HCAI Department of Health Care Access and Information
2020 West El Camino Avenue, Suite 800
Sacramento, CA 95833
hcai.ca.gov

Hospital Building Safety Board
Education and Outreach Committee
AGENDA
May 22, 2024
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 1901, Los Angeles, CA 90071
Teams Meeting Access; Meeting ID: 288 221 992 180; Passcode: FRAs4n
Call in: (916) 535-0978; Phone Conference ID: 615 154 53#

Item #1 Call to Order and Welcome
Facilitator: Scott Mackey, AIA, NCARB, APEC, Design Manager, Hensel Phelps; Committee Chair (or designee)

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

Item #3 Review of Committee-supported 2024 accomplishments
- ASHE 2024 International Summit and Exhibition on Health Facility Planning Design and Construction (PDC) Conference, held March 17 – 20, 2024, in San Diego
- *Introducing the OSHPD Emergency Design Guide* presentation highlights
- *How California is Making Microgrids Work* presentation highlights
- Discussion and public input

Facilitators: Scott Mackey; Teresa Endres, AIA, ACHA, EDAC, AAH, Senior Associate, Medical Planning Director, Taylor Design, Committee Member; and Jamie Schnick, Senior Electrical Engineer, HCAI (or designees)

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Item #4 Update on the *Design Guide for Working on Projects under OSHPD Jurisdiction – Tips from the Experts*

- Discussion and public input

Facilitators: Paul Coleman, Senior Architect, HCAI; and Mia Marvelli, Architect, Supervisor, HCAI (or designees)

Item #5 Update on the *Design Guide for Planning and Preparing for Disasters* (formerly the Emergency Design Guide)

- Discussion and public input

Facilitators: Paul Coleman and Mia Marvelli (or designees)

Item #6 Update on the Policy Intent Notice (PIN) 50 – Integrated Review webinar

- Webinar is tentatively scheduled for Fall 2024
- Discussion and public input

Facilitator: Diana Navarro, Supervisor, HCAI (or designee)

INTEGRATED REVIEW

Formerly Collaborative Review and Construction (CRC) process & Phased Plan Review (PPR)

Webinar Updates

- PIN 50 Webinar- remote, not in webinar room
- Tentative Date: **Wednesday, September 25th**
- Tentative Time: **1-2 PM**
- Moderator: Monica Colosi
- Presenters: Gary Dunger & Diana Navarro
- Topics to include:
  - *Development of PIN 50 (from CRC to IR)*
  - *IR Requirements/Parameters*
  - *"How to" from a client versus reviewer perspective (including Accela access, contributor license info, etc.)*
  - *Sample Projects/Tools*

PIN 50- Tip of the Day

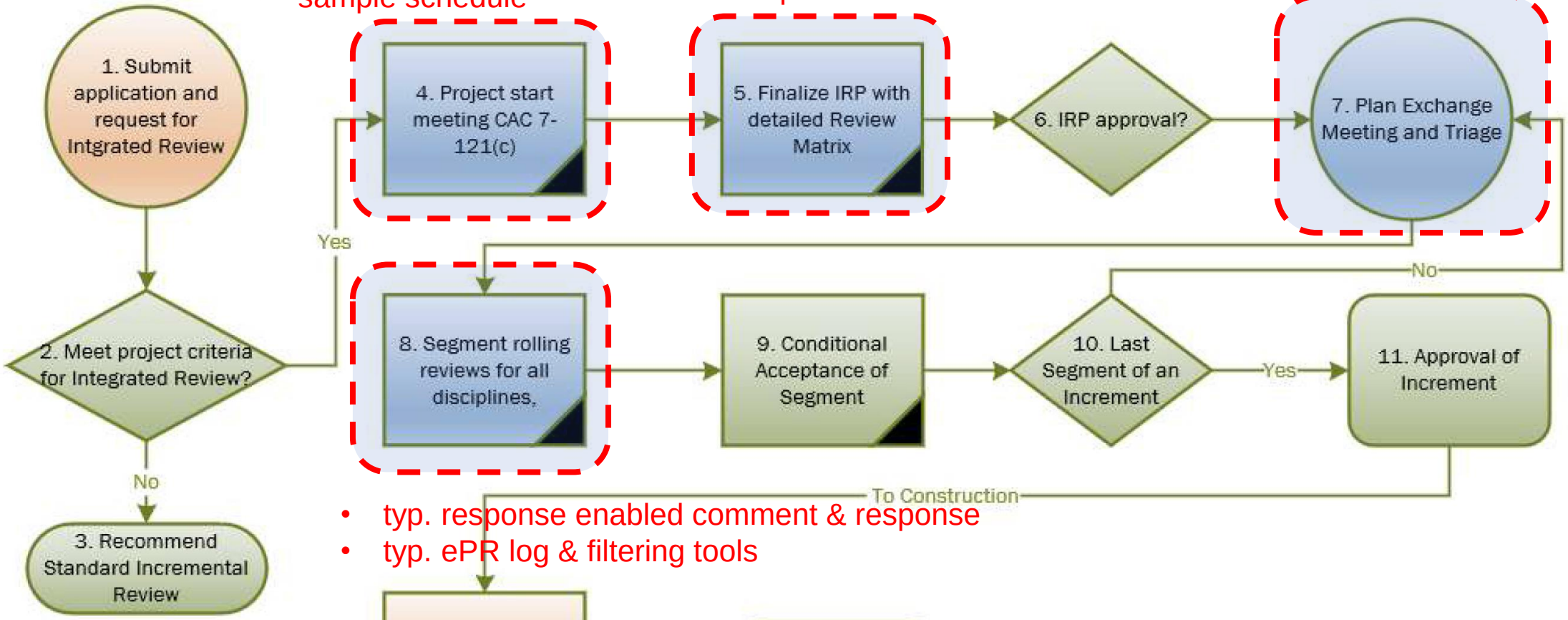
- Purpose
- Background
- Definitions
- Procedure
- Electronic Review
  - *Contributor Role*
  - *Accessing Comments*
  - *Exporting Comments*
  - *Responding to Comments*
  - *Available Reports*
- ISU “Tip of the Day” to be distributed **September 5th**
- **Registration Link** to PIN 50 Webinar

