USACE Rapid Disaster Infrastructure Program

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US Army Corps of Engineers

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Discussion Topics

- RR-TCX Program
  - Mission
  - History
  - Program Overview
  - Cost Reimbursable
  - RR-TCX RDI Program Execution May 2022-Present
    - $1.364B
      - Shoalwater Dune Restoration $32M
      - Fort McCoy Barrack Renovation $136M
      - Fort Bragg Barrack Renovation $69M
      - Pale Seco Emergency Power Generation $525M
      - San Juan Emergency Power Generation $602M

RR-TCX Mission

- RR-TCX authority from HQ USACE, via MSC, to execute time-sensitive work across CONUS and US Territories (UNR).
- The RR-TCX provides support to all Federal Agencies who meet program criteria
- **First: Project Acceptance via MSC and Impacted Geographic**
- PDT includes representatives from impacted geographic district
- RR-TCX personnel are considered Subject Matter Experts
  - Cost Reimbursable Contracts
  - Expertise needed for near real time decision
- Specialized contract capabilities: RR SATOCs & RDI MATOCs
- Maintain standards, quality, safety and flexibility.
- Transition to supported Geo-District for long-term response solution

RR-TCX Programs

- Rapid Disaster Infrastructure Program
  - Time-sensitive Disaster and Infrastructure Repairs
  - MATOC
    - UNR, SB, Hub Zone
- Rapid Response Program
  - Time-sensitive HTRW recovery
  - SATOC
    - UNR, SB, SD VOSB, 8a

Rapid Disaster Infrastructure (RDI) MATOC

- Time-sensitive
  - Immediately dangerous to life and health
  - Operational impacts to the government
- Cost Reimbursable Construction-based contract for:
  - Disaster Response and Recovery
  - Infrastructure Repairs
  - Incidental Design, Munitions, Environnemental, HTRW
- Infrastructure, Disaster
  - NOT: Security, O&M
- CONUS Work and US Territories
  - Also includes Alaska, Hawaii, District of Columbia

Rapid Disaster Infrastructure (RDI) MATOC

- Active
  - RDI1 - $845M SB
  - RDI2 – $8.9B UNR
  - RDI2 - $99M HUBZone
- Future
  - RDI2 - $254M Regional 8(a) to be awarded in the next few months
  - RDI2 - $149M SDVOSB (under development)
  - RDI2 - $499M SB (planned

Rapid Response Program

- Hazardous, Toxic, Radioactive Waste Recovery Actions
  - Provides full-suite of HTRW Recovery service in situations where rapid or immediate response action is necessary to protect human life, public health or the environment for projects such as:
    - Aliamanu Military Reservation and Red Hill
    - Aircraft crash cleanup
    - Tank spill response
    - Hydrant system repair/spill response
    - Asbestos, sediment and soil removal actions
    - Design/build landfill cover systems
    - Mine tailings removal and remediation under the Abandoned Mine Lands Program
    - Drum removal and underground/ above ground storage tank spill response support
    - House Hold Hazardous Waste

Rapid Disaster Infrastructure (RDI) MATOC

- Active
  - RR5 - $35M SDVOSB
  - RR5 - $35M 8(a)
  - RR6 - $100M UNR

- Future
  - RR6 - $35M 8(a)
  - RR6 - $95M SB
  - RR6 - $35M SDVOSB

Cost Reimbursable

- Cultural change from Firm Fixed
  - Executive Office, PM, OC, Contracting, Engineering, Construction, RM, Program Analyst, Chemistry, IH, Safety
- Time-Sensitive Need for Action
  - Inherent uncertainties
  - Changes are incessant => Change Management
  - Cost reimbursable = flexibility
    - Task order = 1 WAD/WOE
  - Reimburse allowable, allocable, reasonable costs
  - Government Has Risk

Cost Reimbursable

- Project Delivery Team:
  - Contractor and Government reps
  - Identify and Manage Risk
  - Near real-time decision making
- Change Management
  - In-Scope Discussion Only
  - Inherent uncertainties = Incessant Changes
  - Contractor and Government must change together
    - Gov and Contractor “Wargame”
    - Contractor submits resource needs
    - Gov approves before changes executed

Cost Reimbursable

- Procurement Strategies:
  - Prime contractor performs high risk work features under cost reimbursable
  - Subcontracts to local vendors low risk work features under Firm Fixed
- Vertical Ramp up of Resources:
  - Needed for most task orders

