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### **Q3-2022 LOPP Update**

A succession of past quarter and anticipated Q4 activities are explained below by Cat Creek Energy, LLC for its Bureau of Reclamation Preliminary Lease of Power Privilege:

1. CCEW has made considerable progress under the FERC licensing process in the determination of the Study Plan to be implemented for the NEPA and licensing determination.
2. CCEW resubmitted the land exchange proposition and format with the US Forest Service on four 40-acre parcels of land that will be altered during the century of use by the CCE Pumped Storage Hydro and transmission facilities.
3. CCE successfully negotiated the wind and solar modules of the overall Project, isolated and independent from the PSH and PHES (Pumped Hydro Energy Storage or Upper Reservoir or Cat Creek Reservoir), in a separate offtake agreement for those Variable Renewable Energy resource operations.
4. CCEW met with Elmore County to proceed with a protocol for building permits for the wind, solar, substation, and transmission modules solely associated with the existing Conditional Use Permits.
5. CCEW continued to receive significant input on the need and use of the PSH/PHES facilities from water users and subsequent recent reports continue to reinforce the need for additional water storage in the Boise Basin drainage.
6. Recent federal studies continue to reinforce CCE analysis of the scope of resources needed to achieve federal, state, and utility mandate goals of GHG free, clean, decarbonized, net zero, absolute net zero or other monikers used to essentially say a 100% decarbonized electrical grid by [fill in the date]. What has been known by CCE for 8 years and is now becoming reality is this scope is an order of magnitude that few have understood and the success of achieving these goals is compounded by technology advanced sufficiently to ensure reliability. The PSH/PHES facility meets and exceeds the

technological demand for those services. The CCE flexibility of services on demand and its Large Volume, Long Duration energy storage now has a large audience across the 14 Western states.

7. Identified the critical path need for new transmission lines associated with the wind and solar modules buildout to be in service to provide significant GHG benefit offsets for the 36 month construction period of the PSH/PHES facilities by substituting electrical motors for fossil-fuel driven construction power.
8. The wind/solar module buildout will also advantage the dam raise if a wet water agreement can be reached between Cat Creek Energy and Reclamation by powering temporary pumps over the seasons of reduced volume in Anderson Ranch Reservoir during its dam raise construction [estimate is three irrigation seasons].
9. FERC Study Plan requests, delineation, meetings with target agencies, and further evaluation with regard to study requests vs FERC Study Plan scope led to a realization and request by CCE and approved by FERC for a 90 day extension of the FERC Integrated Licensing Process timeline.
10. GEI Consultants has become part of the CCE Team for guidance and expertise in many fields of the environment and governmental procedures under the ILP and LOPP processes. Ginger Gillin is leading this effort replacing James Gregory who left SWCA and Ginger being one of only a handful of experts who have successfully licensed a PSH facility.
11. CCE submitted a Request for Designation as FERC's Non-Federal Representative for Informal Consultation for the Cat Creek Energy and Water Storage Renewable Power Station under docket # P-14655. On September 6, 2022, FERC sent a letter to the Idaho State Historic Preservation Office discussing the Section 106 Consultation Authorization for the Cat Creek Energy and Water Storage Project. The letter was copied to the six FERC identified Tribal organizations. Following the docket posting, CCE contacted Idaho State preservation officials and each Tribal organization. In its tribal outreach CCE verified current leadership and sent a CCE letter to the Tribal Chairs seeking direction from the Tribes as to the level of interaction the tribe is currently interested in with the CCE project.
12. The additional \$250,000 reserve payment is scheduled for October CCE payment to Reclamation after a thorough review of invoicing took place in September by CCE owners.

To summarize and bring Reclamation up to current, CCE also provides for review the annual FERC process report update.