Flow Chart for Integrated Review

- sample agenda
- sample schedule

- sample review matrix & version control

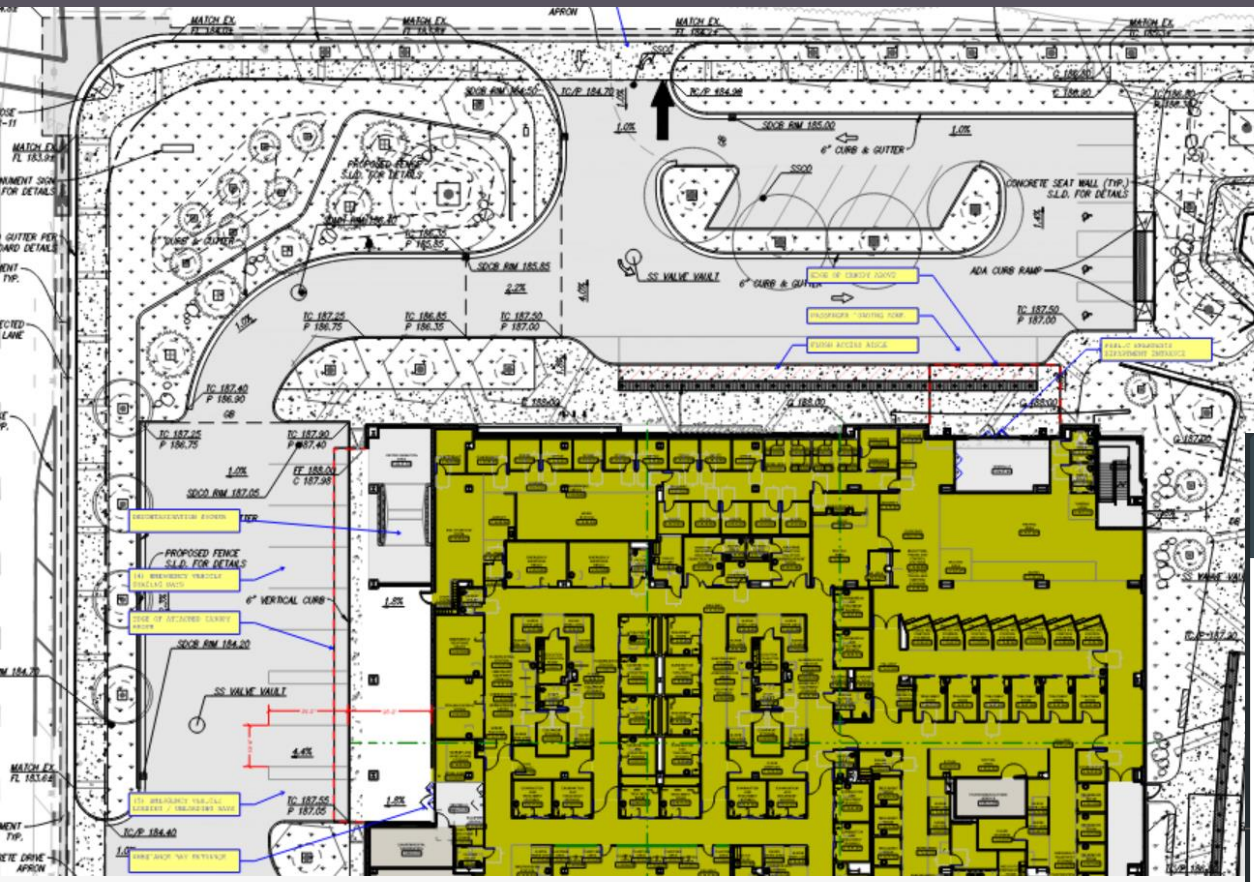
- agenda
- controversial comments
- design issues

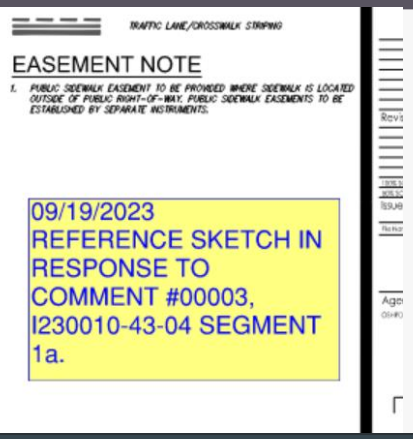


- typ. response enabled comment & response
- typ. ePR log & filtering tools

- extensive preliminary/ early CDPH feedback
- early access to comments on a regular basis
- pre-submittal & post-review meetings
- managed approach

Sample Response Enabled Comment





00003 RSLV ARCH Susan Lockyer

DETAILS | RESPONSES | ATTACHMENTS | LOGS

04 Aug 2023

Please provide a site plan that shows required emergency vehicle access to ED per CBC 1224.33, as well as direct access to public roads for ambulance and vehicle traffic per CBC 1224.33.3.2.

Comment Text Content Modified At 04 Aug 2023 16:48:36

Please provide a site plan that shows required emergency vehicle access to ED per CBC 1224.33, paved emergency patient access per 1224.33.3.2, as well as direct access to public roads for ambulance and vehicle traffic per CBC 1224.33.3.2.

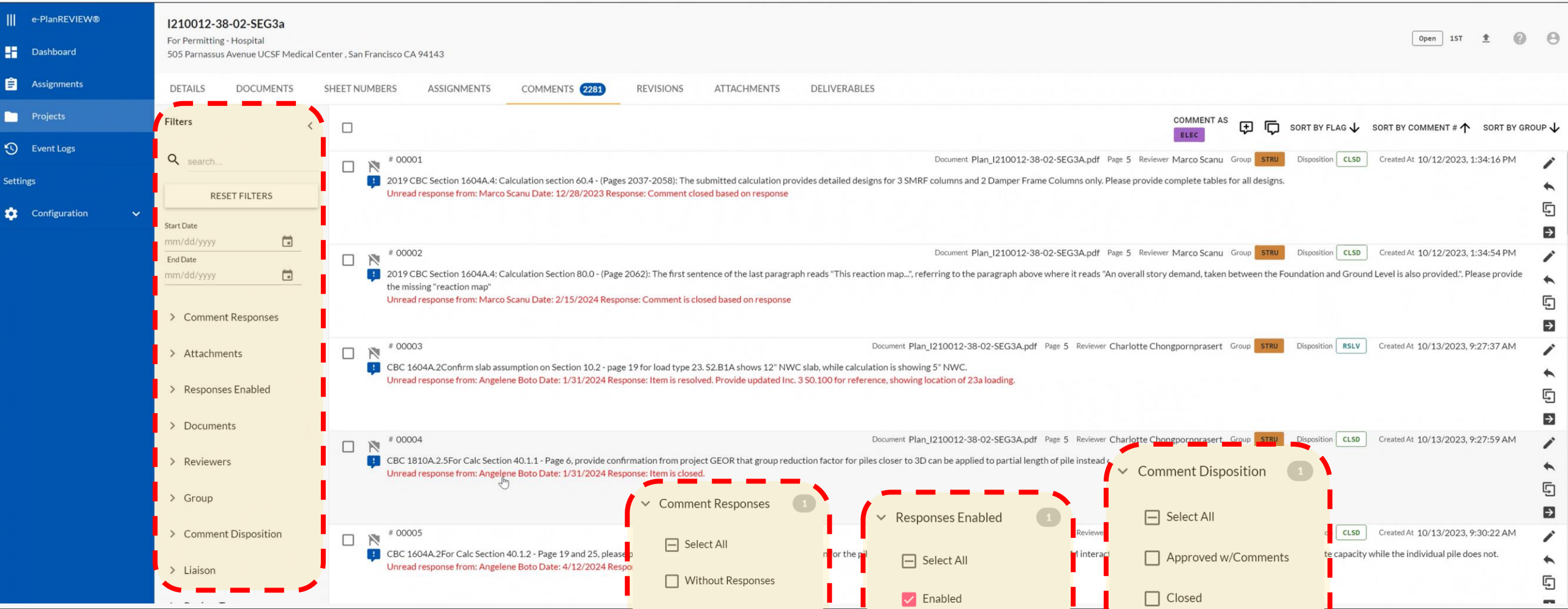
Comment Text Content Modified At 07 Aug 2023 16:43:21

JF **Joe Fisher** 19 Sep 2023 09:24:16

See attached PDF illustrating ED Ambulance and Public access approach. This will be documented in site plans included in forthcoming Segment 3a.

