

## 11.0 Final Renewable Energy Project Scoring

This section provides a brief discussion of the renewable energy project scoring methodology and the results of the scoring analysis. In general, the scoring approach is the same as that presented in Section 4. The major difference is that instead of scoring general technology types, the objective of this scoring process is to rank actual projects, which have been characterized in the previous sections. Only deviations from the previous screening approach will be presented in this section.

### 11.1 Objective

The objective of the project scoring methodology is to differentiate the many potential renewable energy projects by considering numerous factors affecting project viability including the cost of energy, resource availability, technology maturity, and environmental and socioeconomic impacts. The combination of each of these factors will provide an indication of the viability of a particular project and a measure of the non-economic benefits produced by each project.

The methodology used for the scoring analysis uses similar weighted criteria as were developed for the technology screening analysis in Section 4. Changes to the screening criteria are presented in the following section.

### 11.2 Scoring Criteria

The assessment methodology employs a set of seven criteria. The criteria are given different weights such that 100 total points are possible when the methodology is applied to a given project. Criteria are specific and measurable to ensure consistent evaluation and quantitative comparison of the final project scores. The seven criteria are summarized below:

- **Cost of energy** – Assesses the economic competitiveness of the resource. The evaluation is performed based on the levelized cost premium of generation. This is a measure of the life-cycle cost difference between generating power with the forecasted generation resource mix and the renewable energy project. This calculation considers the capital cost, fixed O&M, variable O&M, and project performance.
- **Kauai resource potential** – Assesses the potential generation from each renewable energy resource. This is also a measure of the replicability of a given project. The scores for this category are the same as those assigned in Section 4.

- **Fit to KIUC needs** – Assesses the fit of the project to the resource supply needs of KIUC. This criterion considers the scale of the project, typical generation profile, firm vs. as-available, etc.
- **Technology maturity** – Assesses the development status of the technology (commercial, demonstration, R&D, etc.) and the level of technical risk associated with its implementation.
- **Environmental impact** – Assesses the overall environmental impact of the project. Even among projects utilizing the same technologies, there are differences in the environmental impact. For example, the Upper Lihue hydro project has practical zero negative environmental impacts, whereas the Wailua hydro project has significant environmental impacts.
- **Socioeconomic impact** – Assesses the overall socioeconomic impact of the project. Includes factors such as increased local employment (construction and O&M), development of local resources, capacity building, and safety and health impacts.
- **Incentives/Barriers** – Indicates the degree of incentives offered for the project and barriers against the development of the project. Incentives may include federal/state subsidies or ancillary benefits of the project, such as addressing solid waste disposal problems. Barriers may include public opposition and other impacts that would raise concerns about the development of the project.

The weighting factors and evaluation guidelines for the criteria are provided in Table 11-1. The Levelized Cost Premium accounts for 50 percent of the overall score, with the rest of the criteria contributing varying degrees to the remaining 50 percent. The assessment methodology was applied by assigning a score from 0 to 100 for each criteria and then applying the weighting factors. The weighted scores are summed to provide the overall project score. Each criterion is scored differently, for example the “cost of energy” and “Kauai resource potential” criteria are largely based on quantitative information. For the remainder of the factors, quantitative data is typically not available, and a qualitative score must be assigned based on available information.

<b>Table 11-1. Screening Methodology Scoring Guidelines.</b>		
<b>Criteria</b>	<b>Weight</b>	<b>Scoring Details</b>
Levelized Cost Premium	50	100 = lowest levelized cost premium 0 = highest levelized cost premium Proportionately scored between lowest and highest projects
Kauai resource potential	10	100 = overall developable resource potential of 500 GWh/yr or more 0 = overall developable resource potential of 5 GWh/yr or less Proportionately scored between 500 and 5GWh/yr
Fit to KIUC needs	10	100 = project is of appropriate scale, energy production profile matches KIUC needs, and meets KIUC needs regarding dispatchability, capacity vs. energy, etc. 0 = project is too large or small, produces energy at unneeded times, and provides product (such as capacity) of little value. Proportionately scored between two extremes
Technology maturity	10	100 = established commercial technology that has been widely adopted. Technology is offered by multiple competitive vendors and fully warranted. 75 = established technology that has been used in several similar applications 50 = early commercial technology that has been successfully demonstrated 25 = emerging technology in the demonstration phase 10 = technology still in research and development 0 = technology concept
Environmental impact	7.5	Relative to other renewable energy projects: 100 = Minimal negative environmental impacts 50 = some environmental impacts 0 = substantial negative environmental impacts
Socioeconomic impact	7.5	Relative to other renewable energy projects: 100 = substantial socioeconomic benefits enhancing the island's economy, health, and general well-being 50 = some socioeconomic benefits (base score) 0 = very little or negative socioeconomic effects
Incentives/Barriers	5	100 = Significant incentives (e.g., project is in advanced state of development) and no apparent barriers to development. 50 = No significant incentives or barriers 0 = No incentives but substantial obstacles to successful project development

### 11.3 Scoring Results

The scoring methodology was applied to each candidate project, the results of which are presented below.

