

Testimony of Carl Freedman, Haiku Design & Analysis

March 7, 2024

To: Maui County Council Water and Infrastructure Committee

Re: **Resolution No. 24-47: Proposed Kula Ridge Water Source Development Agreement**

- In opposition to the Resolution as worded.
- In opposition to approval of the Water Source Agreement in its current form.
- Recommending:
 - careful further review,
 - corrections of substantial errors,
 - complete and realistic statement of costs and budget impacts
 - full disclosure of several important policy considerations
 - addition of more specific contract language to protect the interests of the County and to avoid litigation, and

My name is Carl Freedman. I live in Haiku. I am currently working under contract providing consulting services to the Commissioners and staff of the Hawaii Public Utilities Commission regarding public utility planning, economics, policy, and regulation. My testimony before the Council today is strictly my own.

I authored the Maui County Water Use and Development Plan adopted by the Council for the Central Maui District circa 2006 and the associated draft WUDP plans for the Upcountry, West Maui, East Maui, and Molokai Districts. I am familiar with and have performed extensive analysis regarding the structure, operation, economics and potential resource alternatives for the DWS Upcountry System, albeit many years ago.

I was forwarded a copy of the Resolution and proposed Agreement with a polite request for my review and opinion. Based on my review I decided to submit testimony on this matter. My testimony is based on my review of these documents based on my understanding of the Upcountry water system and professional experience reviewing utility-related contract and tariff language. I am not otherwise familiar with any details regarding the Kula Ridge project, its developers, other involved parties, or the history or development of the Agreement.

I also reviewed the Department of Water Supply Kula Ridge Water Proposal slides dated March 7, 2024 published on the Committee Agenda.

The following comments are provided in cursory “bullet” format prepared in the limited time available. This is not an attempt at a comprehensive review or analysis of the proposed Agreement.

I believe that the Council has the responsibility to carefully review and approve by resolution any water agreement of this nature. This is not a responsibility to be delegated to the Mayor or

DWS. It is the responsibility of DWS and the administration to provide the Council with complete and accurate information characterizing a proposed water agreement.

Several provisions in the proposed Agreement that are not identified in the DWS characterization deserve careful examination and consideration. Several obvious errors in the Agreement should be corrected. The DWS presentation regarding the economics of the project are over-simplistic, incomplete, inaccurate and misleading. Several matters should be more clearly and constructively addressed in the Agreement with additional and/or amended language to avoid later conflict and litigation.

Based on my review, I believe the approval of the Resolution or Agreement as currently worded would not be good for the DWS, the County, DWS customers (including customers waiting for water meters).

- **Concerns regarding the form of the Resolution**
 - Resolution 24-47 is not consistent with the County Code
 - Section 14.01.060 states: “The council shall approve by resolution any water source development agreement with private entities.”
 - This section does not say that the Council can delegate authority to the Mayor to “execute any agreement” with a designated private party as proposed in the Resolution.
 - The Council certainly has the authority to require presentation of a specific ready-to-negotiate agreement for review and approval rather than granting carte blanche authority to the Mayor.
 - This is important in this case because it is not simply a water purchase agreement.
 - As noted below, the proposed Agreement makes some unprecedented and important policy determinations and grants substantial permanent entitlements to a private entity.
 - Allows developer to sell water not purchased by DWS “as Owner elects” to third parties using the DWS water system (at no cost) to distribute water to third parties. [section 3.3]
 - Requires County to support developer in obtaining permits and easements to develop distribution infrastructure both Upcountry and outside the Upcountry area. [section 3.3]
 - Requires DWS to pay to Project Owner 50% of all User Charges collected from all Upcountry DWS customers for the full 30-year term of the Agreement. [section 12.2]
- **Obvious Errors in the Agreement Language should be corrected.**
 - The term “kilowatts” is used in the Agreement in many instances where the clearly intended and logical term “kilowatt-hours” is appropriate.

- Correct and consistent usage of terms is important because the take-or-pay basis for payment for electrical power by DWS is based on availability, whereas the pricing formula is based on “energy” available to support water delivery.
 - The amount of kilowatts differs from the amount of kilowatt-hours in the context of the Agreement by a factor of thousands.
 - Aside from the importance of using correct language, these errors indicate that the Agreement language has not been carefully reviewed by persons knowledgeable regarding energy purchase contracts.
 - The terms “energy” and “water” are apparently mistakenly interchanged in several instances.
- **Several Major Water and Land Development Policies Should be Considered**
 - The DWS slides describing the Project do not mention several important and possibly provocative provisions of the Agreement.
 - The Agreement would allow the Project Owner to sell water not purchased by DWS as it pleases to third parties at the County’s expense. The Project Owner would become an arbiter of water entitlement and land development.
 - The Agreement provides that the Project Owner would be entitled to sell water from its wells not purchased by DWS to third parties “as Owner elects.” [section 3.3]
 - DWS would be required to transport water for the Owner, at no cost, using the Supporting Infrastructure and the Upcountry Water Distribution System. [section 3.3]
 - The County would be required to support the Owner in obtaining permits and easements for distribution of water “elsewhere in the Upcountry and in areas of Maui below” [section 3.3]
 - The Agreement does not clarify to what extent the County would effectively be required to extend its powers of eminent domain to the Project Owner.
 - The Agreement would apparently require the County to provide administrative and legal services to the Project Owner for development of Owner’s off-site water system sales improvements without cost to the Owner.
 - The Agreement would require DWS to “share” substantial Upcountry System water revenues with Project Owner.
 - The Agreement provides that DWS must pay to Project Owner 50% of all User Charges collected from all Upcountry DWS customers for the full 30-year term of the Agreement. [section 12.2]