03 Oct 2023 **RSLV**

Sample Log


e-PlanREVIEW®
Dashboard
Assignments
Projects
Event Logs
Settings
Configuration
I210012-38-02-SEG3a
For Permitting - Hospital
505 Parnassus Avenue UCSF Medical Center , San Francisco CA 94143
Open
1ST
DETAILS
DOCUMENTS
SHEET NUMBERS
ASSIGNMENTS
COMMENTS 2281
REVISIONS
ATTACHMENTS
DELIVERABLES
Filters
search...
RESET FILTERS
Start Date
mm/dd/yyyy
End Date
mm/dd/yyyy
Comment Responses
Attachments
Responses Enabled
Documents
Reviewers
Group
Comment Disposition
Liaison
COMMENT AS
ELEC
SORT BY FLAG
SORT BY COMMENT #
SORT BY GROUP
00001
Document Plan_I210012-38-02-SEG3A.pdf
Page 5
Reviewer Marco Scanu
Group STRU
Disposition CLSD
Created At 10/12/2023, 1:34:16 PM
2019 CBC Section 1604A.4: Calculation section 60.4 - (Pages 2037-2058): The submitted calculation provides detailed designs for 3 SMRF columns and 2 Damper Frame Columns only. Please provide complete tables for all designs.
Unread response from: Marco Scanu Date: 12/28/2023 Response: Comment closed based on response
00002
Document Plan_I210012-38-02-SEG3A.pdf
Page 5
Reviewer Marco Scanu
Group STRU
Disposition CLSD
Created At 10/12/2023, 1:34:54 PM
2019 CBC Section 1604A.4: Calculation Section 80.0 - (Page 2062): The first sentence of the last paragraph reads "This reaction map...", referring to the paragraph above where it reads "An overall story demand, taken between the Foundation and Ground Level is also provided.". Please provide the missing "reaction map"
Unread response from: Marco Scanu Date: 2/15/2024 Response: Comment is closed based on response
00003
Document Plan_I210012-38-02-SEG3A.pdf
Page 5
Reviewer Charlotte Chongpornprasert
Group STRU
Disposition RSLV
Created At 10/13/2023, 9:27:37 AM
CBC 1604A.2Confirm slab assumption on Section 10.2 - page 19 for load type 23. S2.B1A shows 12" NWC slab, while calculation is showing 5" NWC.
Unread response from: Angelene Boto Date: 1/31/2024 Response: Item is resolved. Provide updated Inc. 3 S0.100 for reference, showing location of 23a loading.
00004
Document Plan_I210012-38-02-SEG3A.pdf
Page 5
Reviewer Charlotte Chongpornprasert
Group STRU
Disposition CLSD
Created At 10/13/2023, 9:27:59 AM
CBC 1810A.2.5For Calc Section 40.1.1 - Page 6, provide confirmation from project GEOR that group reduction factor for piles closer to 3D can be applied to partial length of pile instead
Unread response from: Angelene Boto Date: 1/31/2024 Response: Item is closed.
00005
Created At 10/13/2023, 9:30:22 AM
te capacity while the individual pile does not.
CBC 1604A.2For Calc Section 40.1.2 - Page 19 and 25, please
Unread response from: Angelene Boto Date: 4/12/2024 Respo
Comment Responses 1
Select All
Without Responses
With Read Responses
With Unread Responses
Responses Enabled 1
Select All
Enabled
Disabled
Comment Disposition 1
Select All
Approved w/Comments
Closed
Open
Resolved

Item #7 Update on the Offsite Fabrication/Preassembled Components webinar

- Discussion and public input

Facilitators: Cody Bartley, DPR Construction, Committee Vice Chair; and Teresa Endres (or designees)

Item #8 Creation of an “Island Hospital Concept” Subcommittee

- Tasked with investigating the concept of an energy self-sustaining, carbon neutral, off-the-grid hospital facility able to operate independently from off-site utilities.
- Vote to approve creation of Subcommittee
- Discussion and public input

Facilitators: Scott Mackey and Jamie Schnick (or designees)

HCAi
Department of Health Care Access and Information

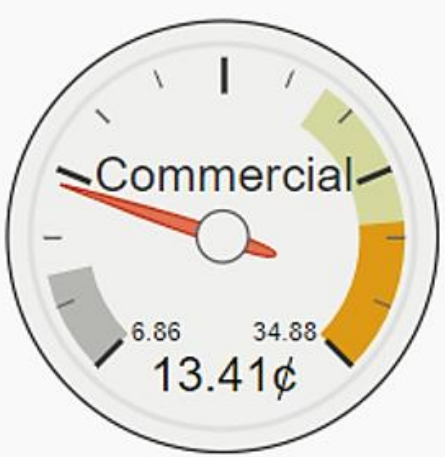
ISLAND HOSPITAL(s)

By:
Duc Bui/Salas O'Brien
David Bliss/Faraday Microgrids
Marc Hoffman/Innovus
Jamie Schnick/HCAI

Why go to Island Hospital?

Concerns about utility services

- Continuing rising utility costs
- Reliability concerns
    - PSPS events
    - Fires
    - Earthquakes



Oct. 31, 2023

Wildfire in Southern California Forces Thousands From Their Homes

The Highland Fire, in a rural area southeast of Los Angeles, was 10 percent contained as of Tuesday evening.

By CLAIRE MOSES

Why go to Island Hospital?

Concerns about utility services

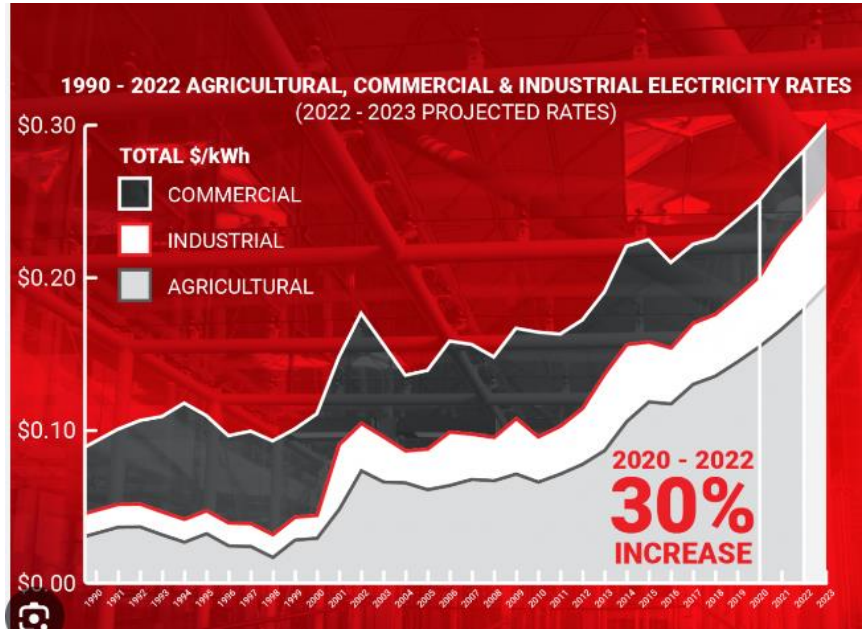
- Power quality issues
- Expensive costs and excessive scheduling for new service requests & service upgrades
- Will things get better or worse?
    - Transition to all electric facilities could stress the grid.
    - Electric Car Charging could stress the grid.
    - Continued density and growth could stress the grid.

What does the utility do that you can do better?

Keep costs reasonable? It depends where you are.