#### 11.3.1 Levelized Cost Premium

The levelized cost premium of generating power from each of the projects was calculated. This value represents the cost of generating power with the renewable energy project above (or below) the cost of generating power with the default KIUC energy mix. The levelized cost premium is calculated by subtracting the avoided energy and capacity cost from the levelized busbar cost for each project.

Figure 11-1 and Figure 11-2 show supply curves of the amount of renewable energy generation available against the levelized cost and levelized cost premium, respectively. The curve was constructed by plotting the annual generation from each project against the levelized cost premium in ascending order. This represents the amount of renewable energy that can be generated below a given price. The chart shows the base fuel cost cases for each biomass and MSW option. An important conclusion from the supply curve is that about 400 GWh of renewable energy projects were identified by this study at a cost below KIUC's current avoided costs. KIUC generated about 430 GWh in 2003, largely from fossil fuel resources.

The results of the levelized cost premium analysis are provided in Table 11-2. Each of the projects identified utilize technologies that are fully commercial and are capable of producing power at prices competitive with conventional power plants. Further, compared to KIUC's forecasted avoided costs, all of the projects except the biomass plant produce power at a negative premium (savings). Generally, the least expensive power was found to be produced by the hydro and wind projects followed by MSW and biomass. The low power production cost from these resources can be attributed to good capacity factors, lower capital costs, and relatively low annual operating costs compared to the other projects.

Another observation that can be made from Table 11-2 is that projects developed under a KIUC ownership structure have a consistently lower levelized cost than projects constructed under developer ownership. This clearly shows that the low cost financing available to KIUC is able to overcome the federal and state economic incentives that private developers receive. However, there may be innovative public-private partnerships that could leverage KIUC's access to low cost financing with the tax credits available to private entities. Such arrangements could ultimately result in the lowest cost projects for KIUC.

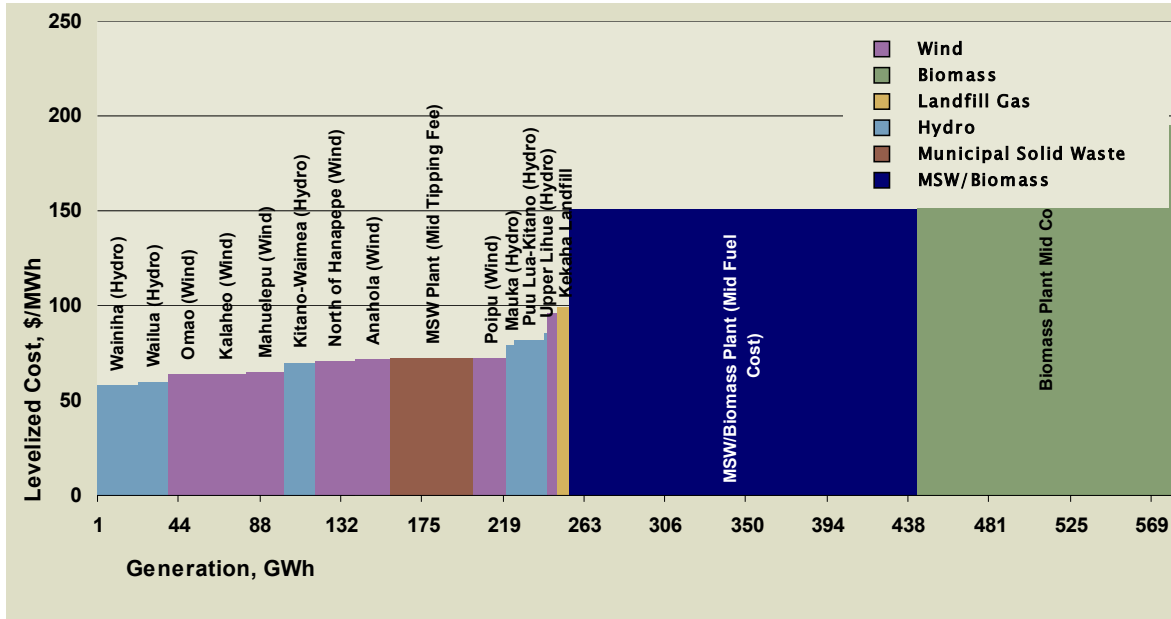


Figure 11-1. Levelized Cost Supply Curve (KIUC Ownership).