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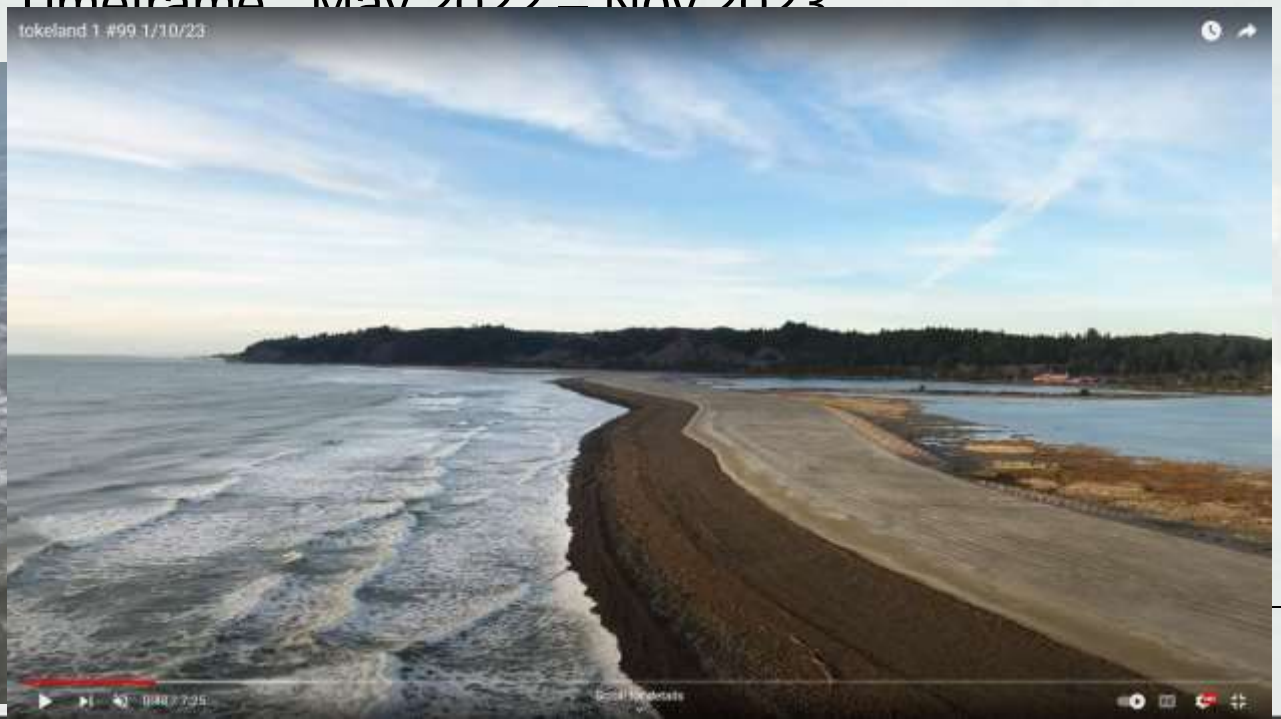
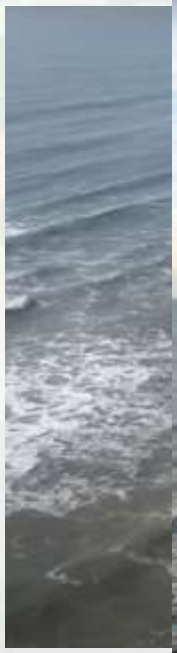
- Timeframe: May 2022 – Nov 2023





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RDI Project Examples

- Shoalwater Dune Restoration Project Accomplishments
  - ► Restore 4,000 LF of critically compromised dune barrier via dredging
  - ► configure 444,000 CY of sand from an offshore borrow source located up to 2.5 miles from the site,
  - ► construction of a 4,669 LF temporary road requiring to include a 417 LF of causeway across Empire Spit, 279k tons of rock and innovative causeway construction,
  - ► placement of 217k ton of cobble on the north shore for revetment protection,
  - ► comply with numerous environmental permits, obtained retroactively, within 5-month window for repairs.
  - ► **NOMINATED FOR PDT OF THE YEAR**

RDI Project Examples

- Pale Seco Power Plant
  - Emergency Power Generation and Transfer to the grid
  - Award: 27 Feb 23,
  - Obligations: $525M
  - Contractor: Weston Solutions Inc
  - Timeframe: Feb 23 – Oct 2023
  - SOW
    - Mobilize, Site Preparation, Construct/Install, Commission, and 6 months of O&M generators capable to provide a net continuous output 150 MW at Palo Seco Power Plant to mitigate power instability on the grid.

Background

- Palo Seco Power Plant was constructed in early 1960s
- Construction, maintenance, and repair did not keep up with the needs.

