

## CENTRAL FLORIDA WASTE-TO-ENERGY INITIATIVE – BUDGET NARRATIVE

The following Budget Narrative is comprised of four distinct areas of activity. Each section includes a summary of budget projections by category in alignment with the scopes of work proposed in the accompanying Workplan. Further details are provided in the Budget Calculations Spreadsheet included in the attachments.

- Seminole County Grant Administration (Grantee)
- GHG Reduction Measure: Regional Biosolids Processing Facility (Subrecipient award to Bioman Florida)
- GHG Reduction Measure: Seminole County Landfill Geomembrane (Implementation by grantee)
- University of Central Florida – Project Evaluation (Subrecipient award to UCF)

SEMINOLE COUNTY GRANT ADMINISTRATION						
CATEGORY	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
PERSONNEL	\$112,000	\$117,600	\$123,480	\$129,655	\$136,136	\$618,871
FRINGE	\$39,200	\$41,160	\$43,218	\$45,379	\$47,648	\$216,605
TRAVEL	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$250,000
SUPPLIES	\$2,000	\$500	\$500	\$500	\$500	\$4,000
OTHER	\$6,565,375	\$6,565,375	\$400,000	\$400,000	\$400,000	\$14,330,750
TOTAL DIRECT	\$6,768,575	\$6,774,635	\$617,198	\$625,534	\$634,284	\$15,420,226
TOTAL INDIRECT	\$32,820	\$20,926	\$51,330	\$33,830	\$35,143	\$174,048
<b>TOTAL BUDGET</b>	<b>\$6,801,395</b>	<b>\$6,795,561</b>	<b>\$668,528</b>	<b>\$659,364</b>	<b>\$669,427</b>	<b>\$15,594,274</b>

**Personnel and Fringe:** Seminole County will hire a Grant Manager position to oversee the management and administration of the grant award. This position will work closely with all subrecipients and will be responsible for direct contact with the EPA, as necessary. They will work closely with subrecipients to gather all data/information required for quarterly, annual, and final report submission to the EPA. The Grant Manager will also collaborate with all Coalition members and other key partners for reporting purposes. The second position will focus on financial reporting, including procurement needs, and assist the Grant Manager, as needed. The above-named positions will receive an annual cost of living adjustment (COLA) of 5% and fringe benefits calculated at 35% of salary.

**Travel:** Allocations have been made for field trips related to the educational outreach activities of the Orlando Science Center (see Other). The budget supports 5-7 field trips per month to the regional processing facility for schools-aged children from throughout the tri-county region.

**Supplies:** Funds will afford computer network equipment, phones, office space, and supplies for the above-named positions for the duration of the grant period.

**Other:** Three activities are represented:

- Seminole County will contract with the Orlando Science Center (OSC) to develop and implement a broad-reaching educational outreach program centered around Waste-to-Energy, with specific elements to support the efforts of the CFWEI. OSC's timeline includes six months of program development followed by six months of program delivery in Year 1, and full program delivery in Years

2 through 5. OSC has requested a \$200,000 annual allocation for a total of \$1,000,000 over the grant period. Funds will be used to support staff salaries, program delivery, materials, and supplies.

- To ensure proper construction of the regional biosolids processing facility, Seminole County will issue an RFP, in accordance with County procurement policies and procedures, to contract CEI services for oversight of the plant construction by subrecipient Bioman Florida. The allocated cost of CEI is \$12,330,750, or 10% of the estimated \$123,307,506 capital construction cost.
- Seminole County will contract with the East Central Florida Regional Council (ECFRPC) to conduct an annual MSA regional sustainability impact report and a final capstone Sustainability Report at the conclusion of the grant period. ECFRPC will participate in planning and implementation team meetings to track overarching outcomes grounded in the region's greenhouse gas inventory, which is conducted every three years, with annual reporting to a global third-party verifier, CDP.

**Indirect:** Seminole County currently utilizes the standard 10% de minimis rate. This rate is applied to years one and two based on the Modified Total Direct Cost. The indirect cost estimate for years three, four, and five has been increased to 15%, as informed by new OMB guidelines for future eligible costs.

