	Fuel Cell
Advantages	- HCAI / OSP seismic certification - Heat recovery for heating, cooling & steam - Backup power strategy - Islanding / black start - Very quiet operation	- Higher elec. eff. - Very low NOx / CO - Quiet operation - Good base-load power
Disadvantages	- Lower elec. efficiency, however, 90% efficient with CHP - Combustion emissions - Air permit required - Engine maintenance	- OSP must be confirmed - May need separate gen. - Slower load response - Stack replacement cost
Bottom Line	Stronger overall hospital fit when resiliency, heat recovery, and emergency-power strategy matter.	Better elec. efficiency and emissions but will not replace emergency generator.

Emergency Backup Power Scenarios





BSD SSC FUEL STORAGE SYSTEM-

- Type IV Composite (Carbon Fiber) High-Pressure Vessel
- Rotomolded Plastic Liner
- ASME RP Certification
- DOT & Transport Canada Permits
- Protected by a metal enclosure (Tamper Proof)
- Quick 3-Stage Gas Pressure Reduction System
- Real Time Telemetry & Fire Life Safety System

TELEMETRY & FIRE LIFE SAFETY FEATURES

TELEMETRY SYSTEM -

- REAL-TIME REMOTE CONTINUOUS MONITORING
 - Ambient Temperature
 - High & Low Tank Pressure
 - Tank Temperature
 - Volume, Weight and SCF Calculations
 - Data Captured and Transmitted via Cellular or Satellite Connection
- CNG Gas Sniffers Within Enclosure
- On Cabinet Alarm Light Indicators

FIRE LIFE SAFETY FEATURES -

- Thermally Activated Pressure Relief Devices (TPRDs) provide automatic venting of gas
 - Temperature & Pressure Activation
- Redundant Thermal and Pressure Protection
- Full venting of 4,000 PSI in under 20 minutes
- Rated Tank Burst Pressure 10,000 PSI (nearly 3 times operating pressure)
- Rigid anchoring of vent lines to prevent whipping during discharge
- Upward discharge of vented gas at above 13 feet
- US DOT 20425, TC-SH13375, and ASME RP standard
- Independently Validated to ISO 11515 Standards Fire Resistance Testing
- OSP-0826 Special Seismic Certification - Shaker Table Tested

System Vents

Telemetry System Controller



ACTIVE vs PASSIVE MEANS FEATURES

TYPICAL PASSIVE MEANS -

- Block Wall
 - Limited to Two Sides
 - Height of Wall to Top of Tank

ADVANCED PASSIVE MEANS -

- Type 4 Carbon Fiber Tanks
- Protected CNG Piping In Tamper Proof Enclosure
- Rated Tank Burst Pressure 10,000 PSI (nearly 3 times operating pressure)
- Rigid anchoring of vent lines to prevent whipping during discharge
- Upward discharge of vented gas at above 13 feet
- US DOT 20425, TC-SH13375, and ASME RP standard
- Independently Validated to ISO 11515 Standards Fire Resistance Testing
- OSP-0826 Special Seismic Certification - Shaker Table Tested