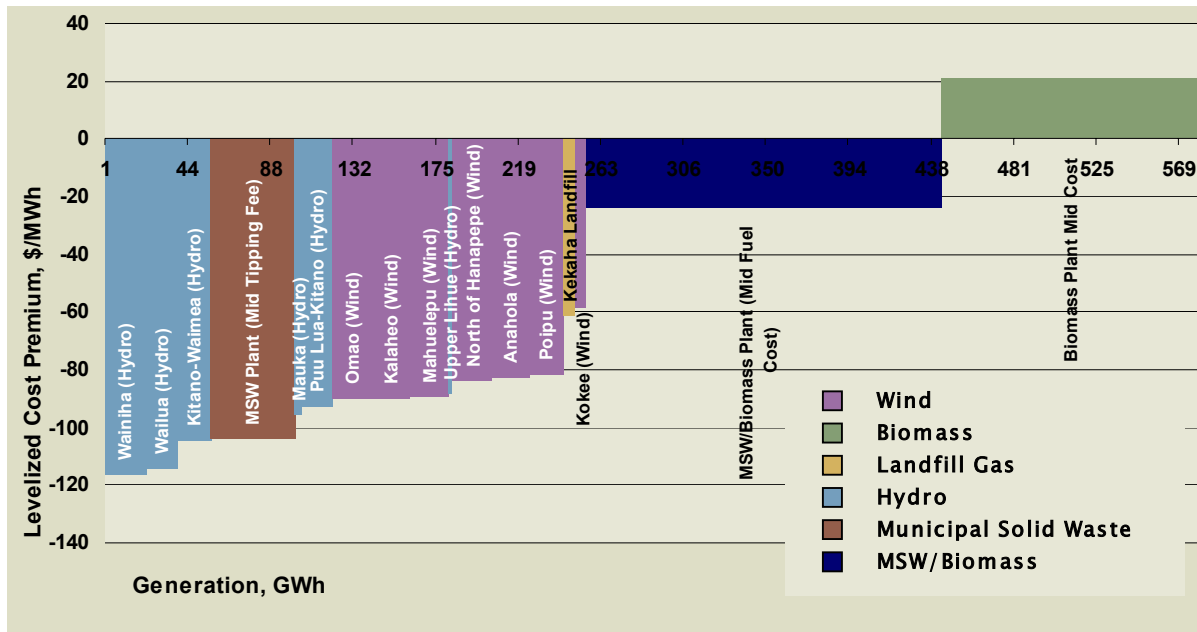


Figure 11-2. Levelized Cost Premium Supply Curve (KIUC Ownership).

**Table 11-2. Project Performance and Cost Comparison.**

	Net Plant Capacity, MW	Capacity Factor	KIUC Levelized Cost, \$/MWh	KIUC Levelized Cost Premium, \$/MWh	Developer Levelized Cost, \$/MWh	Developer Levelized Cost Premium, \$/MWh	Levelized Cost Premium Score
Hydro: Wainiha	4.0	64%	58.44	(116.30)	123.88	(50.86)	79
Hydro: Upper Lihue	0.3	69%	86.10	(88.64)	181.53	6.79	64
Hydro: Wailua	6.6	28%	60.38	(114.36)	127.57	(47.17)	78
Hydro: Waimea Mauka	2.9	15%	79.07	(95.67)	146.03	(28.72)	68
Hydro: Puu Lua-Kitano	3.0	61%	81.79	(92.96)	169.18	(5.56)	66
Hydro: Kitano-Waimea	4.1	48%	69.94	(104.81)	142.98	(31.76)	72
Wind: Kalaheo	6.6	35%	64.46	(90.10)	75.58	(78.98)	65
Wind: Omao	6.6	36%	64.24	(90.32)	75.70	(78.86)	65
Wind: North of Hanapepe	6.6	36%	70.76	(83.80)	86.55	(68.01)	61
Wind: Kokee	2.0	36%	95.88	(58.68)	112.12	(42.44)	48
Wind: Anahola	6.6	34%	71.68	(82.88)	87.05	(67.51)	61
Wind: Poipu	6.6	31%	72.77	(81.79)	87.12	(67.44)	60
Wind: Maha'ulepu	6.6	36%	64.24	(90.32)	75.70	(78.86)	65
Landfill Gas: Kekaha	0.8	86%	98.83	(61.54)	119.96	(40.40)	49
Biomass: Low Fuel Cost	20.0	80%	179.52	5.62	202.85	28.95	13
Biomass: Mid Fuel Cost	20.0	80%	194.77	20.87	216.96	43.06	5
Biomass: High Fuel Cost	20.0	80%	204.63	30.73	226.08	52.18	-
MSW: Low Tipping Fee	7.3	70%	108.66	(68.00)	212.83	36.17	53
MSW: Mid Tipping Fee	7.3	70%	72.38	(104.28)	179.26	2.60	72
MSW: High Tipping Fee	7.3	70%	20.39	(156.27)	131.16	(45.50)	100
MSW/Biomass: High Fuel Cost	27.8	77%	165.99	(8.66)	199.56	24.91	21
MSW/Biomass: Mid Fuel Cost	27.8	77%	150.72	(23.93)	185.43	10.78	29
MSW/Biomass: Low Fuel Cost	27.8	77%	125.45	(49.21)	162.05	(12.60)	43