GHG REDUCTION MEASURE: REGIONAL BIOSOLIDS PROCESSING FACILITY						
CATEGORY	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
PERSONNEL	\$164,000	\$172,200	\$180,810	\$189,852	\$199,342	\$906,204
FRINGE	\$57,400	\$60,270	\$63,284	\$66,448	\$69,770	\$317,172
EQUIPMENT	\$0	\$3,325,000	\$0	\$0	\$0	\$3,325,000
CONTRACTUAL	79,143,153	\$29,368,266	\$16,239,672	\$1,443,585	\$1,443,585	\$127,638,261
OTHER	\$2,630,757	\$0	\$4,222,683	\$4,222,683	\$4,222,683	\$15,298,805
TOTAL DIRECT	\$121,504,578	\$8,212,555	\$5,910,362	\$5,922,568	\$5,935,380	\$147,485,442
TOTAL INDIRECT	\$29,640	\$255,717	\$36,614	\$38,445	\$40,367	\$400,783
<b>TOTAL BUDGET</b>	<b>\$121,534,218</b>	<b>\$8,468,272</b>	<b>\$5,946,976</b>	<b>\$5,961,013</b>	<b>\$5,975,746</b>	<b>\$147,886,224</b>

**Personnel and Fringe:** Bioman Florida will hire three new personnel. A Grant Project Manager will work closely with Seminole County's Grant Manager for all reporting related to construction monitoring. The grant will also fund an Administrative Coordinator and a Procurement Coordinator. The above-named positions will receive an annual COLA of 5% and fringe benefits calculated at 35% of salary.

**Equipment:** Allocations have been made for the purchase of 5 Hauling RNG Power Trucks at \$200,000 each and 31 Hauling Trailers at \$75,000 each.

#### **Contractual:**

Estimates for capital expenditures (CAPEX) related to the regional biosolids processing facility are as follows:

- EPC Contract – Ground works, concrete, civils building, utility connections: \$11,059,690
- Mechanical Package (Anaerobic Digestion/AD) – Tanks, pipework, instruments and equipment, electrical, cabling, installation, and commissioning: \$11,034,986
- Mechanical Package (Gas upgrading) – Pipework, upgrader, monitoring and measurement, compression station, gas pipeline and grid connection, CO<sub>2</sub> liquefaction: \$18,407,639
- Development Cost – Plant and process design, project management, construction management, consultants (environmental and permitting AD, architect, land permits, county permits): \$7,573,258

- AirSCWO Package – Two AS200 units: \$49,980,000
- Construction of AirSCWO – Civil engineering, installation, start-up, commissioning, training expenses related to bringing the AirSCWO units onsite, online, and operating efficiently: \$7,497,000
- Macerator, strain press, EQ tank, live bottom bin, chemical feed system, volute press dewatering, dumpster, flow measure/control, electrical, fuel system, clarifiers, bag filters, building: \$9,310,170
- Civil engineering, installation, start-up, commissioning, and training expenses for infrastructure associated with ancillary systems required to support efficient operation of the AirSCWO technology: \$3,444,763
- Compressed Natural Gas dispensing station: \$5,000,000

Estimates for operating expenditures (OPEX) related to the regional biosolids processing facility are as follows:

- SCWO parts Replacement, trim and startup/shutdown fuel, labor, mineral disposal, electricity: \$2,827,206
- SCWO annual expenditure on chemicals that are essential for the treatment process and help ensure optimal performance and pollutant removal: \$500,940
- SCWO ongoing operational expenses such as parts replacement, screenings/debris disposal, electricity consumption: \$558,609
- Gas marketing power kWh consumption, CNG dispensing station: \$444,000
- Operator – Insurance, bonds, solicitors, accounting: \$2,630,757
- Operator – Operations, labor, parts and equipment replacement, brokerage fees: \$5,719,269
- Operator – Power utilities: \$3,295,269
- Operator – Fuel utilities: \$114,447
- Operator – Water utilities: \$92,343
- Operator – Consumables utilities: \$2,285,097
- Operator – Overhead: \$761,063
- Operator – Land lease: \$400,560

**Indirect:** Bioman Florida currently utilizes the standard 10% de minimis rate. This rate is applied to years one and two based on the Modified Total Direct Cost. The indirect cost estimate for years three, four, and five has been increased to 15%, as informed by new OMB guidelines for future eligible costs.