## **FERC Third Annual Progress Report**

During this past 12-month period, the following work has been initiated, in progress, or completed:

1. The permittee's considerable outreach and work culminated in the filing of the Notice of Intent ("NOI") and Pre-Application Document ("PAD") on 30-Dec-2021, which requested use of the Traditional Licensing Process. The NOI/PAD was sent to interested parties and agencies, and public notice published in the local legal paper, Mountain Home Express.
  - a. The PAD provided a wealth of existing documentation and studies on the South Fork of the Boise River and Anderson Ranch Reservoir and many initial design decisions detailed, potential impacts, and potential mitigation measures were introduced.
  - b. Prior studies and references are absolutely part and parcel of any NEPA investigation and give all parties the ability to formulate realistic opinions and inputs for discussion in forming the scope determination of further studies.
  - c. A list of studies determined to be necessary was included as well.
2. Outreach to Concerned Parties regarding PAD towards identifying studies, mitigation, solution that would resolve concerns.
3. Draft Work Plan submitted to the Bureau of Reclamation ("USBR") for review and how the two projects can complement each other are underway on building schedules and water storage mitigation during 3 seasons of drawdown needed for the Anderson Ranch Dam raise
4. A Memorandum of Understanding with the Laborers Union has been executed.
5. Continuing progress on CCE's Idaho water rights applications including settlement conference to gauge concerns and issues for consideration and negotiation.
6. Discussions with the US Forest Service ("USFS") on a land swap for the small acreage between the privately held lands and Anderson Ranch Reservoir.
7. FS299 preliminary discussions on exploration on the above lands for geotechnical, roadbuilding, and other elements to determine final design with USFS.
8. Continued discussions and meetings with USBR on the Preliminary Lease of Power Privilege.
9. Conversation with the Upper Snake River Tribes Foundation on cooperation. Selected as Case Study in AquaPV: Foundational Analysis and Industry Guidance on Floating PV for Reservoirs and Estuaries is a joint Idaho National Laboratory ("INL") and National Renewable Energy Laboratory ("NREL") effort to provide techno-economic, resource assessment, environmental, and regulatory analysis on installing floating PV ("FPV") in federally-managed dam reservoirs and Federal Energy Regulatory Commission ("FERC") licensed hydropower dam reservoirs in the United States. This work is for the preliminary design for floating photovoltaic system on the Cat Creek Reservoir intended to minimize evaporation losses while also generating renewable energy.
10. Senate testimony 11-Jan-2022 on the attributes of dual purpose Off Stream Pumped Storage Hydro ("PSH").
11. 2022 Idaho state legislature presentation on the CCE project.

12. Provided testimony to the 7<sup>th</sup> Plan of the Northwest Power and Conservation Council.
13. Meeting with Department of the Interior leadership 2022.
14. Market analysis with the University of California, Merced on CCE's unique configuration for California markets as part of an overall UCM obligation to the California Public Utility Commission.
15. Continued work as board member of the Long Duration Energy Storage of California NGO.
16. Work on a refreshing CCE website to include project regulatory documents and public interaction and notification features.
  
17. Preliminary design continues:
  - Selection of an oversight engineering firm to coordinate and provide the necessary scope of services for all subsequent engineering and coordination of specialized engineering firms for the Project.
  - Cost benefit analysis performed on the expansion of the upper reservoir volume between total footprint vs additional excavation and decisions made that affect the outcome of that analysis.
    - The Upper Reservoir ("Cat Creek Reservoir") is designed to 100,000 acre-feet with an extra volume of 10,000 acre-ft for freeboard allowance.
    - This expansion results in a storage facility of 87,120 MWhrs of overall capacity.
    - The final design also provides for a +10% increase in overall water storage capacity of the Boise River Basin drainage area.
    - Overall final size determination was based on two specific factors investigated:
      - USBR and other climatological studies predict decreasing snowpack and increasing late-season drought leading to the critical need for additional water storage infrastructure for the Boise River drainage and its rapidly increasing population, and
      - The analysis that to move to a successful 100% decarbonized society, long capacity duration energy storage is necessary.
    - The term the Permittee has coined for this type of battery capacity is Large Volume, Long Duration energy storage system ("LVLD"). The realization that a move to a 100% decarbonized Western grid cannot be complete without LVLD energy storage is being acknowledged and across the utility sector spectrum.
  - Settling on a hydropower technology design to adapt to the physical location of the powerhouse, number and size of turbines in regard to head, all adapting to the rapidly moving trendlines in western markets for grid integrity and services. The final consideration and design incorporate 6 – 120 MW ternary styled turbines.
  - Hydro-turbine OEM (Voith Hydro) prepared a more refined turbine and pump performance review based on operational dynamics as affected by Anderson Ranch Reservoir surface elevation seasonal variability.