### **11.3.2 Kauai Resource Potential**

The near and long-term generation potential for each renewable resource was estimated in Section 4.3.2. The long-term (20-year) potential score is being used for this evaluation (refer to Table 4-5). Due diligence of each of the identified projects has been performed to assure that an adequate resource exists to support production. The long-term resource score is a measure of the replicability of each project type. In general, the greater the replicability of a project type, the better for KIUC. When multiple projects can be developed, lessons learned can be applied to future projects, savings in operation costs can be realized with multiple facilities, and improved performance may be realized through greater experience.

### **11.3.3 Fit to KIUC Needs**

The Fit to KIUC Needs criterion is a measure of the applicability and suitability of a project to the KIUC system. During the screening analysis in Section 4, a score for each renewable resource was developed based on typical production profiles, dispatchability, and typical project size. Scores were developed for the next 3-years, 5-years, 10-years, and 20-years. Additionally, broad assumptions about the application of each technology were required to generate the initial score, which do not necessarily apply to individual projects. It is assumed that each of the projects identified for the Phase II analysis would be developed within the next 5 years, thus the scores from the 5-year time frame were used as the base for this analysis. Modifications to these base scores were made according to individual project characteristics and are presented in Table 11-3.

For the majority of projects, the general technology score was left unchanged for the individual projects. The Upper Lihue hydro upgrade project received a higher score because this facility is currently owned by KIUC, and the modifications are relatively minor in comparison to a new facility. The Kokee wind project received a higher score than the other wind projects because this option is smaller, could be implemented with little risk, and could be used to build KIUC experience with wind power generation. The biomass plant score was downgraded because of the scale of this project (too large?). Significant capacity is not needed on the KIUC system in the near-term, thus this project is less desirable. The same reasoning holds for the MSW/Biomass project. This is a large and complicated project whose capacity is not needed on the system for many years.

**Table 11-3. Fit to KIUC Needs Scoring Results.**

<b>Project</b>	<b>Score</b>	<b>Comments</b>
Hydro: Wainiha	75	Same as general technology score
Hydro: Upper Lihue	100	KIUC owned asset that could be easily upgraded
Hydro: Wailua	75	Same as general technology score
Hydro: Waimea Mauka	75	Same as general technology score
Hydro: Puu Lua-Kitano	75	Same as general technology score
Hydro: Kitano-Waimea	75	Same as general technology score
Wind: Kalaheo	75	Same as general technology score
Wind: Omao	75	Same as general technology score
Wind: North of Hanapepe	75	Same as general technology score
Wind: Kokee	85	Small project that could be demonstrated with little risk
Wind: Anahola	75	Same as general technology score
Wind: Poipu	75	Same as general technology score
Wind: Maha'ulepu	75	Same as general technology score
Landfill Gas: Kekaha	75	Same as general technology score
Biomass: Low Fuel Cost	37.5	Relatively large for near-term needs
Biomass: Mid Fuel Cost	37.5	Relatively large for near-term needs
Biomass: High Fuel Cost	37.5	Relatively large for near-term needs
MSW: Low Tipping Fee	50	Same as general technology score
MSW: Mid Tipping Fee	50	Same as general technology score
MSW: High Tipping Fee	50	Same as general technology score
MSW/Biomass: High Fuel Cost	25	Large complicated project
MSW/Biomass: Mid Fuel Cost	25	Large complicated project
MSW/Biomass: Low Fuel Cost	25	Large complicated project

### **11.3.4 Technology Maturity**

All of the projects selected for the Phase II analysis utilize fully commercial technologies; therefore all of the projects received a score of 100 for this criterion. For a complete discussion of the technology maturity analysis refer to Section 4.1.4.

### **11.3.5 Environmental Impact**

Previously, an assessment of the environmental and socioeconomic impact of each renewable energy resource was compared against the other renewable energy resources. For this analysis, differences between individual projects were highlighted to construct a unique score for each project. Projects with minimal negative impacts receive a 100, while those with potentially large impacts received a zero. Table 11-4 shows the results of the environmental impact scoring.