GHG REDUCTION MEASURE: SEMINOLE COUNTY LANDFILL GEOMEMBRANE						
CATEGORY	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
PERSONNEL	\$45,000	\$47,250	\$49,613	\$52,093	\$54,698	\$248,654
FRINGE	\$15,750	\$16,538	\$17,365	\$182,133	\$19,144	\$250,930
EQUIPMENT	\$0	\$0	\$1,731,510	\$1,761,510	\$1,731,510	\$5,224,530
SUPPLIES	\$1,000	\$250	\$250	\$250	\$250	\$2,000
OTHER	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$2,500,000
TOTAL DIRECT	\$561,750	\$564,038	\$2,298,738	\$2,495,986	\$2,305,602	\$8,226,114
TOTAL INDIRECT	\$8,675	\$6,404	\$10,084	\$35,171	\$11,114	\$71,448
<b>TOTAL BUDGET</b>	<b>\$570,425</b>	<b>\$570,442</b>	<b>\$2,308,822</b>	<b>\$2,531,157</b>	<b>\$2,316,716</b>	<b>\$8,297,562</b>

**Personnel and Fringe:** Seminole County will hire a Mechanic II (Gas-to-Energy) position to oversee the installation and maintenance of the Seminole County Landfill geomembrane. The above-named position will receive an annual COLA of 5% and fringe benefits calculated at 35% of salary.

**Equipment:** The cost of the 79.5-acre geomembrane is estimated as 3,463,020 square feet at \$1.50 per square foot: \$5,224,530

**Supplies:** Funds will afford computer network equipment, phones, office space, and supplies for the above-named position for the duration of the grant period.

**Other:** Permitting, stormwater upgrades, and installation: \$2,500,000

**Indirect:** Seminole County currently utilizes the standard 10% de minimis rate. This rate is applied to years one and two based on the Modified Total Direct Cost. The indirect cost estimate for years three, four, and five has been increased to 15%, as informed by new OMB guidelines for future eligible costs.

UNIVERSITY OF CENTAL FLORIDA PROJECT EVALUATION						
CATEGORY	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
PERSONNEL	\$280,619	\$286,338	\$292,228	\$298,296	\$304,546	\$1,462,027
FRINGE	\$27,173	\$27,934	\$28,719	\$29,526	\$30,358	\$143,710
TRAVEL	\$14,764	\$14,764	\$14,764	\$14,764	\$14,764	\$73,820
EQUIPMENT	\$222,500	\$50,000	\$0	\$0	\$0	\$272,500
SUPPLIES	\$14,000	\$10,500	\$10,500	\$10,200	\$9,587	\$54,787
OTHER	\$61,547	\$64,024	\$66,625	\$69,356	\$72,224	\$333,776
TOTAL DIRECT	\$620,603	\$453,560	\$412,836	\$422,142	\$431,479	\$2,340,620
TOTAL INDIRECT	\$176,049	\$177,599	\$181,070	\$184,489	\$187,853	\$907,060
<b>TOTAL BUDGET</b>	<b>\$796,652</b>	<b>\$631,159</b>	<b>\$593,906</b>	<b>\$606,631</b>	<b>\$619,332</b>	<b>\$3,247,680</b>

**Personnel:** Salary support is requested for the following key personnel, allocated for (0.8) summer month per year over the grant period of five years, including a 3% escalation in years 2 through 5, effective August of each year, based on historical data. Salary calculations are based on the current academic year contract of each individual.

- Dr. Haofei Yu, Principal Investigator (PI): \$51,805
- Dr. Jiannan Chen, Co-Principal Investigator (Co-PI): \$45,985
- Dr. Jing Hu, Co-PI: \$47,148
- Dr. Andrew Randall, Co-PI: \$59,844
- Dr. Like Li, Co-PI: \$75,951
- Dr. Subith Vasu, Co-PI: \$66,499
- Dr. Jay Kapat, Co-PI: \$34,335

PhD Student salary support is requested for 5 PhD students to support research efforts. Four students are requested at 20 hours per week and one student is requested at 15 hours per week. The salary amount was determined using graduate student pay for similar projects in the College of Engineering.