- Cost of on-site power is making the concept of distributed generation and microgrids cost affordable.
- Perception is that with no on-site control, power costs are going up with no way to stop it.

Maintenance, customer knows who to call when power issues occur?



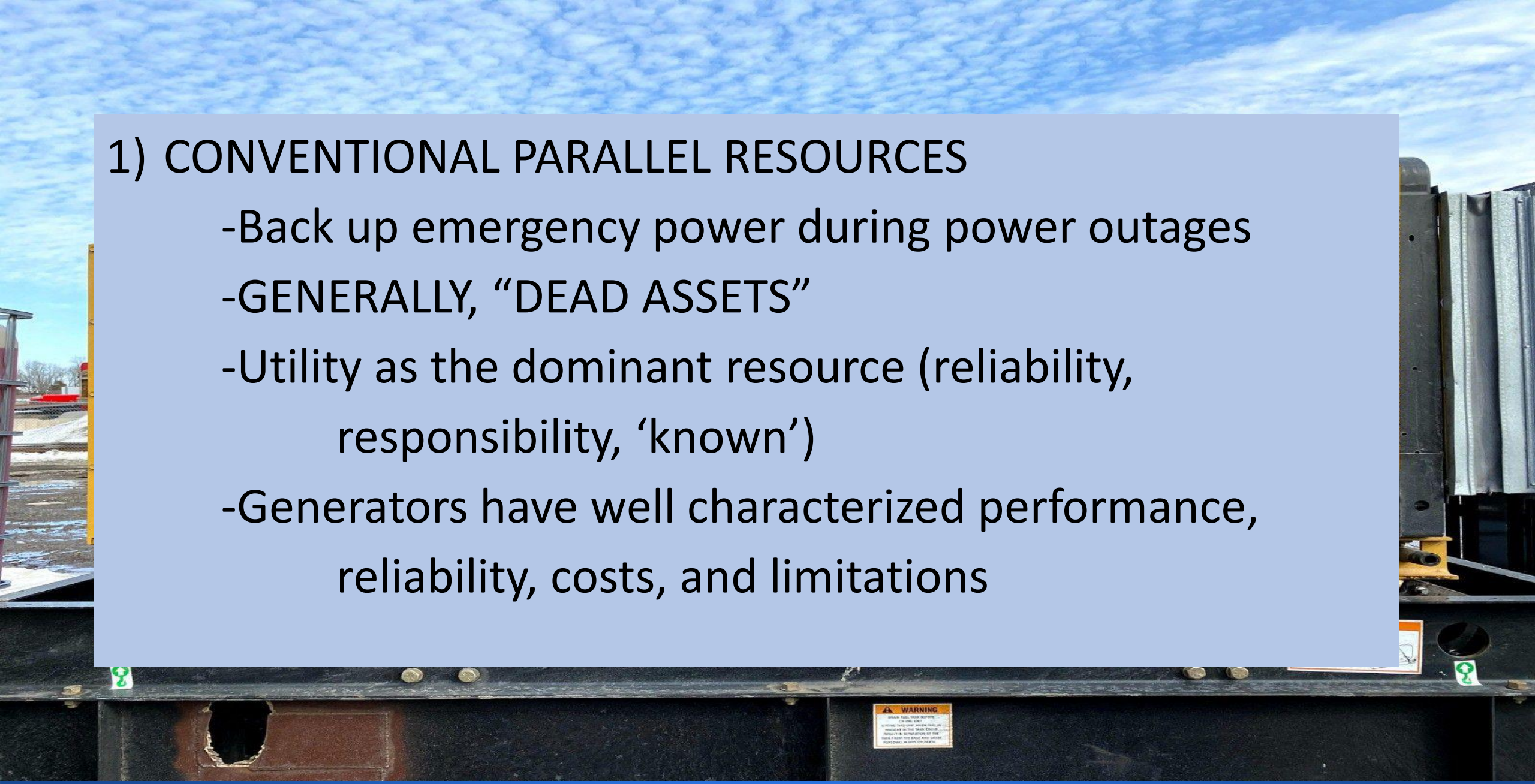
What do we mean by “Island” hospital??? (HINT…its not a hospital on Maui)

ABLE TO PARALLEL UTILITY = CONVENTIONAL DESIGN (DORMANT BACKUP SYSTEMS)

SUPPLEMENTAL, CONTINUOUSLY OPERATING SITE RESOURCES WITH SEAMLESS TRANSITION

UTILITY AS BACKUP ONLY

FULLY UTILITY INDEPENDENT (WHAT CONSTITUTES “DUAL” RESOURCES?)



1) CONVENTIONAL PARALLEL RESOURCES

-Back up emergency power during power outages

-GENERALLY, “DEAD ASSETS”

-Utility as the dominant resource (reliability, responsibility, ‘known’)

-Generators have well characterized performance, reliability, costs, and limitations

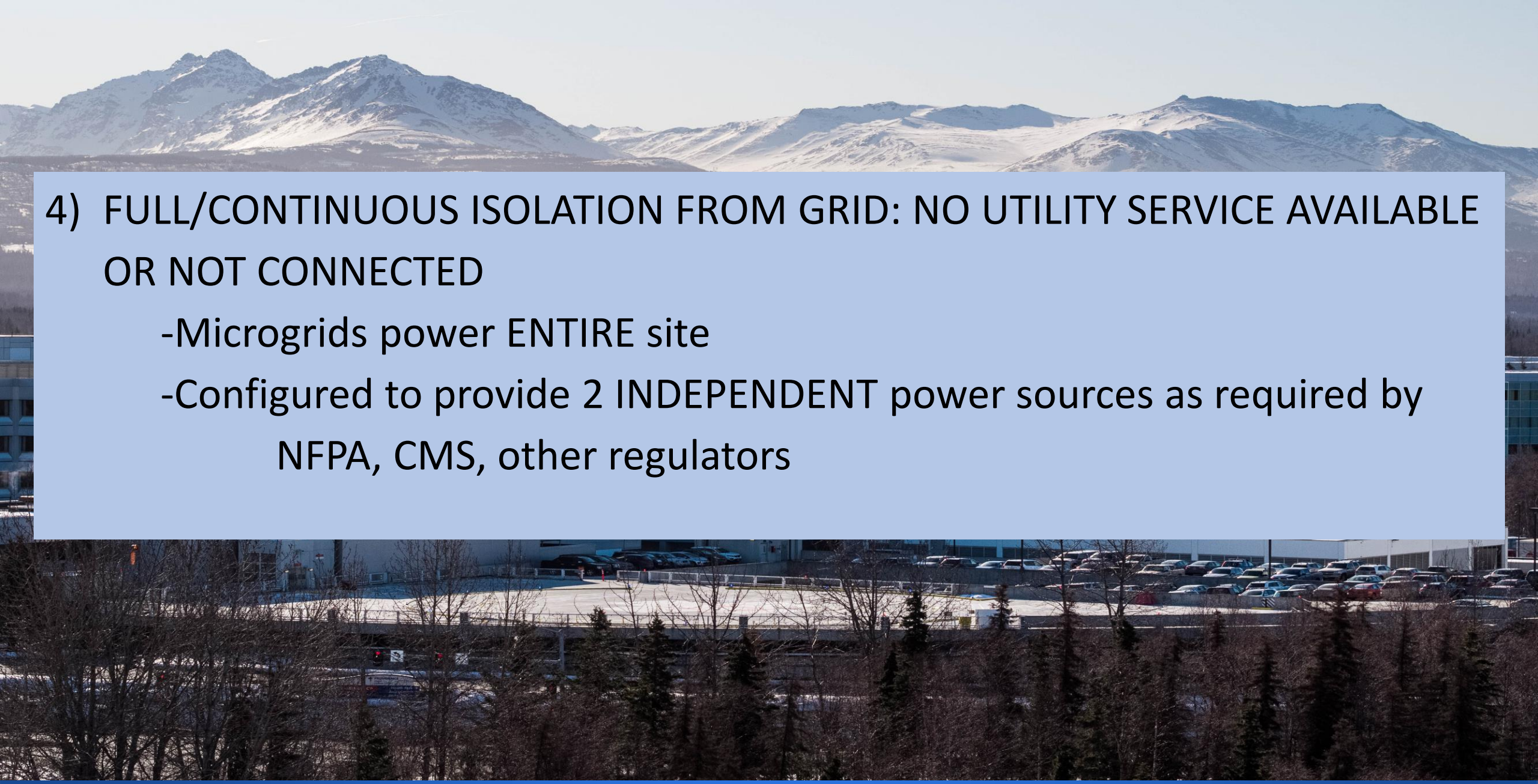
2) “HYBRID”– Full or partial utility service + supplemental microgrid
    -Carry partial hospital load during power outages
    -Generators continue to play significant role