- Hydro-turbine OEM prepared transient analyses necessary to identify the penstock (for flow from upper reservoir to turbine) and tailrace (from the turbine to the lower reservoir) configuration options and constraints to avoid negative pressure conditions that would damage the facility.
- Delineated a scope of work for EPC contractors, refined the sourcing selection footprint for equipment, and narrowed OEM suppliers to those who can provide the most efficient and largest scope of technologies employed in the Project offering the best long-term maintenance and warranty services.
- After conducting investigation, cost analysis, impacts, and further evaluating, the Project's powerhouse will be at poolside on Anderson Ranch Reservoir.

The design is predicated on the market and regulatory transformation in the West to decarbonization, turbine selection, intake levels, and increased environmental benefits.

#### 18. Investors and Equity Partners

- Financing diversity has provided more insight to the overall project methods of debt and equity makeup. Tax equity financing is now demanding a larger role than in the past for CCE. This advances more options on both debt and equity premised on an achievable and rational debt service ratio.
- Offtake negotiations are ongoing. These are confidential until announced.
- Additional water customers have been signed via Memorandums of Understanding
- Review
  - Considerable progress on financing options and equity investment has been initiated leading over the past year giving rise to specific models for financing, yielding reliable total project budgets and subsequent pricing of the project's products.
  - Power offtake opportunities have presented themselves of which the Permittee is in negotiations.

#### 19. Load Supply and Interconnection Process - Idaho Power Company

- LGIA executed for 870 MW of interconnection with Idaho Power Company ("IPCo"). Further analysis of western markets and the penetration of Variable Renewable Resource overproduction led to radical modification of generation and storage protocols that will endure for the next 100 years of anticipated operations in the Energy Imbalance Market and eventual RTO formed in the western grid.
- As part of the configuration, provided additional studies for IPCo and the WECC on ternary hydraulic short circuit dynamic performance.
- The final configuration provides an invaluable on/off ramp intertie between the 230 kV and 500 kV systems that spans east and west through southern Idaho.

## 20. Political/Government Outreach

- Outreach will continue via the Integrated Licensing Process, as determined by FERC on 01-Apr-2022.
  
- Review:
  - Meeting in Q3-2019 with all federal and state agencies that are involved in the permitting process.
  - Determination of FERC leading this unique dual jurisdiction process with Reclamation.
  - The process adds layers of intricacy as to managing expectations, but FERC and Reclamation have worked diligently in moving this dual jurisdiction process forward with the Permittee.
  - Agreement with FERC and Reclamation to present a PAD and Work Plan respectively that advances additional and complete information for review necessary in a formal environmental review process.
  - Preliminary Lease of Power Privilege executed in October 2019.

## 21. Environmental

- The PAD delineates work product in the investigation of previous studies and references.
  
- Review
  - Investigation, scope of work delineated, and confirmed.
  - Oversight NEPA consulting contractor with experience in the streamlined federal permitting process selected.
  - Analysis and evaluation performed for PAD and Work Plan.
  - Environmental impacts and environmental benefits identified and analyzed.
  - Delineation of strategies, technique, and monitoring scope with our international water quality and aquatic life team.

