
Chapter 6:

Irretrievable and Irreversible Commitments of Resources

6. IRRETRIEVABLE AND IRREVERSIBLE COMMITMENTS OF RESOURCES

An irreversible or irretrievable commitment of resources refers to impacts on or losses to resources that cannot be recovered or reversed. Examples include permanent conversion of wetlands, the loss of cultural resources, soils, wildlife, agricultural production, or socioeconomic conditions. Irreversible is a term that describes the loss of future options for a resource. Irretrievable is a term that applies to the loss of a resource that is not renewable and cannot be recovered for future use.

6.1. Use of Non-Renewable Resources

The issuance of the Proposed Action (Water Lease) will not result in the irreversible use of the water resource because the Water Lease will be for a term, and not perpetual. Additionally, the Water Lease will be subject to the CWRM D&O and the reservation in favor of the DHHL, meaning that the water resource will not be exclusively and permanently committed to the Water Lease. For the term of the Water Lease the water resource will be available to the identified uses, such as providing water to the agricultural fields in Central Maui and continuing to provide water to the MDWS for Upcountry Maui and Nāhiku. To the extent such uses are not made, the water will not be diverted and will remain in the streams.

The use of surface/stream water for domestic and agricultural purposes could be viewed as an irretrievable use of the resources, to the extent that the water has been removed from its natural course. However, the use of this surface water is part of the cycle to return the water to the environment. For example, some of the water applied to land will return to the atmosphere through evaporation and transpiration through plants while water entering the ground will eventually discharge into the ocean. Water consumed by humans and animals, will evaporate through breathing and perspiration, and wastewater effluent from cesspools, septic systems and wastewater treatment plants that discharge into the ground will eventually reach the ocean. Water in the atmosphere, including water evaporating from the ocean and land, will fall as rain, including in East Maui, completing the cycle. This is an open cycle involving the movement of water through the atmosphere, land and oceans of the earth.

As part of a global hydrologic cycle, water is generally considered a renewable resource. In any particular location and time, however, there may only be a limited amount available, for example, to flow in streams or be diverted for other uses. To the extent that a commitment is made as to where that water goes or is used, the result is an irreversible use of that water for that period of time. The Proposed Action is a Water Lease with 30-year commitment to the proposed use of water. With careful management and responsible usage, water is a renewable resource and with that understanding the Water Lease would not involve an irretrievable commitment of the water resource.

The impacts of the use of the surface water resources associated with the Proposed Action will be offset by the considerable economic, social, and environmental benefits to the residents of the region, the County of Maui, and the State of Hawai'i that would be supported by the issuance of the subject Water Lease, as discussed in Section 4.7.3.

The Water Lease does not involve new construction within the License Area. The operation of the EMI Aqueduct System does not require the use of nonrenewal sources because the transmission of water through the EMI Aqueduct System is conducted through gravity rather

than through water pumping stations that require the use of non-renewable energy sources for operations. The diversified agricultural operations planned for the Central Maui agricultural fields will involve the commitment of some resources for the modifications of the field irrigation system and the construction of fencing, agricultural operating facilities and potentially renewable energy facilities. Building materials (concrete, wood, metal, etc.) will be used along with energy resources related to the construction of those items. However, similar improvements are planned even if no Water Lease is issued but, on a reduced scale. The use of such fuels and resources is not expected to be significant and the use of the Central Maui agricultural fields for diversified agriculture is considered to be beneficial because there would be considerably more green open space in Central Maui in the form of farms and irrigated pasture and approximately three times as much food production, including greater food self-sufficiency, should the Water Lease be issued. There would also be more local jobs.

"Resources" also includes natural and cultural resources. The Water Lease will authorize the use of diverted surface water, resulting in certain streams having less flow than under natural conditions. However, the Water Lease will also be subject to the IIFS established under the CWRM D&O, which has identified the streams most important for biological habitat purposes and mandated certain minimum flows to support those streams. Water is also identified as a cultural resource. A Water Lease that authorized the use of all surface waters in disregard to cultural practices would be a commitment involving loss or destruction of the cultural resource. However, the CWRM D&O specifically identified streams important for the cultivation of taro and other community purposes, and ordered an end to all diversions on those streams. Therefore it is not expected that the Water Lease, which will be subject to the CWRM D&O and subject to a reservation in favor of the DHHL, will result in the loss or destruction of cultural resources. The Proposed Action will not include partial or total destruction or alteration of historic properties, detrimental alteration of the surrounding environment, detrimental visual, spatial, noise or atmospheric impingement, nor neglect resulting in deterioration or destruction.