Undergraduate student salary support is requested for 15 interns to support research efforts at 20 hours per week for 15 weeks per year. The salary amount was determined using undergraduate student pay for similar projects in the College of Engineering.

**Fringe:** UCF's fringe rate is 32% for faculty and 2% for all students. The Composite Fringe Benefit Rate percentages represent actual fringe benefit costs and will be assigned to all sponsored projects effective July 2023. Documentation of rates may be found here: [Composite Fringe Benefit Rate Memo-Signed-6.27.2023.pdf \(ucf.edu\)](#)

**Travel:** \$73,820 is requested for the PI and Co-PIs to attend an annual conference for dissemination of research progress and results, for PIs and PhD students to visit the team's technical partners, and for all field work. All travel estimates are based on UCF's travel guidelines as well as historical costs as determined by the PI. Documentation of rates may be found here: [Travel Manual \(ucf.edu\)](#)

Total funds to support the annual conference are estimated at \$6,238 per trip (3 travelers per trip).

Travel for PI and Co-PIs to attend domestic conference									
3	Traveler(s)	4	/Days	3	/Nights	1	/TRIPS	Cost Per Trip	
	Traveler(s) Airfare @					\$	450	3 Traveler(s)	\$ 1,350
	Days Subsistence @					\$	36 /Day for	3 Traveler(s)	\$ 432
	Nights Lodging @					\$	200 / Night for	3 Traveler(s)	\$ 1,800
	Days Rental Car @					\$	40 / Day		\$ 160
	Traveler(s) Vicinity Mileage @					\$	0.445 / Mile For 71.91 Miles		\$ 96
	Traveler(s) Registration (Conference)					\$	800 Each		\$ 2,400
	Incidentals					\$	- Each		\$ -
									<b>\$ 6,238</b>
								x # TRIPS	\$ 6,238

Total funds to support visits to the team's technical partners are estimated at \$3,238 per trip (3 travelers per trip).

Travel for PIs and GRAs to visit other team partners (e.g., 374 Water Inc. in Durham NC)									
3	Traveler(s)	4	/Days	3	/Nights	1	/TRIPS	Cost Per Trip	
	Traveler(s) Airfare @					\$	400	3 Traveler(s)	\$ 1,200
	Days Subsistence @					\$	36 /Day for	3 Traveler(s)	\$ 432
	Nights Lodging @					\$	150 / Night for	3 Traveler(s)	\$ 1,350
	Days Rental Car @					\$	40 / Day		\$ 160
	Traveler(s) Vicinity Mileage @					\$	0.445 / Mile For 71.91 Miles		\$ 96
	Traveler(s) Registration (Conference)						Each		\$ -
	Incidentals					\$	- Each		\$ -
									<b>\$ 3,238</b>
								x # TRIPS	\$ 3,238

Total funds to support 5 field work trips per year are estimated at \$3,262 per trip (2 travelers per trip).

Travel for field work									
2	Traveler(s)	2	/Days	1	/Nights	5	/TRIPS	Cost Per Trip	
	Traveler(s) Airfare @					\$	-	2 Traveler(s)	\$ -
	Days Subsistence @					\$	36 /Day for	2 Traveler(s)	\$ 144
	Nights Lodging @					\$	150 / Night for	2 Traveler(s)	\$ 300
	Days Rental Car @					\$	40 / Day		\$ 80
	Traveler(s) Vicinity Mileage @					\$	0.445 / Mile For 144.2697 Miles		\$ 128

	Traveler(s) Registration (Conference)		\$ -	Each			\$ -
	Incidentals		\$ -	Each			\$ -
							<b>\$ 652</b>
						x # TRIPS	\$ 3,262

**Equipment:** Funds totaling \$272,500 are allocated for a LiCor soil gas flux chamber system for measuring greenhouse gas emissions; a sensor for creating continuous GHG monitoring networks at wastewater and biosolid treatment facilities; electric furnaces, gas analyzers, and sensors to be connected to the key components in the renewable natural gas (RNG) conversion, a purification and compression system at the supercritical water oxidation (SCWO) plant, and to purchase a workstation to run computational models.