(3) FULL ISLAND CAPABLE (Normal + Emergency): Full or partial utility service with supplemental MULTI-DER MICROGRID

-Carry the entire hospital load during power outages

-Potential for seamless transition

-Transition to emergency generators as tertiary source



4) FULL/CONTINUOUS ISOLATION FROM GRID: NO UTILITY SERVICE AVAILABLE OR NOT CONNECTED

-Microgrids power ENTIRE site

-Configured to provide 2 INDEPENDENT power sources as required by NFPA, CMS, other regulators

Drivers/Obstacles for “Island” hospital

1). Technological

-Increasing diversity of distributed resources (solar, wind, geothermal, fuel cell wave, etc.)

-Faster, more reliable control systems (sensing and response in 15-40 milliseconds)

-Smart power conditioning systems

-OBSTACLES: Track record, “complexity”, warranties, service contracts

2). Regulatory

-NFPA 99, NFPA 110, CEC/NFPA70

-UL/INTERTEK listing; IEEE standards

-CMS

-HCAI

Drivers/Obstacles for “Island” hospital

3). Philosophical

-Pressure to be “Sustainable”/Partner for Community Health

-Autonomy/Self-Determination

-Flexibility to Grow/Modify

4). Economics

-Impacts of Incentives (IRA)

-Hedge against future Utility cost increases

-Convert “dead space” into savings or revenue generation (ancillary services)

-OBSTACLES: Lifecycle of equipment, O&M, Supplier viability

Path to “Island” Hospital – Utility + DER’s/Generator(s)

1) Original configuration - Utility service for normal power and diesel generators for emergency power

<u>Steppingstones</u> – DERs installed at many hospitals that parallel with the utility and take load off the utility with on-site green power producers. These systems typically disconnect during power outages. Diesel generators provided to meet code mandated essential power requirements.

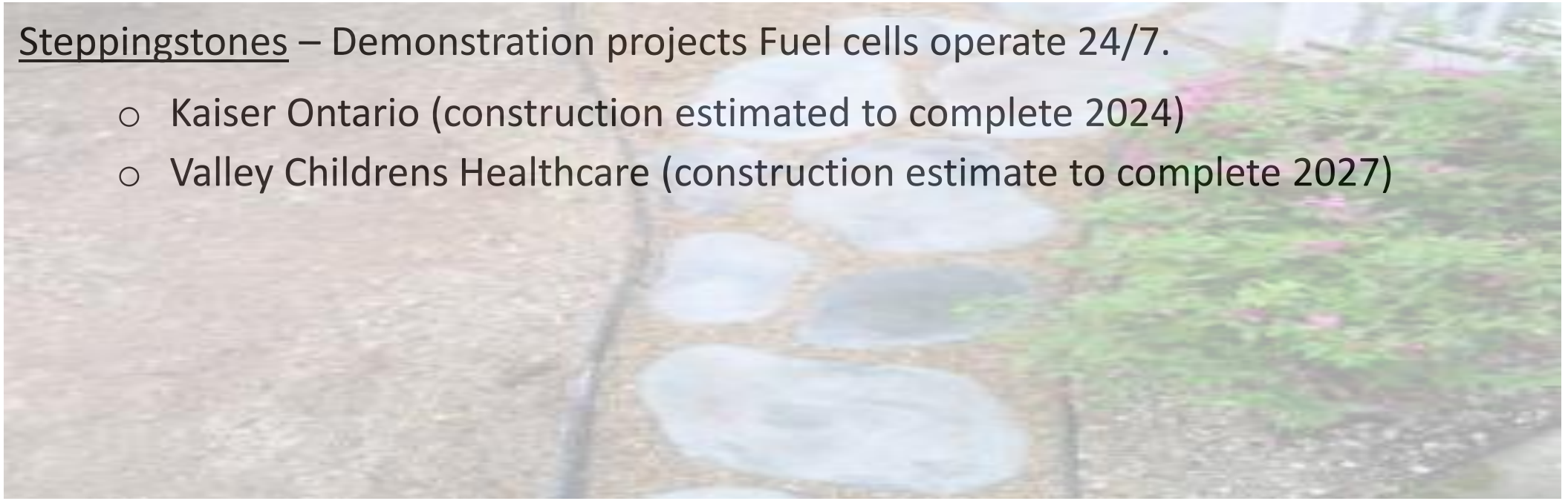
- Fuel cells operate 24/7.
- PVs with intermittent energy production
- Batteries charged during off peak and discharge during on peak periods.

Path to “Island” Hospital - Utility + Microgrid/Generator(s)

2) Some facilities are designed with microgrids paralleled with the utility service configured to pick up the entire facility during interruption to the utility service.

Path to “Island” Hospital – Utility + Microgrid/Generators + Microgrid

3) Existing and new DERs re-configured/configured as Microgrids with controllers to back-up 100% of normal power and configured to back-up emergency power as well—parallel with utility and parallel with generators.



Path to “Island” Hospital –Microgrid (No utility service)/Generators optional)

4) (Future) Full Isolation from the utility - All resources on-site for entire building, and 2 independent sources for essential power.

What codes would come into play?

- CEC Article 710 – Stand Alone Systems
- CEC Article 705- Interconnected Electric Power Production Equipment
- Emergency – CEC 700 & 517
- Solar Photovoltaic (PV) Systems – Article 690
- Fuel Cell Systems – Article 692
- Generators – Article 445 Energy
- Storage Systems – Article 706
- Wind Electric Systems – Article 694
- Storage Batteries – Article 480 (These are also regulated by fire and building codes.)