- User Charges are defined to include all billing charges to each DWS customer bill except for the Water Usage Charge.[section 1.71]
 - This is an unprecedented provision.
 - This is not a trivial amount of revenue.
 - For example: My most recent monthly water bill (residential, 5/8", Haiku) was \$37.63, with a Water Usage Charge of \$14.86 and a Water Meter Service Charge of \$22.77.
 - Under the Agreement, DWS would owe half of the \$22.77 "User Charge" to the Project Owner, equal to \$11.38, which is just over 30% of my water bill.
 - There are no revenue impact estimates or acknowledgment of this provision in the DWS presentation slides.
 - The revenue impacts of this provision are not included in the DWS "Financial Implications" or "Budget Implications" slides. [slides 11 and 12]
- **DWS Cost Estimates are Simplistic and Inaccurate**
 - DWS Estimates of Project water cost are clearly underestimates [slide 11]
 - The estimates:
 - Are not explained or broken down
 - Obviously do not include realistic Energy Charge costs (see below)
 - Apparently do not include Supporting Infrastructure costs
 - Obviously do not include the substantial User Charge payments to Owner
 - Energy Charges and Water Charges alone (not including the omitted charges noted above) would total more than \$10 per thousand gallons
 - Water Charge is \$5.95 per thousand gallons
 - Energy Charge estimated at \$4.62 per thousand gallons
 - Based on well lift of 2800 feet; 5.0 kWh/kgal/kft (average DWS well energy efficiency); \$0.33/kWh
 - Estimates of Existing water avoided cost are overestimates [slide 11]
 - \$5.00 per thousand gallons appears to be an Upcountry Average.
 - Water on the Lower Kula System is limited, but it is about the lowest cost water on any DWS system.
 - This water flows downhill without pumping from the source to a storage reservoir to an energy-efficient and cost-efficient water treatment plant.
 - No pumping to higher elevations is required.

- Some booster pumps move water along the line and maintain pressure, but there is no mainline lift of water to higher elevations.
 - In 2008 the marginal cost to supply water to the Lower Kula System main line was \$0.31 per thousand gallons. This amount has undoubtedly increased but remains substantially less than average Upcountry system water delivery costs by a large factor.
- DWS assessment of “Budget Implications” is grossly simplistic and misleading. [slide 12]
 - The comparison to existing costs is based on underestimates of Project costs and overestimates of existing Lower Kula System costs as described above.
 - The DWS characterization does not mention the three \$5 million “Exclusivity Charges” that would be owed to the Project Owner for the three “Follow-On” wells at the commencement of each well development.
 - The DWS characterization does not mention, quantify or include the impacts of the revenue loss resulting from providing the Project Owner with 50% of all User Charges currently collected from all Upcountry System customers for thirty years.
 - The DWS characterization does not mention or apparently include the possibly substantial costs of providing the Project Owner with repayment and return (at 7% minimum adjustable interest) for the “Supporting Infrastructure Charge” as provided in the Agreement.
 - Importantly, the DWS characterization does not consider the “take-or-pay” nature of the DWS obligations in the Agreement.
 - DWS must pay for all energy and all water that is made available by the Project Owner regardless of whether DWS has need or can take the available water.
 - Even in normal circumstances or when the Piiholo Reservoir is full and low-cost water is available on the Lower Kula System, DWS would be obligated to take (or pay anyway) the full amount of more expensive water from the Project.
 - The DWS analysis presumes that all water purchased from the Project would be used and would avoid water production cost at the (overestimated) \$5.00 average Upcountry System water production cost.
 - It is not clear that the full output of the Project wells can be managed by the existing Lower Kula System infrastructure without substantial water storage improvements which would have budget implications.