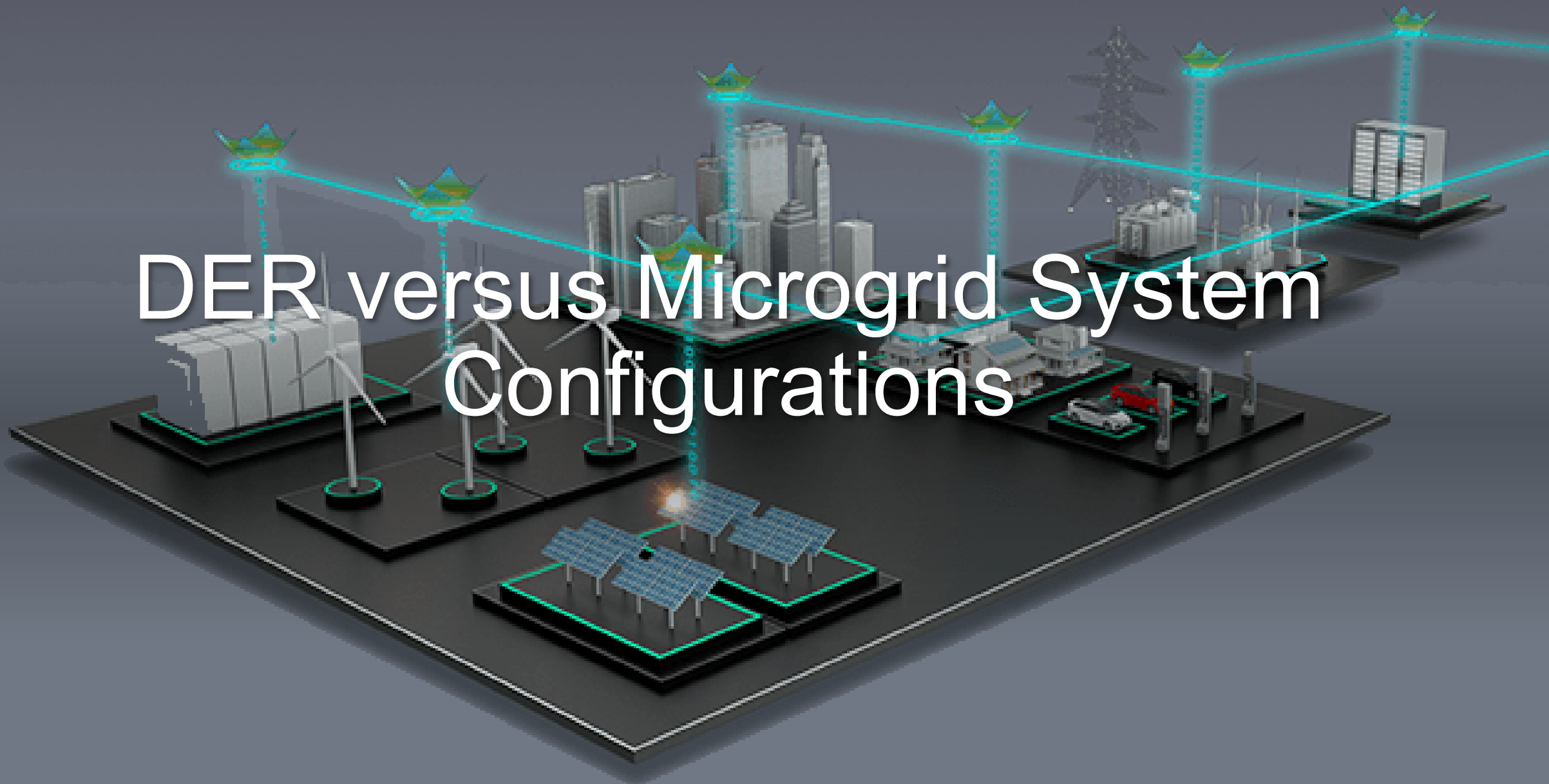
ACTIVE MEANS -

- Real Time Telemetry
- Leak Detection System (Gas Sniffers)
- Thermally Activated Pressure Relief Devices (TPRDs) provide automatic venting of gas
 - Temperature & Pressure Activation
- Redundant Thermal and Pressure Protection
- Horn Strobe (Audible and Visual Alarm)