Why isn’t everyone building “island” hospitals (Perception/Reality Issue)

- Basic utility service and emergency generators
- Hybrid (Normal)
- Hybrid (Normal + Emergency)
- Full isolation from the utility

NORMAL MODE OPERATION

Utility
Power
Source
SDG&E

SECONDARY
POWER SOURCE

12kV Microgrid Gear

Bloom
Energy

12kV
Paralleling Gear

12kV
Emergency
Generators

LOSS OF UTILITY POWER

Utility
Power
Source
SDG&E

INTERRUPTION

12kV Microgrid Gear

Solid
Oxide
Fuel Cells

Loads backed up by Emergency Generators

Bloom Transition to Microgrid Mode

12kV
Paralleling Gear

12kV
Emergency
Generators

MICROGRID MODE ON BLOOM ENERGY POWER

Utility Power Source SDG&E

INTERRUPTION

12kV Microgrid Gear

Bloom Energy

Bloom Power Available within milliseconds

Loads transferring to Bloom Power source

Generators turned off, return to standby

12kV Paralleling Gear

12kV Emergency Generators

Why isn’t everyone building “island” hospitals (Perception/Reality Issue)

Hybrid (Normal) – Dozens of CA hospitals built in this configuration (fuel cells, solar, solar + battery)

OPERATION BENEFITS

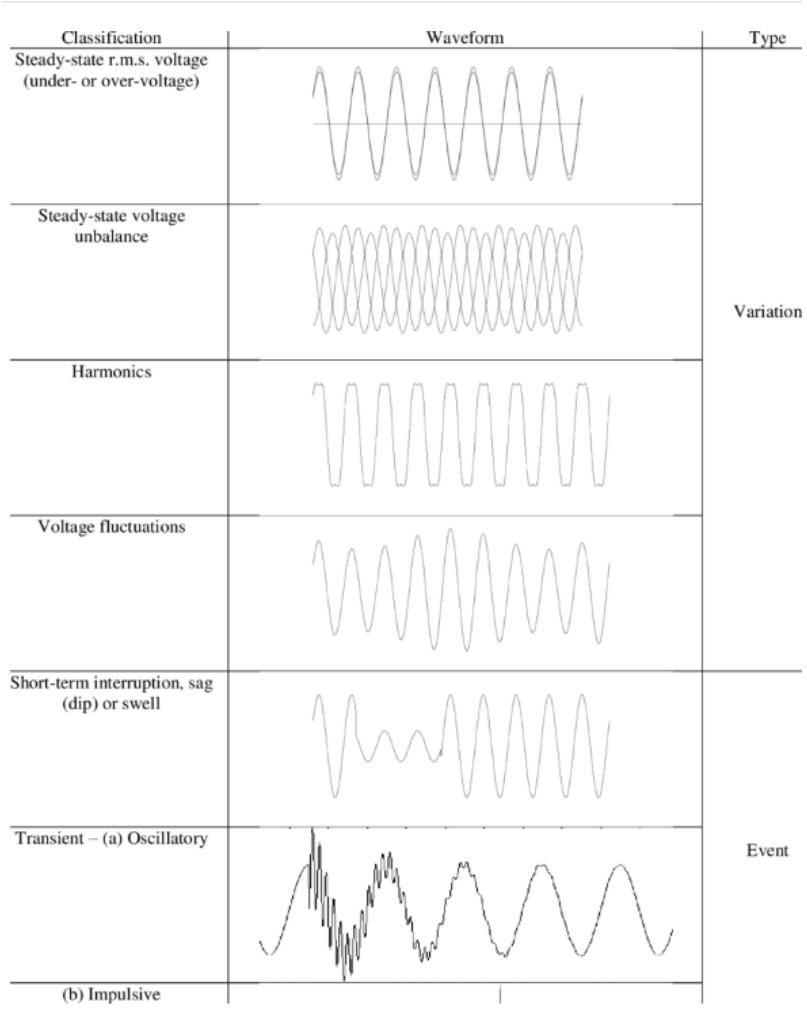
- Always have 3 independent power sources
  - Different design compared to other microgrids
  - 12kV vs 480V + normal + emergency
- Remain fully functional during power loss
- System is fully automated
  - Bloom handles all O&M with cost included in PPA tolling rate

COST BENEFITS

- Eliminated second utility feed
- Eliminated need for 3rd 2MW generator
- Utility savings due to Bloom tolling rate plus gas being less $/kWh than average
- Utilized 12kV main service for the microgrid
- Less run time required for generators = reduced air pollution

A word on Power Quality (PQ)

- Historically, utility grids had highest PQ due to large scale and inertia of generation sources
- Insertion of increasing amounts of renewable power his increased the volatility that traditional generation sources were not designed to address
  - We are seeing discrete instability and dynamic instability PQ issues on today's utility grids
- Grid connection allows facility to help utility to offload power on the grid, sell back and firm power
- At microgrid scale, load changes of single facilities plus solar or wind integration can cause serious PQ issues
- Kaiser San Marcos, at any time has 3 sources of power (Bloom/Utility/Generator)



Classification of Power Quality Issues

Standards for PQ

Power quality is a high risk with little code requirements. Regulatory requirements? Utility power is declining in quality.

- We can recommend compliance with IEEE standards
  - IEEE Std 519-2014: IEEE Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems
  - IEEE Std 1159-2019: IEEE Recommended Practice for Monitoring Electric Power Quality
  - IEEE Std 1159.3-2019: IEEE Recommended Practice for the Transfer of Power Quality Data (PQDIF)
  - IEEE Std 1250-2018: IEEE Guide for Identifying and Improving Voltage Quality in Power Systems
  - IEEE 1159: Guide for Power Quality Monitoring:

What issues might occur if not done correctly?