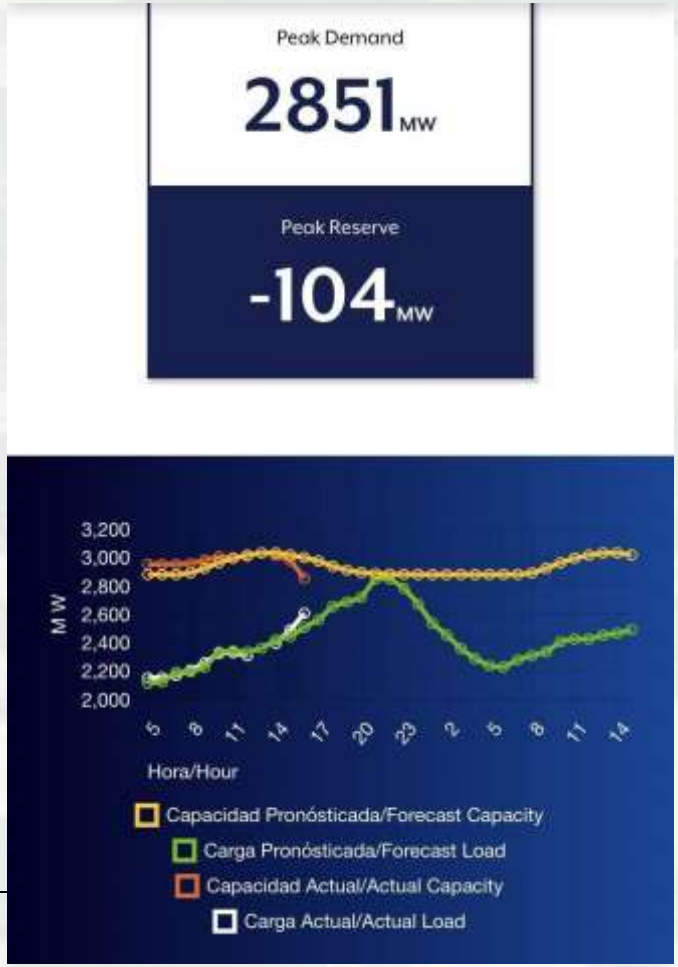
Background

- The peak capacity was 734 MWs to provide power to the great SJ area, which consumes 70% of the total power
- The current capacity is ~330 MWs
- There is insufficient power generation to create grid stability.

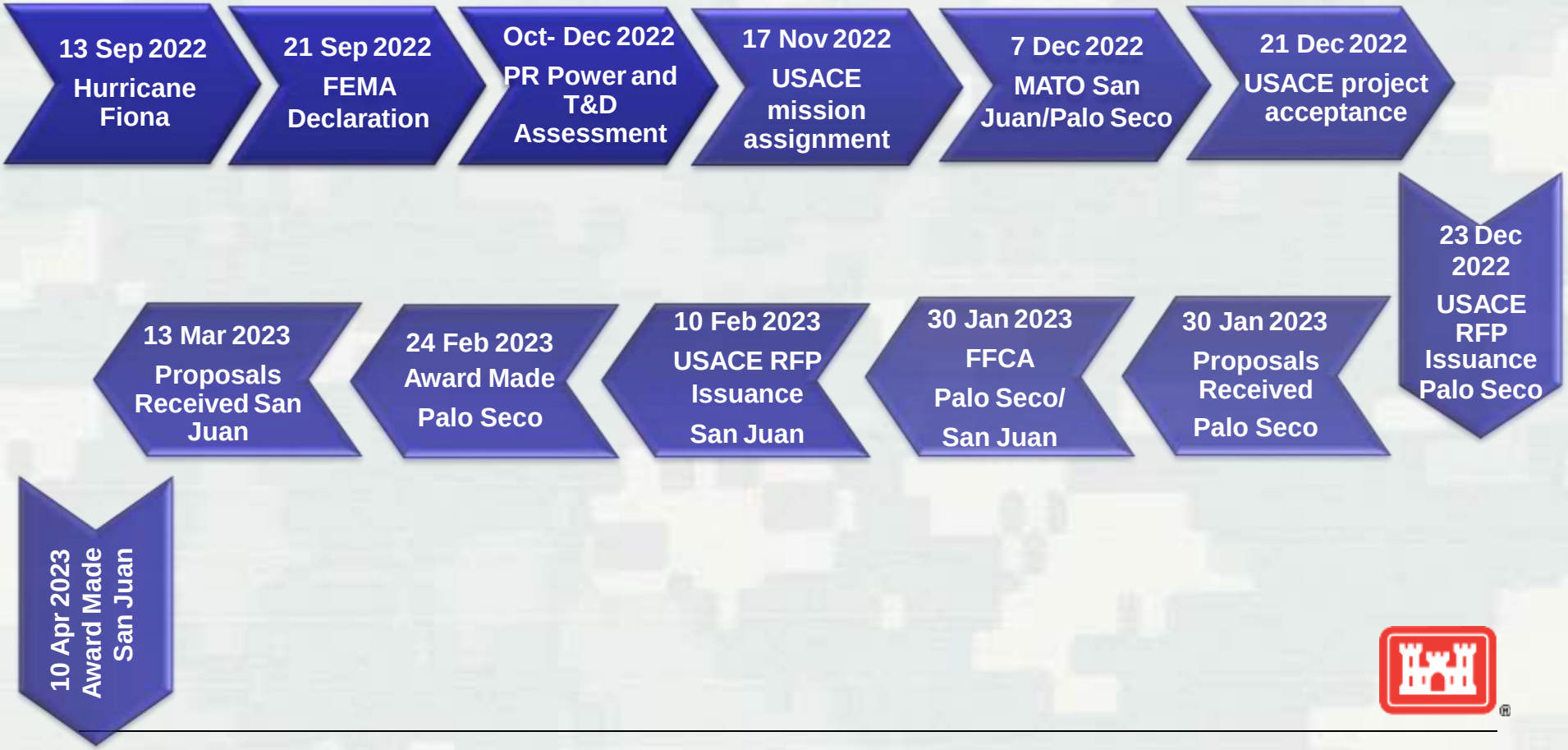
Power Source	Rated Capacity MW	Operational Capacity MW	Actual Power Generation MW	Remarks
Steam Unit 1	85	0	0	Unit down and not expected to return
Steam Unit 2	85	0	0	Unit down and not expected to return
Steam Unit 3	216	180	~150	Operational
Steam Unit 4	216	180	~150	Operational
Gas Unit 1-1	22	20	6-10	Operational
Gas Unit 1-2	22	20	6-10	Operational
Gas Unit 2-1	22	0	0	Non-operational. Turbine failure.
Gas Unit 2-2	22	20	6-10	Operational. Past due turbine major inspection.
Gas Unit 3-1	22	0	0	Non-operational. Turbine failure.
Gas Unit 3-2	22	0	0	Non-operational. Turbine failure.
Subtotal	**734**	**420**	**~330**	
USACE Mega GT-1	31	25.3	25.3	COD anticipated 26 May 2023
USACE Mega GT-2	31	25.3	25.3	COD anticipated 26 May 2023
USACE Mega GT-3 (Spare)	22.8	20.5	0	COD anticipated 30 May 2023
USACE Mega GT-4	22.8	20.5	20.5	COD anticipated 26 May 2023
USACE Mega GT-5	37	29.5	29.5	COD anticipated 26 May 2023
USACE Mega GT-6	37	29.5	29.5	COD anticipated 26 May 2023
USACE Mega GT-7	37	29.5	29.5	COD anticipated 26 May 2023
Subtotal	**218.6**	**180.1**	**159.6**	
TOTAL	**952.6**	**600.1**	**~490**	