6.2. Irreversible Curtailment of the Range of Beneficial Uses

The Water Lease will allow the continued use of surface water for recognized beneficial purposes such as domestic and agricultural uses. There are also two hydroelectric facilities that utilize this water, one located in the area historically known as Kaheka Village, and the other at Pā'ia. Generation of the hydroelectric power is a non-consumptive use of water and the water can be subsequently used for agricultural purposes after flowing through the hydroelectric facilities. The State water code (HRS Chapter 174C), emphasizes that maximum beneficial use of the waters of the State includes domestic uses, aquaculture uses, irrigation and other agricultural uses, power development, and commercial and industrial uses, and that there should also be protection of traditional and customary Hawaiian rights, the protection and procreation of fish and wildlife, the maintenance of proper ecological balance and scenic beauty, and the preservation and enhancement of waters of the State for municipal uses, public recreation, public water supply, agriculture, and navigation. The Water Lease will promote recognized beneficial uses of the water.

The implementation of the Proposed Action is consistent with existing and adjacent land uses, and would not prevent or curtail any uses allowable under applicable land use policies or controls. As discussed in Chapter 5, the use of diverted surface waters allowed under the subject Water Lease is consistent with the goals, policies, and objectives outlined in the Hawai'i

State Plan, State Functional Plans, Maui Countywide Policy Plan, Maui Island Plan, and a range of other County sponsored community plans. The Proposed Action also supports the use and preservation of IAL.

The amount of water allowed to be diverted by the Water Lease will be significantly less than the amount diverted for sugar cultivation. Mahi Pono's farm plan projects use of the total amount of water available after compliance with the IIFS requirements of the CWRM D&O, although it is understood that the DHHL will eventually convert its water reservation to active use. Mahi Pono's water use will be incremental as diversified agriculture is brought back to Central Maui. However, if more water were available, more crop options would also be available. The issuance of the Water Lease should not curtail the use and access to adjacent lands (e.g., for recreation, environmental research, etc.) as the EMI Aqueduct System has been in place for over 100 years.

6.3. Potential for Environmental Accidents

The implementation of the Proposed Action is not associated with activities that could directly trigger potential environmental accidents, nor pose a significant risk for potentially triggering environmental accidents. Specifically, the Proposed Action constitutes the issuance of a Water Lease, and is not associated with any construction or development activities. The EMI Aqueduct System has been operating for over 100 years, and issuance of the Water Lease should ensure continued operations and maintenance of the EMI Aqueduct System.

The use of the Central Maui agricultural fields for diversified agriculture could be associated with potential impacts to soil or groundwater from accidental spillage of pesticides. To mitigate this, Mahi Pono will implement a NRCS & USDA-approved conservation plan that will limit surface water runoff and soil erosion that could carry agricultural chemicals and nutrients offsite. Mahi Pono will also be subject to inspections conducted by the Hawai'i Department of Agriculture (HDA) that will ensure that the equipment used to apply agriculture chemicals is properly calibrated. HDA and the U.S. EPA will also have regulatory oversight over Mahi Pono's application of agriculture chemicals going forward. Mahi Pono will also make investments in equipment and storage facilities aimed at developing closed systems to safeguard against agriculture chemical spills.

6.4. Unavoidable Impacts

The diversion of surface waters from the License Area in East Maui to the agricultural fields in Central Maui under the Proposed Action, as well as delivery of water to the MDWS to service Upcountry Maui and Nāhiku would not involve the construction of any new facilities, hence, it is not anticipated that there would be any unavoidable impacts or probable adverse effects. Past access into the License Area to construct, operate and maintain the EMI Aqueduct System may have resulted in the inadvertent introduction of invasive species, as discussed in Section 4.4. In the future, with continued access for maintenance of the EMI Aqueduct System, the possibility of inadvertently introducing additional invasive species remains.

The Water Lease will authorize the use of diverted surface water, resulting in certain streams having less flow than under natural conditions. However, the Water Lease will also be subject to the CWRM D&O, issued in June 2018, which has identified the streams most important for biological habitat purposes and mandated certain minimum flows to support those streams. As

such, the biological impacts of the Water Lease are far less than the impacts that were in place at least since the time of the completion of the EMI Aqueduct System (in 1923), if not even earlier, e.g. the completion of the first portion of the EMI Aqueduct System in 1878.

Additionally, Mahi Pono's proposed agricultural operations are anticipated to use less water than what was previously used during sugarcane operations, thereby leaving more water in the streams. However, by using less water to irrigate the Central Maui agricultural fields, it is expected that there will be a lower level of groundwater recharge to the region's groundwater aquifers as discussed in Section 4.2.2. Consequently, the lower level of groundwater recharge in combination with periods of lower rainfall, could result in lower levels of groundwater supply to serve the agricultural users in Central Maui, as well as other users of that water for domestic or municipal purposes.