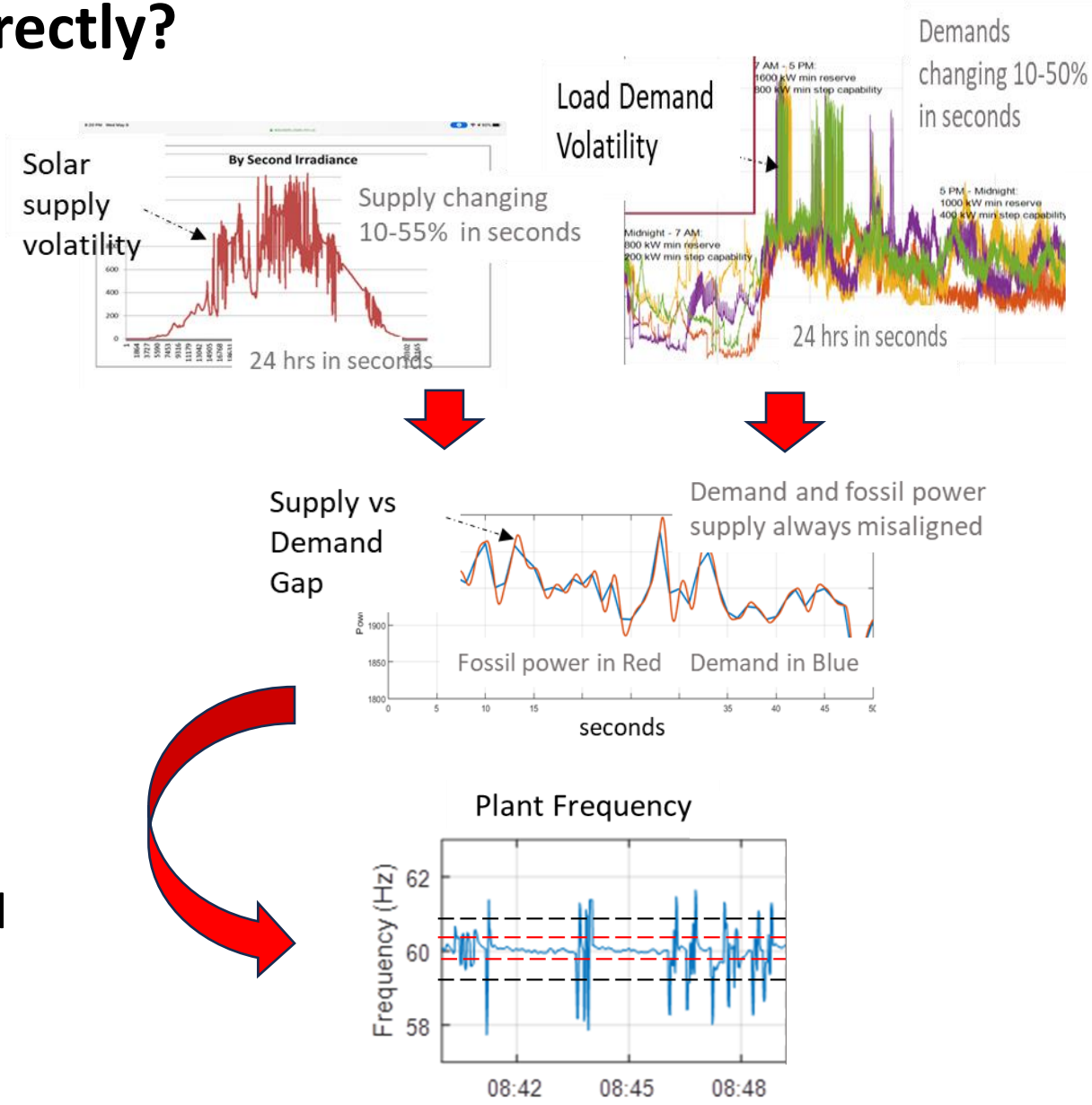
Poor PQ will lead to

- Outages
- Sensitive components fail to operate properly
- Early component failure
- Excess energy use

What should be done to determine PQ at target sites

- Metering on-site
- Power quality modeling
- Plan to correct as required

PQ can be excellent when Distributed Generation and Microgrids are properly designed

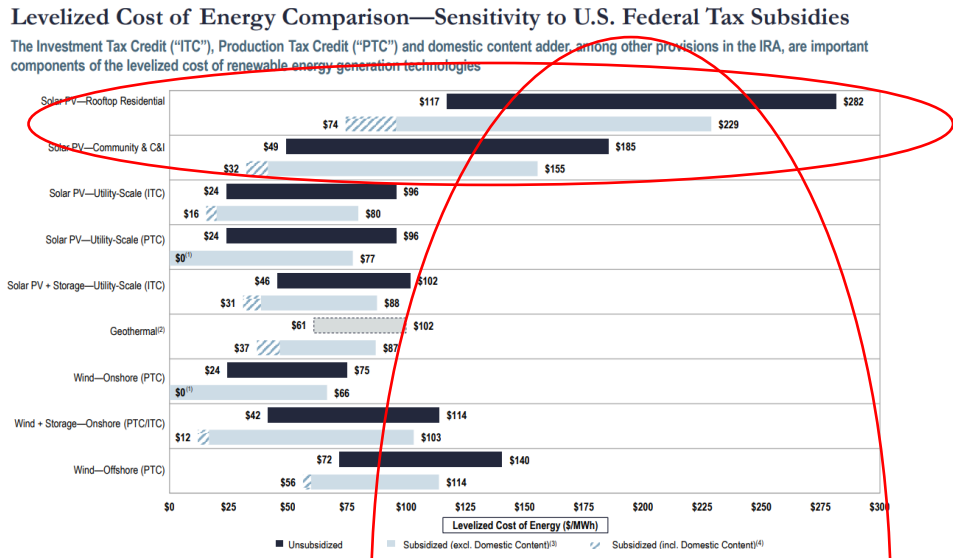


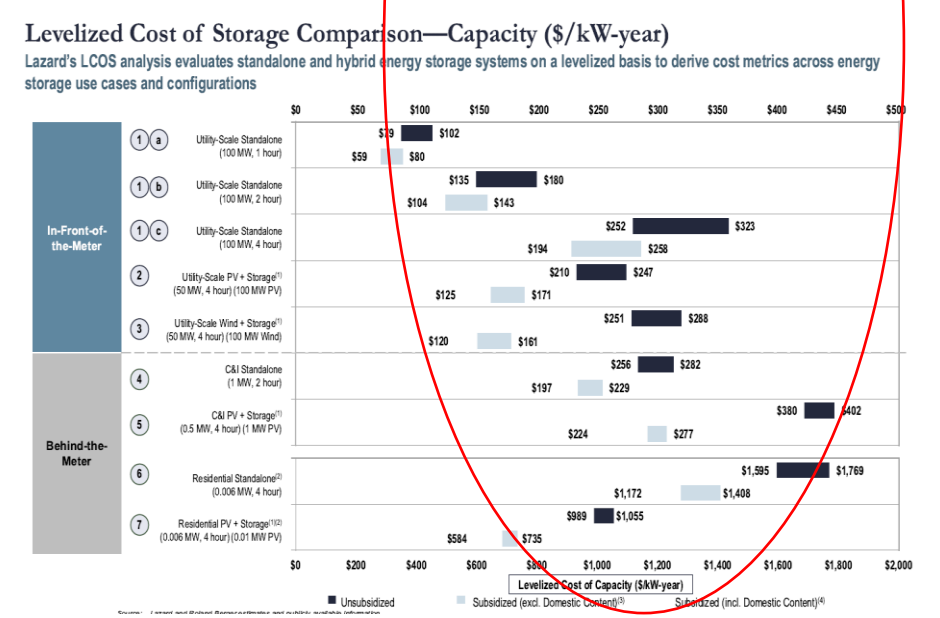
What issues might occur if not done correctly?

Excessive costs due to

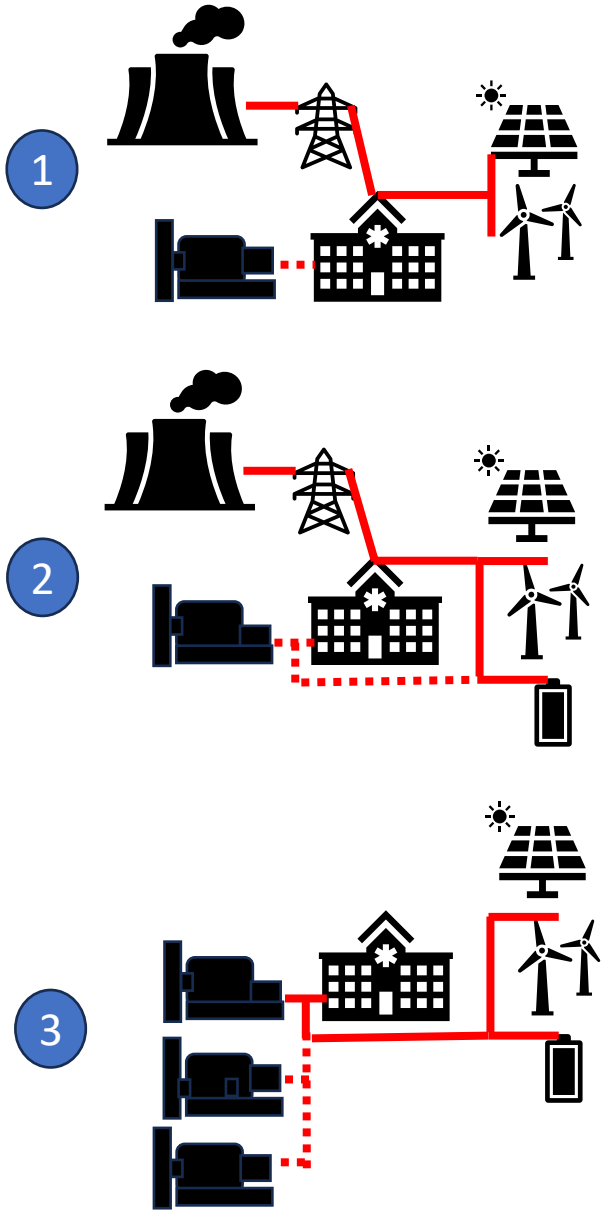
- Suboptimal designs
- Clear understanding of existing commitments to
  - Utilities and Energy providers
  - Vast range of rate structures and where financial benefits can be harvested
  - Cost and performance consequences when execution is not aligned with design strategy
  - Bumping to higher rate structure,…
  - What utilities can change and when, in their costs