**Table 11-4. Environmental Scoring Results.**

<b>Project</b>	<b>Score</b>	<b>Comments</b>
Hydro: Wainiha	50	Issues to address, but no fatal flaws. Already an existing project on this stream. Land is all controlled by one private owner (A&B)
Hydro: Upper Lihue	100	Upgraded turbine, no incremental environmental impacts
Hydro: Wailua	25	Substantial diversion of Wailua river
Hydro: Waimea Mauka	85	Upgraded project with some slight disturbances of local environment
Hydro: Puu Lua-Kitano	40	Run of ditch project, minimal environmental impact. State and HI Home Lands
Hydro: Kitano-Waimea	40	Run of ditch project, minimal environmental impact. State and HI Home Lands
Wind: Kalaheo	75	Same as general technology score
Wind: Omao	75	Same as general technology score
Wind: North of Hanapepe	65	Would require construction of new road with associated impacts
Wind: Kokee	50	Located in protected area (state park, forest, etc.)
Wind: Anahola	40	Located in protected area (state park, forest, etc.), would require construction of new road with associated impacts
Wind: Poipu	75	Same as general technology score
Wind: Maha'ulepu	75	Same as general technology score
Landfill Gas: Kekaha	50	Same as general technology score
Biomass: Low Fuel Cost	50	Same as general technology score
Biomass: Mid Fuel Cost	50	Same as general technology score
Biomass: High Fuel Cost	50	Same as general technology score
MSW: Low Tipping Fee	25	Same as general technology score
MSW: Mid Tipping Fee	25	Same as general technology score
MSW: High Tipping Fee	25	Same as general technology score
MSW/Biomass: High Fuel Cost	25	Similar impacts as MSW plant
MSW/Biomass: Mid Fuel Cost	25	Similar impacts as MSW plant
MSW/Biomass: Low Fuel Cost	25	Similar impacts as MSW plant

For the most part, the wind, biomass, and MSW projects received the same environmental impact score as the general resource in the Phase I analysis. The Kokee and Anahola wind projects are located in protected areas, thus received a lower score than in the previous analysis. Significant changes were made to the scores for the hydro projects to account for the site specific nature of environmental concerns associated with hydro development, as noted in the table above.

**11.3.6 Socioeconomic Impact**

Each renewable energy technology was evaluated for socioeconomic benefits in the Phase I screening based upon criteria including job creation, solving existing socioeconomic problems, and transfer of knowledge. For this Phase II scoring effort, the socioeconomic scores from Phase I were re-examined for each specific project. The results of the socioeconomic scoring are provided in Table 11-5.

<b>Table 11-5. Socioeconomic Scoring Results.</b>				
<b>Project</b>	<b>Score</b>	<b>O&amp;M employment</b>	<b>Construction employment</b>	<b>Other notes</b>
Hydro: Wainiha	50	Low	Moderate	Improved/new road to site
Hydro: Upper Lihue	0	None	Very Low	
Hydro: Wailua	50	Low	Moderate	
Hydro: Waimea Mauka	12.5	Very Low	Low	
Hydro: Puu Lua-Kitano	55	Low	Moderate	Possible irrigation system benefits
Hydro: Kitano-Waimea	55	Low	Moderate	Possible irrigation system benefits
Wind: Kalaheo	25	Low	Low	
Wind: Omao	25	Low	Low	
Wind: North of Hanapepe	25	Low	Low	
Wind: Kokee	20	Low	Low	Slightly smaller project
Wind: Anahola	25	Low	Low	
Wind: Poipu	25	Low	Low	
Wind: Maha'ulepu	25	Low	Low	
Landfill Gas: Kekaha	25	Low	Low	
Biomass: Low Fuel Cost	80	High	High	Supports new agricultural crop
Biomass: Mid Fuel Cost	90	High	High	Highly supports new agricultural crop
Biomass: High Fuel Cost	100	High	High	Very highly supports new agricultural crop
MSW: Low Tipping Fee	85	High	High	Infrastructure benefits due to low cost waste disposal
MSW: Mid Tipping Fee	75	High	High	Infrastructure benefits due to waste disposal
MSW: High Tipping Fee	65	High	High	Infrastructure benefits due to waste disposal, but at high cost
MSW/Biomass: High Fuel Cost	100	High	High	Combined benefits of biomass and MSW
MSW/Biomass: Mid Fuel Cost	100	High	High	Combined benefits of biomass and MSW
MSW/Biomass: Low Fuel Cost	100	High	High	Combined benefits of biomass and MSW

The wind energy projects all received scores of 20-25, depending on size, based upon the anticipated employment impacts of the development of these projects. Even if all of the proposed wind generation were constructed, only a small O&M team would be required to service all of the turbines. Additionally, there would be little economic

impact from construction due to the relatively short construction time of a wind energy facility and most of the materials being imported from outside the state.