## 22. Markets

- Markets are becoming increasingly expensive. Owing to the increased costs of coal, NG, and oil, electricity prices are up 11% year-to-year and the downside impact to disadvantaged communities is proportionately greater.
  
- The market is now recognizing the inherent value of LVL energy storage in the form of PSH predicated on its rotational inertia. This goes well beyond emerging as the quintessential power management mechanism in the Western grid as fossil fuel derived generation is being retired or banned as future energy resources.
  
- Review:

- It appears clear that regardless of federal policy, the drive and movement to decarbonization in the West by state and utility decisions is not going to be reversed; only accelerated.
- The Permittee has decided to design a system that reacts quicker than NERC operational requirements, stores more energy than any existing or recently proposed energy storage facility, is a large generator, and provides the attributes of a peaking, load following, storage, and firm resource facility.
- Through the investigation and determination of specific hydro turbine technology, expanding the operational parameters now takes into account revenue generators that are not available with other turbine and design technologies, adding to grid security and reliability.

### 23. Water Storage

- 2021 proved a critical year in the Boise River Basin, the result of what occurs when severe shortfalls present themselves. Having additional water storage filled in excess water need years is the obvious solution as even the most aggressive water conservation measures will not meet the expanding needs of the Boise Basin [Treasure Valley].

Continue to work with the EPA on Water Infrastructure and Finance Act submissions which has led to substantive discussions with the EPA on the merits of needed additional water storage for the Treasure Valley.

- Review:
  - Identified the clear nexus between necessary water storage in the Boise River Basin and the benefits an expanded Cat Creek Energy upper reservoir can provide as critical, major infrastructure.
  - The upper reservoir now can meet up to 43% of the Boise Basin's water storage shortfall.
  - Amended existing water rights applications with additional water rights applications with the state of Idaho to utilize a portion of the expanded Cat Creek Energy upper reservoir's capacity with the Memorandums of Understanding in place with Boise River Basin water users. Plan to submit the last of these beneficial use Applications by mid-April 2020.

From the time FERC Preliminary Permit P-14655 was granted, Cat Creek Energy has been through a rigorous and thorough local process securing permits for the entire Project. The protracted resolution of local permitting questions not only resulted in resetting the Project time-line but also gave the industry time to catch up to the path-breaking clean energy storage and generation vision embedded in this Project.

In the last six years the Project parameters have been expanded to help Idaho and the region adapt to the actual and predicted effects of a changing climate. This re-setting couples with a new federal interest in water storage and flood mitigation. Four years ago, Cat Creek Energy was thinking of a public-private partnership only in terms of using water from the Anderson Ranch Reservoir to generate and store renewable energy via a Lease of Power Privilege and federal hydropower license. The terms of such a partnership now include a much more comprehensive inclusion of water services and regional economic development. Scope expansion has caused significant changes in the project design.

CCE has carried out activities under its preliminary permit in good faith and with reasonable diligence. CCE has filed the required progress reports. These reports describe CCE's efforts including local permitting, stream flow analysis, irrigation demand and flood control analysis, engineering analysis, grid interconnection analysis, financial analysis, consultation with federal, state and local agencies, and environmental impact study development. The project has been determined feasible, and CCE has subsequently completed the local permitting, entered into Memorandums of Understanding on water delivery and storage, and executed the Large GIA in the interconnection process with Idaho Power Company. An updated facility design is now prepared.

Under the initial three years of this permit, an orderly plan for the project has been developed. This blueprint will endure the machinations and variables associated with a changing climate, societal and regulatory objectives, and boardroom mandates taken in advancing a decarbonized energy economy, while adding appreciably to helping resolve the water storage shortage in the West.

Cat Creek Energy LLC has been focused on, and will continue to focus on, the established FERC Integrated License Process moving forward for 2022 until a license is issued for this project to bring the benefits of this innovative project to the Western Interconnection.

Regards,



James Carkulis

Agent for Cat Creek Energy, LLC

Copies

Cat Creek Energy, LLC