Poor reliability due to fractured ‘ownership’ of system performance through life of the system





Hybrid approach to address concerns?



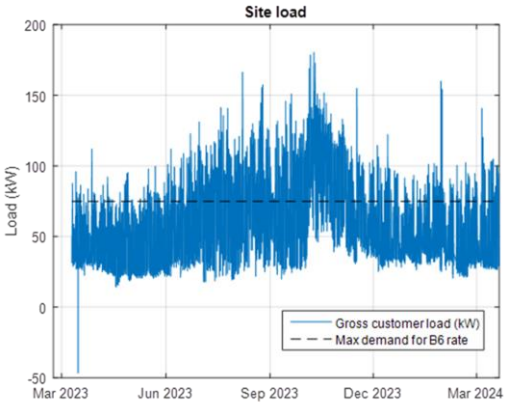
How can I use my existing DERS to reconfigure as a microgrid

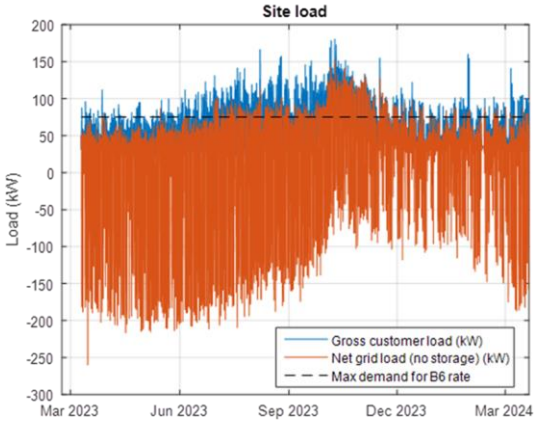
1. Add solar and/or wind in front of the meter
2. Add stored energy and add infrastructure to enable solar, wind, and stored energy to operate in front, or behind the meter in case of a black out
3. Should the economics and cost dictate moving to a full time microgrid, add N+2 generation capacity to assure back-up power is always available.

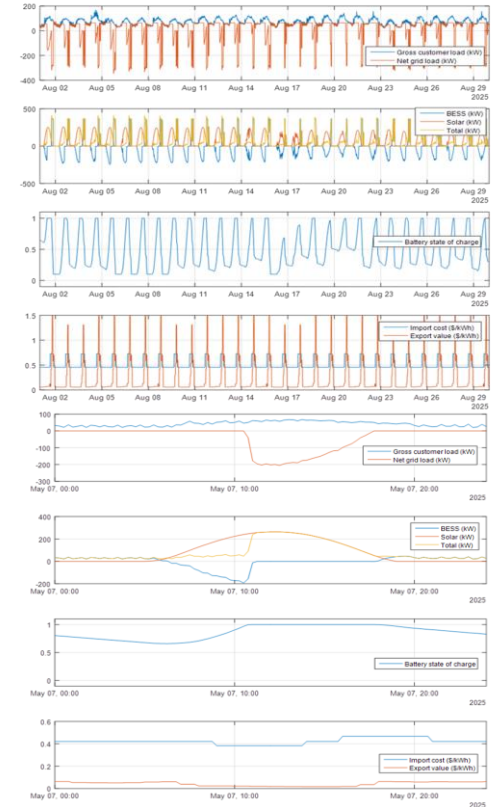
The Design decision should be made through a comprehensive design and financial modeling process

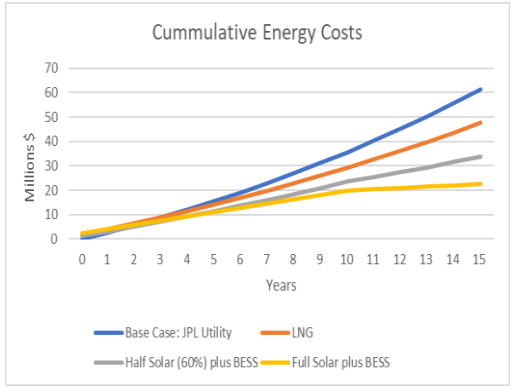
Microgrids should be customized to the individual facility and its power options

- Geography
- Accompanying buildings and property on-site
- Utility and energy provider rates
- Load profile quantification
- Available Resources
- Sizing and selecting optimal generation and stored energy sources
- Cost Savings opportunities









Questions?

Item #9 California Administrative Code Training webinar

- Training webinar to read, interpret, and understand the California Administrative Code
- Discussion and public input

Facilitator: Monica Colosi, Compliance Officer, HCAI (or designee)

HCAi
Department of Health Care Access and Information

Construction Administration Proficiency (CAP) Training

DPOR Responsibilities during the Construction of Healthcare Facilities In California

Design Professional's Role in Construction

Three Parts to the DPOR Certification – Construction Administration Proficiency (CAP) Training for any individuals who want to participate (DPORs, Owner Representatives, even IORs)

Webinar – Part 1: June 6, 2024

- Pre-construction TIO formulation
- Construction Kick-off meeting with OSHPD/HCAI
- Earn Personal Knowledge on Site through DPOR Site Visits

Webinar – Part 2: July 11, 2024

- Manage ACD and NMA logs, distribution and submittals
- Learn to create NMA application
- Learn to create and submit Amended Construction Documents

Written Exam on California Administrative Code – CAP Certificate

- To be offered in Los Angeles and Sacramento two times per year
  August, 2024
  January, 2025 and so on..

Upon completion, professionals who pass will receive an HCAI CAP Certificate, AIA credits and will be listed on HCAI website

Item #10 Securing American Institute of Architects (AIA) continuing education unit (CEU) credits

- Pathway to secure AIA and other agency CEU credits
- Discussion and public input

Facilitator: Scott Mackey (or designee)

Item #11 Prioritize development of future educational programs:

- Classification of imaging procedures into Class 1, 2, and 3
- Revisiting “Inspect-to-Pass” approach to field inspections
- OSHPD 6 roll out
- Tips on how to work with HCAI in the field
- Working with photovoltaics, microgrids, and battery systems
- How to write a functional program and operational program, and how to make it easy for the California Department of Public Health to approve
- Develop a formal design-professional mentorship program with HCAI
- Discussion and public input

Facilitator: Scott Mackey (or designee)

Item #12 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.

Facilitator: Scott Mackey (or designee)

Item #13 Adjournment

Future Education and Outreach Committee meetings:

- August 1, 2024
- September 26, 2024