The hydro projects received varying scores depending upon the scope of construction and new operations and maintenance personnel required. The Upper Lihue and Waimea Mauka projects received scores of zero and 12.5, respectively, because these are upgrade projects with limited construction scope and impact to operations and maintenance personnel. The Wainiha, Wailua, Puu Lua-Kitano, and Kitano-Waimea projects received scores between 50 and 55 largely due to the more expansive scope of construction

The biomass and MSW projects received scores ranging from 65 to 100, depending on the scope of employment and other economic benefits of the projects. The biomass project scores varied based on the level of support for new agricultural crops, which would depend on the price for biomass fuel. The MSW project scores varied with the tradeoff between waste disposal benefits and the cost for waste disposal. All MSW/Biomass plant price scenarios received a score of 100 due to the combined benefits of supporting agriculture and solving a waste disposal problem.

### **11.3.7 Incentives / Barriers**

The degree of incentives and barriers for each renewable energy resource was characterized in the Phase I screening. These scores reflected the relative level of incentives and barriers for each technology type. The incentives or barriers to development used in the Phase I screening were modified to include more project specific criteria (project in active development, located near load centers, etc.), and the expanded set of criteria is presented in Table 11-6.

<b>Table 11-6. Incentives / Barriers Scoring Criteria.</b>			
<b>Points</b>	<b>Incentives</b>	<b>Points</b>	<b>Barriers</b>
1	Complementary to Industry	1	Public Health Impacts
2	Good Public Acceptance of Technology	3	Negative Public Perception
2	Addresses Waste Disposal	2	Moderate Visual Impacts
2	Easily Actionable	4	Strong Visual Impacts
1	Replicability/Modularity	2	Potential Interference with Tourism
2	Experienced O&M Staff	2	Additional Infrastructure Required
2	Already in Active Development	2	Industry Supporting Infrastructure
2	Receptive Host Community/Land Owner	2	Hurricane Susceptible
2	Local Development Partners		
2	Near Island Load Centers		

The Phase I incentives/barriers scores have been re-examined and adjusted for the new criteria. The results are presented in Table 11-7. Differences were observed across all technology and project types. Overall, the hydro projects scored higher in the new analysis because of the inclusion of additional benefits related to project development activities. The wind projects generally scored lower than in the first analysis because of the inclusion of additional criteria related to visual impacts. The biomass and MSW projects scored similar to the initial screening analysis. Concerns over these technologies are related to negative public perception and possible health impacts.

### **11.3.8 Summary**

The weighting factors were applied to each of the scoring criteria and were summed to produce a final score. A breakdown of the scores by criteria is in Figure 11-3. The figure shows that with the exception of the standalone MSW project with high tipping fees, the top ten ranked projects are all hydro and wind projects. The highest scoring project is the MSW project with high tipping fees. This project benefits greatly from its very low levelized power cost, about \$20/MWh. The economics of the project are dependent high revenue from tipping fees, which may not be practicable. The Wainiha hydro project, which had been actively developed in the 1980s, is the second highest scoring project. It has a good combination of low power cost and high scores in

most other categories, representing a solid project with few potential drawbacks. The next three projects (Omao, Kalaheo, and Maha'uilepu) are all wind and scored very similar. Of these projects, the Kalaheo site may be easiest to develop due to its large area, limited population and easy access. On the other end of the scale, the biomass and MSW/biomass plants were the lowest scoring projects, primarily due to higher costs of these projects. See the next section for additional discussion of these results.

Table 11-7. Incentives / Barriers Screening Results

	Incentives										Barriers								Score
	Complementary to Industry	Good Public Acceptance of Tech.	Addresses Waste Disposal	Easily Actionable	Replicability / Modularity	Experienced O&M Staff	Already active development	Receptive host community / land	Local development partners	Near Island Load Centers	Public Health Impacts	Negative Public Perception	Moderate visual impacts	Strong visual impacts	Potential interference with tourism	Additional infrastructure req'd	Industry Supporting Infrastructure	Hurricane Susceptible	
Points	1	2	2	2	1	2	2	2	2	2	-1	-3	-2	-4	-2	-2	-2	-2	
Hydro: Wainiha					■	■		■		■					■			70	
Hydro: Upper Lihue				■	■	■	■	■		■								94	
Hydro: Wailua					■	■	■			■		■		■				58	
Hydro: Waimea Mauka				■	■	■												70	
Hydro: Puu Lua-Kitano					■	■									■			54	
Hydro: Kitano-Waimea					■	■									■			54	
Wind: Kalaheo		■			■							■				■	■	38	
Wind: Omao		■			■					■			■			■	■	38	
Wind: North of Hanapepe		■			■		■					■			■	■	■	38	
Wind: Kokee		■			■								■	■		■	■	22	
Wind: Anahola		■			■		■	■	■	■		■			■	■	■	62	
Wind: Poipu		■			■					■			■	■		■	■	30	
Wind: Maha'ulepu		■			■					■			■	■		■	■	30	
Landfill Gas: Kekaha		■		■		■	■	■	■									98	
Biomass: Low Fuel Cost	■	■				■		■	■			■						74	
Biomass: Mid Fuel Cost	■	■				■		■	■			■						74	
Biomass: High Fuel Cost	■	■				■		■	■			■						74	
MSW: Low Tipping Fee			■			■	■	■	■		■	■						74	
MSW: Mid Tipping Fee			■			■	■	■	■		■	■						74	
MSW: High Tipping Fee			■			■	■	■	■		■	■						74	
MSW/Biomass: High Fuel Cost			■			■		■	■		■	■						66	
MSW/Biomass: Mid Fuel Cost			■			■		■	■		■	■						66	
MSW/Biomass: Low Fuel Cost			■			■		■	■		■	■						66	