Background

- LUMA daily forecast capacity vs load
- LUMA executes load shed 78% throughout the year.
- Cost to the commonwealth $14M
- Load shed recipients sustained critical life safety outcome
- Additional stable and reliable capacity is needed.



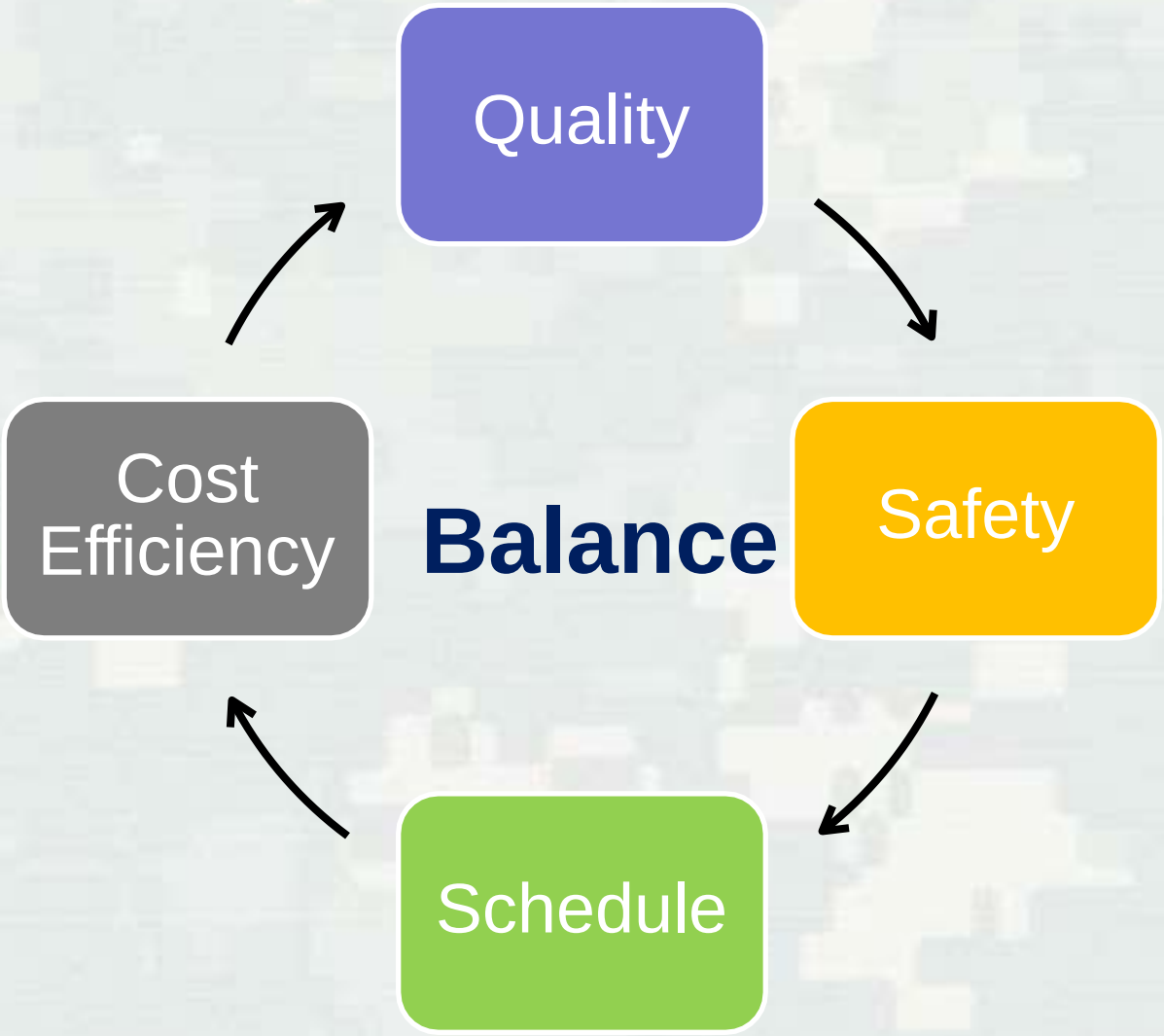
Timeline: Event to Award



Timeline: Palo Seco and San Juan Execution

Palo Seco Powerplant

Success: Manage Expectations



Palo Seco Visuals

- Hyperlinks to the “recorded slide bars”
- Construction near complete

Palo Seco Planning

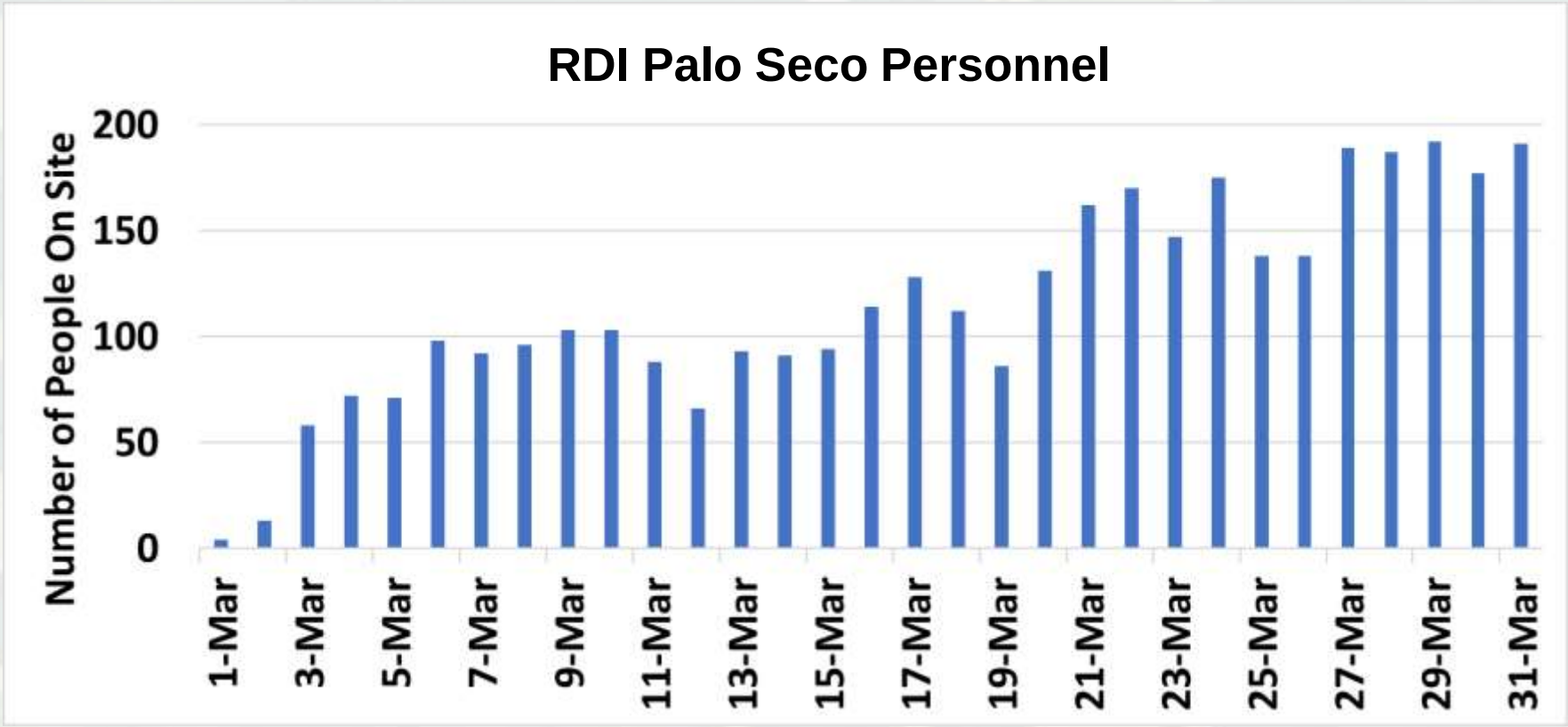
- Two 12-hr shift, working 7-days a week
- Ten different subcontractors on site
- > 100 individuals on site during the day
- >50 individuals on site during the night

Action	Palo Seco
Award	24 February
Abbreviated APP	27 February
Work Plan Submitted	27 February
Contractor Quality Control plan submitted	27 February
Personnel mobilization	28 February
APP submitted	28 February
APP approved by USACE	1 March
Transportation and Logistic Plan	9 March
Overall Submittals	100
Overall RFI2	39
Daily PDT meetings (as of May 15)	75

Planning: Issue Management

- Repurposing submittal items
- PR Reorganization: PREPA, LUMA, PREB, COR3
- Real Estate Agreements
- Site Layout: 17 iterations
- FFCA requirement adds pollution control
- Pricing for 24 months, Award for 6 months