**Supplies:** Funds totaling \$54,787 are allocated to purchase the necessary materials, instrumentation, and supplies for field work such as solar panels and batteries for powering equipment, calibration gases, fittings, flow meters and controllers, pressure transducers, calibration gases, fittings, and consumables for equipment.

**Other:** Three activities are represented:

- Participant Support Costs – Funds totaling \$50,000 are requested for participants in UCF’s annual Waste-to-Energy workshops over the grant period. Funds will be used for stipends, travel, and subsistence for 25 participants each year.
- Tuition – Funds are requested to pay participating graduate student tuition each year. Based on historical data, tuition has been escalated by 5% beginning in August of each academic year.
- Materials Characterization – Funds totaling \$10,000 are allocated over the grant period for the use of instruments at UCF’s Materials Characterization Facility. Documentation of per hour instrument usage rates may be found here: <http://www.ampac.ucf.edu/facilities/MCF.php>. Budget estimates per instrument are as follows.

Instrument	Acronyms	Per Hour	Hours	Amount
Optical microscopy	OM	\$30	50	\$1,500
Scanning electron microscopy	SEM	\$50	56	\$2,800

**Indirect Costs (F&A):** Facilities and Administrative costs are calculated at 52% on a Modified Total Direct Cost basis, excluding equipment over \$5,000/item, tuition, charges for patient care, rental costs, scholarships and fellowships, participant support costs and that portion of each subcontract in excess of \$25,000. UCF has a current federally negotiated indirect cost rate agreement with the Department of Health and Human Services (HHS). The current rates are effective July 2023. Documentation of rates may be found here:

<https://www.research.ucf.edu/documents/PDF/2023/PSC%20Fringe%20Rate%20Agreement-7.10.2023.pdf>

## Budget Narrative Summary

CENTRAL FLORIDA WASTE TO ENERGY INITIATIVE CPRG GRANT REQUEST BY YEAR						
CATEGORY	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
TOTAL PERSONNEL	\$601,619	\$623,388	\$646,131	\$669,896	\$694,722	\$3,235,756
TOTAL FRINGE BENEFITS	\$139,523	\$145,902	\$152,586	\$159,586	\$166,920	\$764,517
TOTAL TRAVEL	\$64,764	\$64,764	\$64,764	\$64,764	\$64,764	\$323,820
TOTAL EQUIPMENT	\$222,500	\$3,375,000	\$1,731,510	\$1,761,510	\$1,731,510	\$8,822,030
TOTAL SUPPLIES	\$17,000	\$11,250	\$11,250	\$10,950	\$10,337	\$60,787
TOTAL CONTRACTUAL	\$79,143,153	\$29,368,266	\$16,239,672	\$1,443,585	\$1,443,585	\$127,638,261
TOTAL OTHER	\$9,757,679	\$7,129,399	\$5,189,308	\$5,192,039	\$5,194,907	\$32,463,331
TOTAL DIRECT	\$89,946,238	\$40,717,969	\$24,035,221	\$9,302,330	\$9,306,745	\$173,308,502
TOTAL INDIRECT	\$247,184	\$460,646	\$279,098	\$267,351	\$274,472	\$1,528,750
<b>TOTAL FUNDING</b>	<b>\$90,193,422</b>	<b>\$41,178,615</b>	<b>\$24,314,319</b>	<b>\$9,569,680</b>	<b>\$9,581,216</b>	<b>\$174,837,252</b>

BUDGET SUMMARY BY ACTIVITY		
Project Name	Total Cost	% of Total
Seminole County Grant Administration	\$15,594,272	8.92%
Biosolids Regional Processing Facility	\$147,886,224	84.59%
Seminole County Landfill Geomembrane	\$8,109,075	4.64%
UCF Project Evaluation	\$3,247,680	1.86%
<b>TOTAL FUNDING</b>	<b>\$174,837,252</b>	<b>100%</b>