**Table 11-8. Scoring Results Breakdown.**

	<b>Levelized Cost Premium</b>	<b>Kauai Resource Potential</b>	<b>Fit to KIUC Needs</b>	<b>Technology Maturity</b>	<b>Environ- mental Impact</b>	<b>Socio- economic Impact</b>	<b>Incentives / Barriers</b>	<b>Total Weighted Score</b>
Category Weight	50	10	10	10	7.5	7.5	5	
Hydro: Wainiha	79	36	75	100	50	50	70	71.41
Hydro: Upper Lihue	64	36	100	100	100	-	94	67.72
Hydro: Wailua	78	36	75	100	25	50	58	68.42
Hydro: Waimea Mauka	68	36	75	100	85	13	70	65.71
Hydro: Puu Lua-Kitano	66	36	75	100	40	55	54	64.00
Hydro: Kitano-Waimea	72	36	75	100	40	55	54	67.16
Wind: Kalaheo	65	98	75	100	75	25	38	69.01
Wind: Omao	65	98	75	100	75	25	38	69.07
Wind: North of Hanapepe	61	98	75	100	65	25	38	66.57
Wind: Kokee	48	98	85	100	50	20	22	58.56
Wind: Anahola	61	98	75	100	40	25	62	65.65
Wind: Poipu	60	98	75	100	75	25	30	66.39
Wind: Maha'ulepu	65	98	75	100	75	25	30	68.67
Landfill Gas: Kekaha	49	0	75	100	50	25	98	52.73
Biomass: Low Fuel Cost	13	100	38	100	50	80	74	43.91
Biomass: Mid Fuel Cost	5	100	38	100	50	90	74	40.59
Biomass: High Fuel Cost	-	100	38	100	50	100	74	38.70
MSW: Low Tipping Fee	53	12	50	100	25	85	74	54.55
MSW: Mid Tipping Fee	72	12	50	100	25	75	74	63.50
MSW: High Tipping Fee	100	12	50	100	25	65	74	76.65
MSW/Biomass: High Fuel Cost	21	100	25	100	25	100	66	45.71
MSW/Biomass: Mid Fuel Cost	29	100	25	100	25	100	66	49.79
MSW/Biomass: Low Fuel Cost	43	100	25	100	25	100	66	56.55

**Table 11-9. Scoring Results Breakdown (SORTED by Total Score).**

	Levelized Cost Premium	Kauai Resource Potential	Fit to KIUC Needs	Technology Maturity	Environmental Impact	Socio-economic Impact	Incentives / Barriers	Total Weighted Score
Category Weight	50	10	10	10	7.5	7.5	5	
MSW: High Tipping Fee	100	12	50	100	25	65	74	76.65
Hydro: Wainiha	79	36	75	100	50	50	70	71.41
Wind: Omao	65	98	75	100	75	25	38	69.07
Wind: Kalaheo	65	98	75	100	75	25	38	69.01
Wind: Maha'ulepu	65	98	75	100	75	25	30	68.67
Hydro: Wailua	78	36	75	100	25	50	58	68.42
Hydro: Upper Lihue	64	36	100	100	100	0	94	67.72
Hydro: Kitano-Waimea	72	36	75	100	40	55	54	67.16
Wind: North of Hanapepe	61	98	75	100	65	25	38	66.57
Wind: Poipu	60	98	75	100	75	25	30	66.39
Hydro: Waimea Mauka	68	36	75	100	85	13	70	65.71
Wind: Anahola	61	98	75	100	40	25	62	65.65
Hydro: Puu Lua-Kitano	66	36	75	100	40	55	54	64
MSW: Mid Tipping Fee	72	12	50	100	25	75	74	63.5
Wind: Kokee	48	98	85	100	50	20	22	58.56
MSW/Biomass: Low Fuel Cost	43	100	25	100	25	100	66	56.55
MSW: Low Tipping Fee	53	12	50	100	25	85	74	54.55
Landfill Gas: Kekaha	49	0	75	100	50	25	98	52.73
MSW/Biomass: Mid Fuel Cost	29	100	25	100	25	100	66	49.79
MSW/Biomass: High Fuel Cost	21	100	25	100	25	100	66	45.71
Biomass: Low Fuel Cost	13	100	38	100	50	80	74	43.91
Biomass: Mid Fuel Cost	5	100	38	100	50	90	74	40.59
Biomass: High Fuel Cost	0	100	38	100	50	100	74	38.7