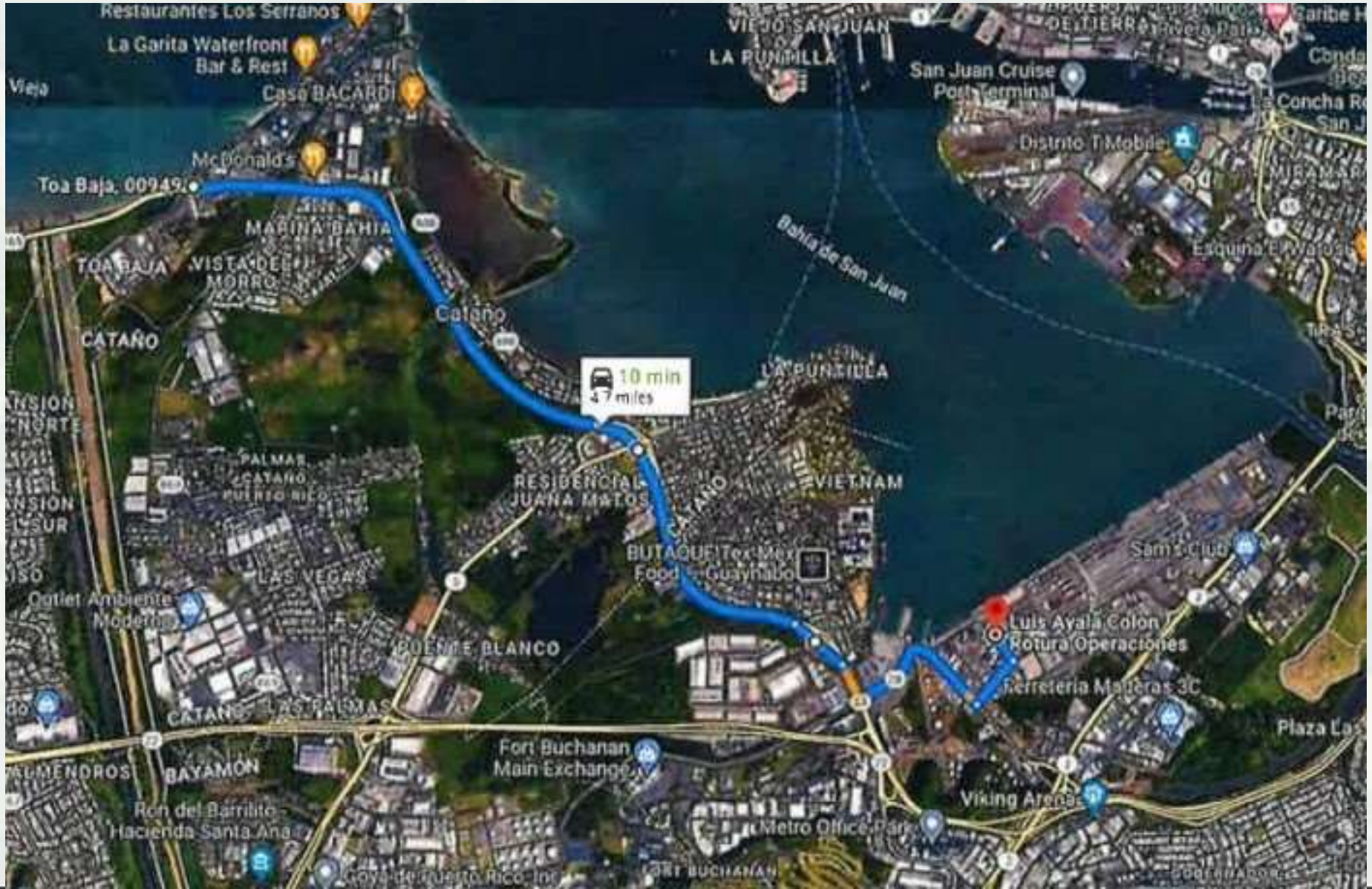
Mobilization: Personnel



Mobilization: Equipment

- 28th February Boots on the ground
- 3 Gens
  - March 4th departed AZ
    March 20th arrived PR
- Other 3 Gens
  - March 10th departed
    March 26th arrived PR
- LNG tank
  - March 7th departed Nicaragua
  - 25th April arrived PR

Mobilization: Equipment



Mobilization: Issue Management

- Heavy loads with permitting for multiple jurisdictions
- Equipment from multiple shipping points barged to San Juan
- Jones ACT restricts access
- US customs clearance at the point of entry in San Juan

Mobilization: Issue Management

An 90,000-gallon cryogenic storage tank is needed at the LNG plant

- The tank was mobilized from Nicaragua to Palo Seco
- Weight was 237k lbs.
- 93’. 5” long, 18’ wide, and 16’ tall
- Critical lift with 550 ton and 350 ton cranes to be placed on two pedestals

LNG Tank Mobilization: Issue Management

- April 21 (Night) LNG Tank transport from port of San Juan to Palo Seco
- Approximate 7 mile route
- Closes traffic in both ways on major highway
  - Route traverses to opposite traffic lanes 2 bridge crossings
  - Coordinate with LUMA on traversing 2 power lines
- Multiple police escorts


FUENTES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Site Prep- Power Generator Area

March 3

March 18

- Modify storage shed as generator pad
- Clear, grub, compaction and generator laydown area
- Remove stored PREPA property

Site Prep: Issue Management

- Clear and grade LNG plant area, Truck access area, Generator area
- Placed 1250 cubic yards of crushed stone
- Demo existing wall allowing site access to the large LNG tank
- New entrance requires approval from PREPA security and Department of Homeland Security
- Subsurface soil in LNG area was random filled over wetland
- PREPA approval/denial laydown area for one generator
- Demo an exiting maintenance building in LNG area
- Modify an existing storage shed in generation area
- Remove or relocate multiple Conex storage boxes and miscellaneous facility infrastructure