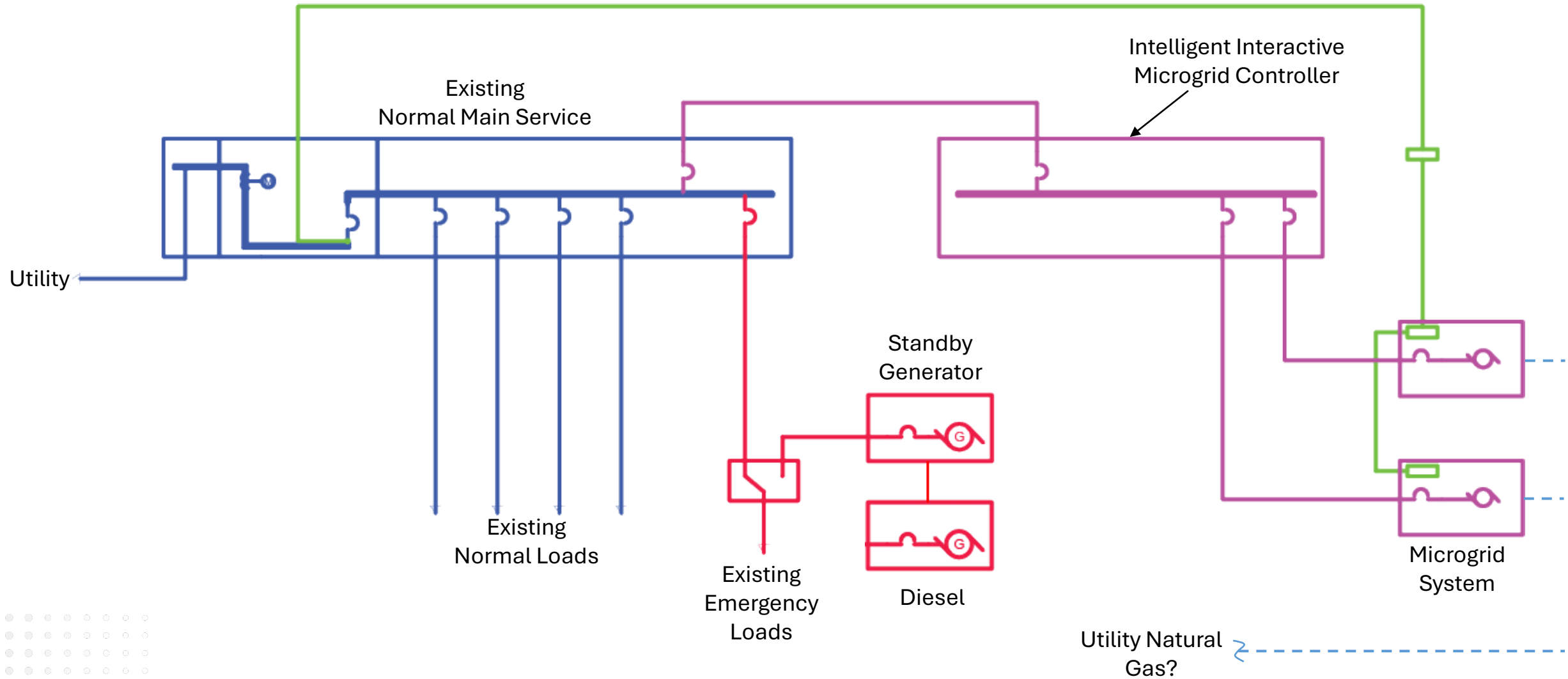
Leak Detector



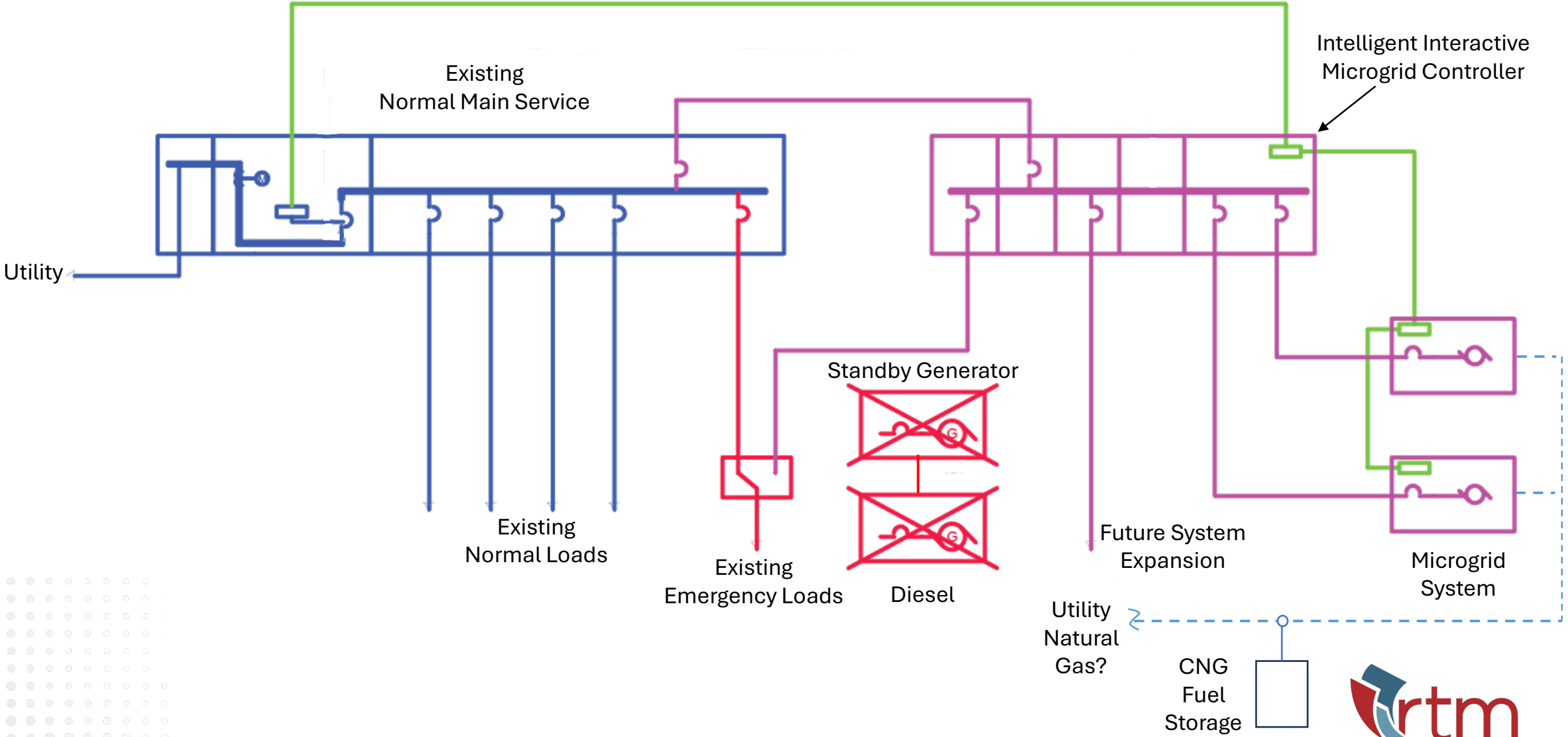
DER versus Microgrid System Configurations



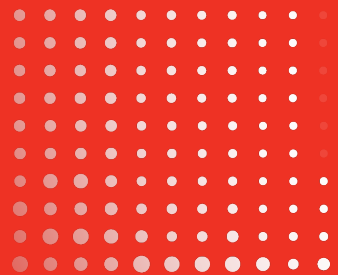
TYPICAL DISTRIBUTED ENERGY RESOURCE (DER) MODEL



TYPICAL MICROGRID



Q&A



Item #4

Presentation: Electronic Testing, Inspection and Observation (eTIO) Program

- Update on recent developments with the eTIO program and a live demonstration from the HCAI Inspection Services Unit.
- Discussion and public input

Facilitator: Chris Davis, SE, District Structural Engineer, HCAI (or designee)

eTIO Development and Status Update

Status Update

- Four projects currently using the eTIO with two DPOR's
 - Two projects in plan review
 - Two projects in construction

↑↓ RECORD	↑↓ RECORD ALIAS NAME	↑↓ APPLICATION NAME	↑↓ STATUS	↑↓ APPLICANT	↑↓ RECORD TYPE	↑↓ CREATED DATE
S261225-19-00-TIO	Testing Inspection and Observation (TIO)	S261225-19-00	Open	Gary Dunger,Gary Dunger,Gary Dunger	eTIO/Testing Inspection Observation/NA/NA	06/11/2026