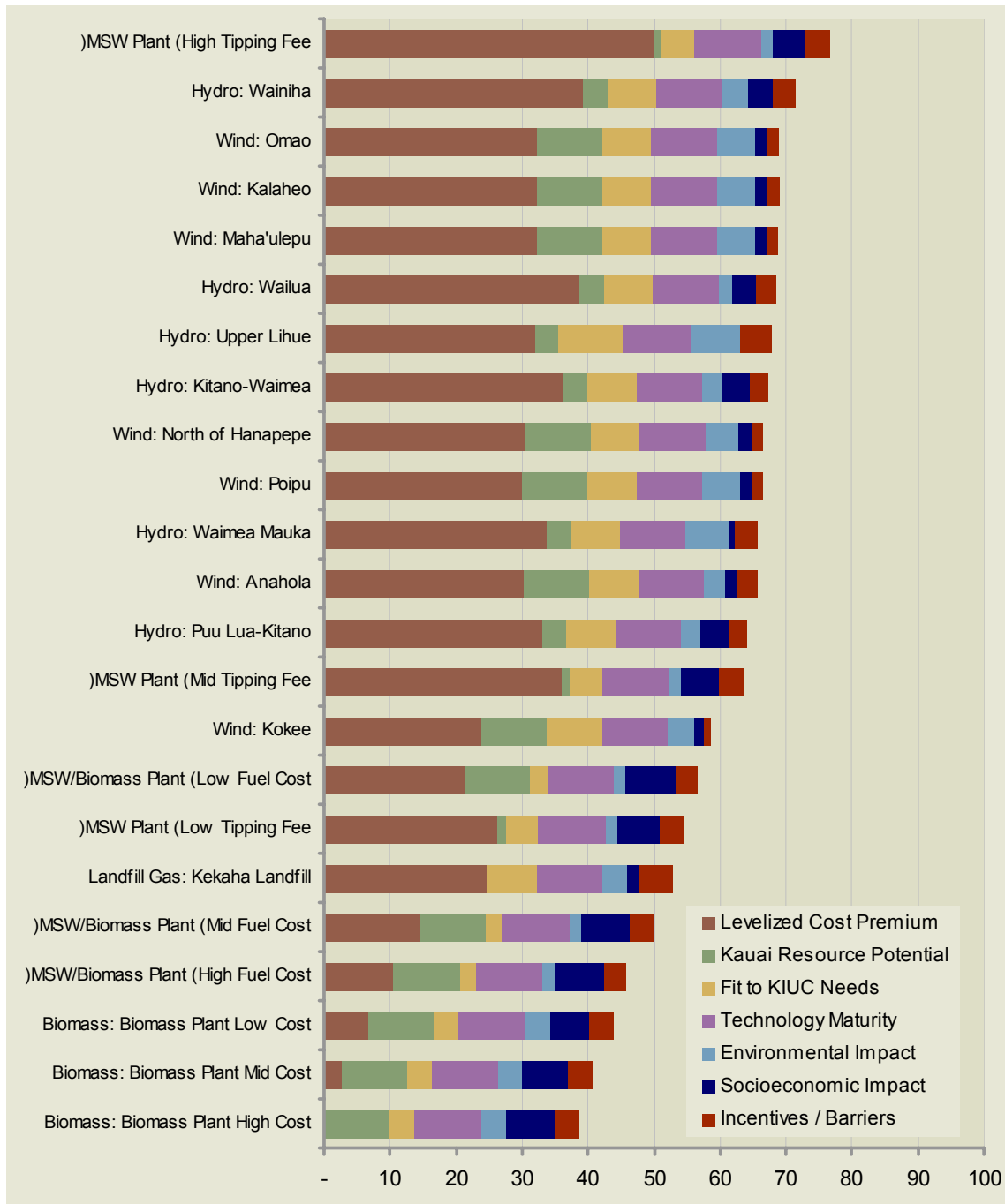


Figure 11-3. Scoring Results Breakdown.