Construction: Overview

- NFE animation hyperlink

Construction: LNG Site Before and After

- Placement of the 90,000-gallon LNG tank
- 1000 cubic yard of concrete
- More than 70,000 lb. of rebar
- 111 piles, ~72’ deep
- 1300 LF of natural gas pipeline

March 3

May 16th

Construction: Before/After Power Gen side

- ~5 miles (26,000 LF) of medium voltage cable
- 15,000 LF of communication cable
- 850 terminations
- 1100 LF of diesel pipe
- 6 generators on-site

Construction: Power Gen Bird's-eye View

March 3

May 16th, 6 Generators on site

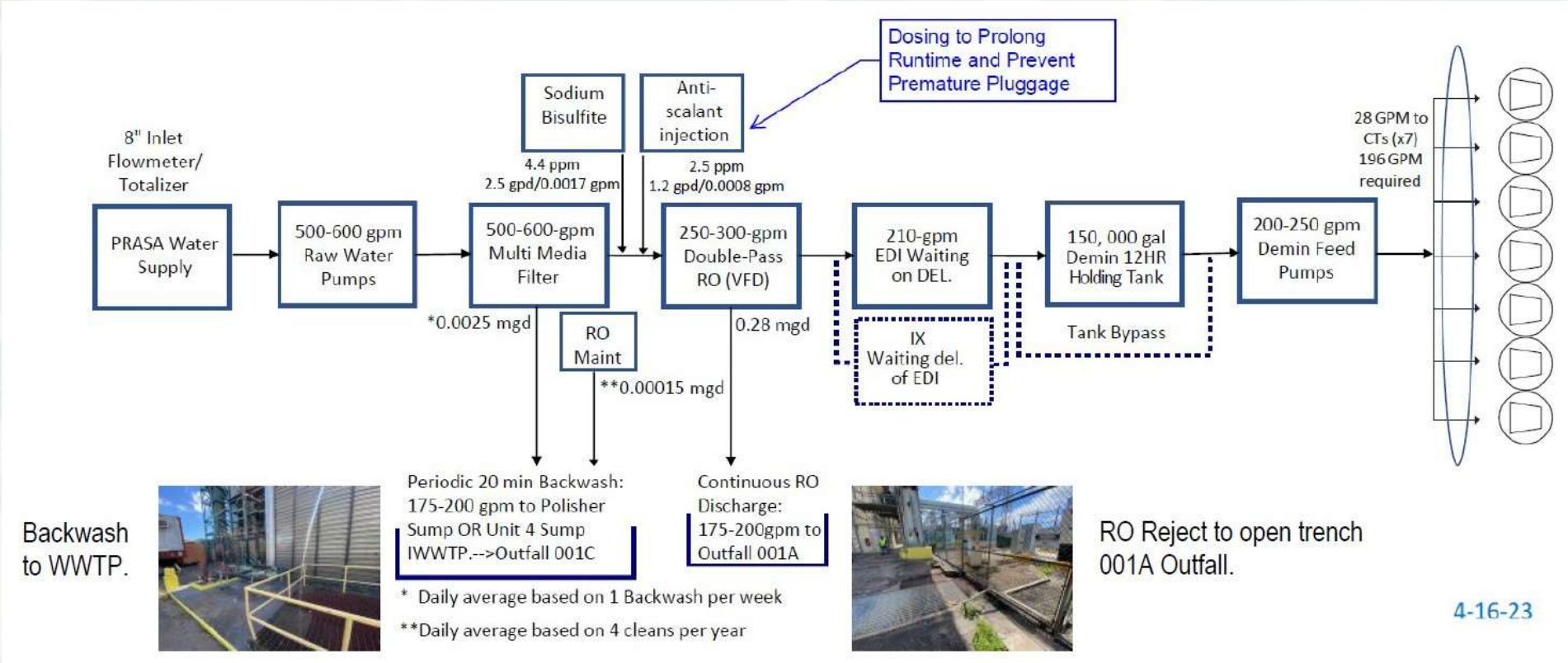
Construction: Issue Management- Part A

- Maintaining Concrete Standards per NFPA 59A
- Concrete Delivery and Placement for multiple pours
- Local workforce expertise
- Quality and health and safety challenges
- Sustainable Primary Power to run LNG (grid reliability) requires redundant systems
- Changing PR DOT Permit requirements
- PREPA concurrence for Diesel

Demi water

- Post award EPA requires immediate pollution control to achieve NOX of < 24 mg/L
  - ► March 29th : Demineralization (Demin) water was selected as the emission control method
  - ► Each GE turbine requires 28gpm Demin water
  - ► April 7th : Water samples were taken and Demin water treatment system was designed with N+1 redundancy.
  - ► Treatment system includes multimedia filters, reverse osmosis and ion exchange system
  - ► July 1st Demin water online

Demin water: Process Flow Diagram



Demin overview: Issue Management

- Enforcement agencies: “advise” vs “enforce” under FEMA Response Actions
- USEPA interpretation of the emission standards in the FFCA
- If we are following NSPS why do we follow NPDES?
- EPA authorization to run generators prior to Demin water?
  - Generators were available on May 25th but Demin water not available until June 30th
- Design is based on very limited data