S261225-19-00	Application for New Project	WI-FI NETWORKS INSTALLATION (EIS (VAPs)	Active	Gary Dunger,Gary Dunger,Gary Dunger	Permits/Application for New Project/NA/NA	06/03/2026

Development Update

- Adding final features and updates based on user feedback

Milestone Sign-Off Process - Step 3 HCAI View

at.ca.gov/contracts/objects/milestones/vcr/vcrstaged=z

Close Window

Request Verified Compliance Reports for Milestone: Test 1

The verified compliance reports will include construction work up to the following date: 03/27/2026

Required Professionals:

Individual	Type	Responsibility	Email	Submitted	
Chris	Responsible Entity (NON-OPAA)	Delegate	cdavis289+sl_chris@gmail.com	☒	Review VCR
Steven Hoffman	IOR	Delegate	cdavis289+steve_ior@gmail.com	☒	Review VCR
Kevin Pezzoni	Electrical	Delegate	cdavis289+elec@gmail.com	☒	Review VCR

HCAI DSE Sign-Off

HCAI FLSO Sign-Off

HCAI CO Sign-Off

Deny Sign-Off and Unlock Milestone

Clicking this should unlock the milestone and change the milestone icon back to the yellow circle with black arrow so the DPOR can clear VCR forms or make other changes as needed.