- Because the Agreement is based on a take-or-pay obligation arrangement, DWS would have to absorb the full well output of the wells constantly, even when water demand on the system is less than provided.
 - The existing Lower Kula System storage tanks, considering the location of the Project and the need to maintain fire protection storage levels, may only be able to provide some of the storage that may be needed to effectively use the full well build-out output.
- **The development of one well by the Project Owner will not necessarily provide availability for additional water meters.**
 - The reliability of the Project well must be considered in determining value to the DWS system. There are several factors to consider, including the nature of the well, wellfield considerations, contractual provisions in the Agreement giving priority to Project Owner use, and lack of provisions in the Agreement assigning any obligation to the Project Owner to perform due diligence in maintaining water production availability.
 - This would be the deepest well on the Island, substantially deeper than any existing DWS well
 - At the time I prepared the Upcountry WUDP draft in the early 2000s, DWS was not interested in drilling a well this deep because of reliability and maintenance issues.
 - By the standards used in resource planning in the 2000s, one well in a new wellfield would not be credited with effective capacity or reliability to serve additional water demand unless backed up by a second well or by existing effective capacity by other sources.
 - Some analysis would be necessary to determine if the first well of the project alone would be sufficient to serve additional water meters.
 - Analysis question: If the project well is out of service for any extended period, would the existing water system be able to serve water demand (including any new meters allowed based on project well production) without water restrictions to existing customers.
 - As far as I know, such an analysis has not been performed. In my judgement (without rigorous analysis) a single well at the Project site could be credited with providing more reliable water service for the Lower Kula System, and could in some years allow more flexible management of the Piiholo Reservoir. However, even if the well was fully committed to the needs of DWS (without

- restrictions allowed by the Project Owner in the Agreement, and without deration due to cloudy weather and Microgrid energy availability), pending careful analysis, one well alone would not provide a justifiable basis for issuing a substantial number of additional water meters without detriment to the reliability of the water system. A second well at the Project site would provide substantial reliable effective capacity upon which to rely in assessing the ability to meet additional system demands
- The Agreement does not address impacts of later wells on the initial DWS well.
 - In a wellfield of such limited size, the drawdown of each well may impact the effective capacity of nearby wells.
 - In order to avoid later dispute, the Agreement should include some provisions to address wellfield management issues.
 - The Agreement does not address aquifer management considerations.
 - The amount of Available Monthly Water Quantity that is available to and paid for by DWS is determined by the Owner's O&M Contractor.
 - The Agreement does not specify the criteria for determination of the Available Monthly Water Quantity, or whether or how aquifer management or adjacent well impacts are considered.
 - The Agreement includes no requirement or standards for Owner to maintain availability.
 - DWS must pay for water that is available when it is available but there are no standards for diligence for the Project Owner to make water available.
 - The Owner's use of available energy and water have superior priority over availability to DWS
 - Owner may reduce available energy and water available to DWS if weather conditions (e.g., cloudy day) reduce Project Microgrid output.
 - There are no provisions for making water available to DWS using onsite or MECO backup power.
- **The Agreement could be improved in several ways to protect the interests of the DWS, the County and DWS customers.**
 - DWS should have some participation in aspects of the project that will affect the value and the costs of the project to DWS.
 - For example, the efficiency of the well pumps will directly affect the Energy Charges paid by DWS. Efficient pump equipment may cost more to the Project Owner.
 - The Agreement should provide some specifications about well pump efficiency and/or allow some participation by DWS in equipment specification.

- Project Owner assigns and controls the Project design, contracting, operations and maintenance entities
 - Owner selects and controls the Design Agent, the EPC Contractor, the O&M Contractor, and engages an Appointed Independent Engineering Team.
 - There are no provisions for DWS input regarding selection or oversight.
 - When a Well Package is complete, the Agreement provides for a DWS O&M Contractor to provide operations and maintenance services for Supporting Infrastructure of a Well Package.
 - DWS designates the DWS O&M Contractor.
 - The DWS O&M Contractor is subordinate to and serves under the oversight of the Owner's O&M Contractor.
- Owner's O&M Contractor "certifies" amount of available energy and water to be purchased by DWS.
 - This is a critical determination because water and energy are determined on a take-or-pay basis (i.e., DWS pays for the amount of available energy and available water even if none is actually delivered to DWS).
 - The Agreement does not include standards or criteria for determining amount of available water
 - Is this based only on equipment nameplate capacities
 - Derations for maintenance?
 - Derations for normal operating conditions?
 - Are aquifer constraints included in determining availability?
- Several matters that may become points of conflict or controversy should be more sufficiently addressed in the Agreement. The Agreement should include more specific language regarding specifications for:
 - Well pump testing
 - Pump test performed by EPC Contractor
 - EPC Contractor has conflict of interest
 - No requirement for oversight provided for in the Agreement
 - No standards or procedures identified in the Agreement
 - Determination of "Availability" of energy and water
 - These are critical components of a take-or-pay contract
 - Many ambiguities are not addressed in the Agreement
 - Point of Interconnection and associated responsibilities
 - The point of interconnection defined in the Agreement may not actually be one specific point or location due to provisions for shared use of water and energy with priority use by the Owner.

- The Agreement should clarify specific details regarding equipment layout and responsibility for water disinfection, testing, and metering of water used by the Owner and DWS.