Commissioning

Multiple steps and multiple stakeholders in the commissioning process

GT Commissioning Scorecard							
	Diesel First Fire	Transformer Protection Checks	Short Circuit	Forward Feed	Dummy Sync	Breaker Failure	Live Load/ Sync
GT 7	X	X	X	X			
GT 6	X	X	X	X			
GT 5	X	X		X			
GT 4	X						
GT 3							
GT 2	X						

Commissioning: Management Issues

- All transformers assigned to Emergency Power were out of service and required re-commissioning
- Cybersecurity firewall
- GIS COMS
- PR PSSTF taskforce decision for baseload

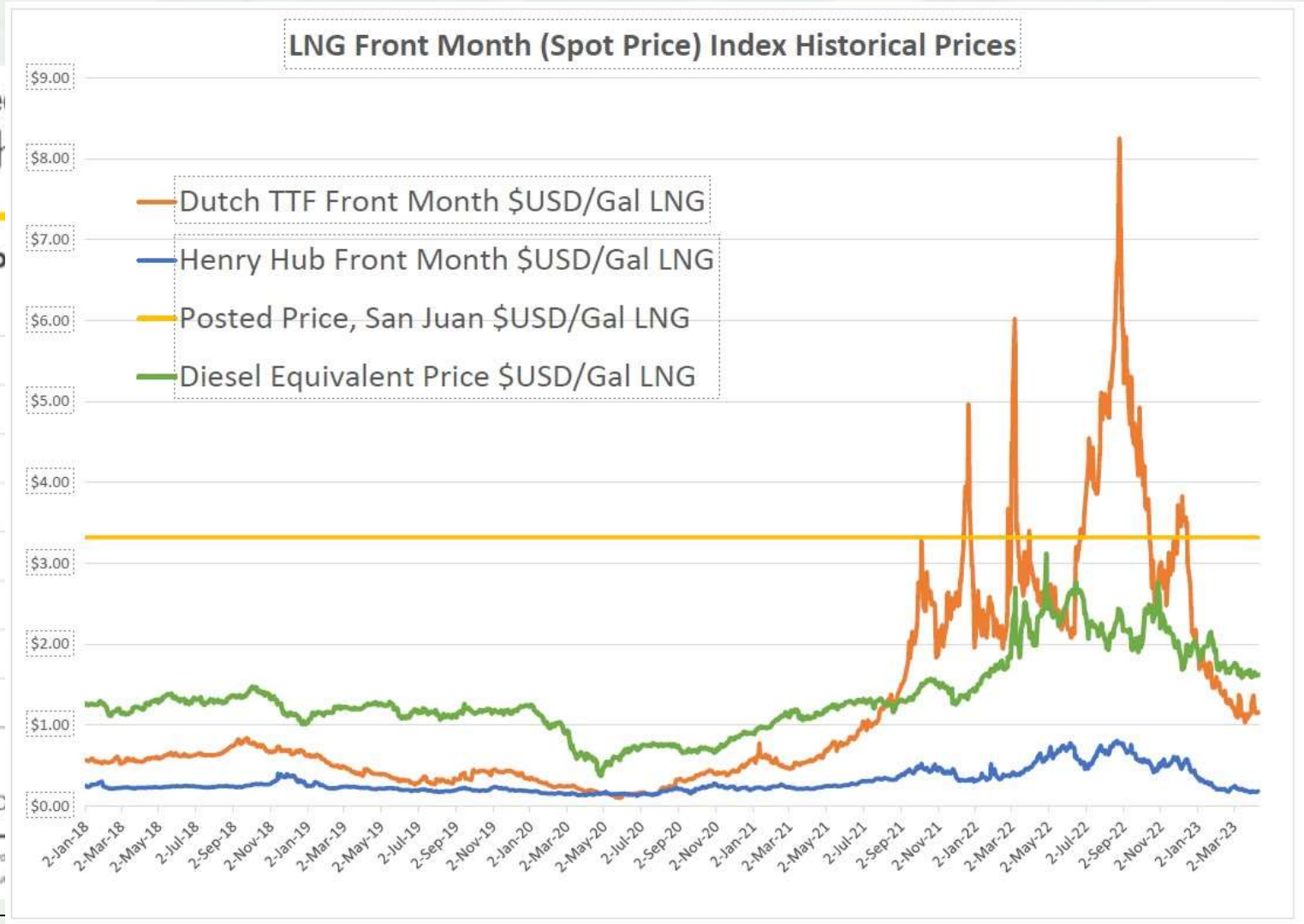
Existing transformers have capacity limitations requiring connection at multiple points

- Block 3 is 57.6MW limit
- Block 2 is 28.8 MW
- Unit 1 108MW

O&M

O&M

O&M: Management Issues



RDI Project Examples

- San Juan Power Plant
  - ► Emergency Power Generation and Transfer to the grid
  - ► Award: 10 Apr 23,
  - ► Obligations: $600M
  - ► Contractor: Weston Solutions Inc
  - ► Timeframe: Feb 23 – Oct 2023
  - ► SOW
    - Mobilize, Site Preparation, Construct/Install, Commission, and 6 months of O&M generators capable to provide a net continuous output 200 MW at San Juan Power Plant to mitigate power instability on the grid.