Note: CO shall be the last to sign-off on the current milestone unless DSE and FLSO is not required.

Clicking any of these should open the dialogue on step 4 for the appropriate button. For the DSE and FLSO, after they sign off, this button should change to green and say "DSE Signed-Off" or "FLSO Signed-Off". If it is possible to restrict an HCAI user to only click on the button that matches their job title, that would be nice. Otherwise, it will be honor system.

Development Update

- Adding final features and updates based on user feedback

VCR Form for ONLY Responsible Entity

Update text in red and have it shown in red as it is now required for the submit button to display.

Require text to be entered here.

Require selection of at least one box.

If 'Review of reports submitted by others' is selected, then show the "I have reviewed..." text" and the test reports box and Inspection Reports box and require at least one of those to be checked.

Don't have a drop down. Have it say "Responsible Entity: OPAA-0005" or "Responsible Entity: Chris Davis". The name should be what was entered in the responsible entity tab.

If 'Other' is selected, show this text line and show the text block allowing for text to be entered. This is required.

Verified Compliance Report

Facility #: 10112 Facility Name: Marshall Medical Center HCAI Project Number: 5251199-09-00
Street Address: 1100 Marshall Way City: Placerville County: 09 - El Dorado Zip: 95667
Record Name(Project Scope): OB LASER REPLACEMENT
Milestone: Test 1; Test 1 Duplicate
This report covers construction work of the 20 day of April, 2026
Observed or Inspected (by Inspectors) Elements of Construction (REQUIRED):

I have exercised reasonable diligence to obtain the facts for my personal knowledge that includes: (AT LEAST ONE SELECTION REQUIRED)
☐ Continuous physical presence on-site (self/alternate) ☐ Periodic physical presence (self/alternate) ☐ Review of reports submitted by others
I have reviewed and accepted the following items of the TIO Program required in this milestone / interval: (AT LEAST ONE SELECTION REQUIRED)
☐ Test Reports ☐ Inspection Reports
Comments and/or Exception List:

Responsible Entity: OPAA-0046
Relationship to Responsible Entity (REQUIRED): Dropdown with 'Other' or 'Self'
Provide justification for filling out Verified Compliance Report for the Responsible Entity noted above (REQUIRED):

Name (REQUIRED): Business Name: Lic/Cert #: Signature: Date: 05/20/2026
Sign and fill in REQUIRED information to enable submission of Verified Compliance Report

Next Development Steps

- Add 'submit for plan review' button to eTIO to lock eTIO when DPOR submits eTIO to the Office
- Add any missing features identified as the eTIO is taken through the life of a project from plan review to construction
- Make updates based on provided user feedback.

Public Rollout

- Rollout is currently limited to the current projects until current development updates are complete. Will re-open rollout to more projects in 2-4 weeks after updates have been tested and deployed to the production environment.

Education

- Currently developing training material
 - Web-based instructions allowing a user to explore the eTIO and learn about the features
 - Short videos covering eTIO topics (ie setup, getting started, etc).



Live Demo

Item #5

Presentation: Reliable Backup Power for Healthcare Facilities:
Hybrid SuperCapacitor Uninterruptible Power Supply (UPS) Units

- Reliable power backup is essential for medical facilities to ensure patient safety and regulatory compliance. The Hybrid SuperCapacitor, paired with a 3-phase UPS, enables seamless generator transfer, reduces costs, and saves space while supporting the requirements of sensitive medical equipment.
- Discussion and public input

Facilitator: Alan Forster, Musashi Energy Solutions (or designee)

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Live Demo

Item #6

Comments from the Public/Committee Members on Issues not on this Agenda.

The Committee will receive comments from the Public/Committee Members. Matters raised at this time may be taken under consideration for placement on a subsequent agenda

- Discussion and public input

Facilitator: Gary Dunger (or designee)

Item #7

Adjournment