

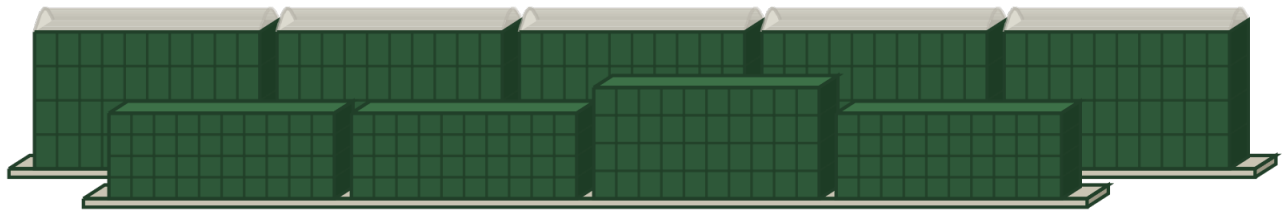
Modular Biogas System

Full-facility design — feedstock receiving through energy generation and digestate management

MODULAR TANKS
9 units

LIQUID CAPACITY
~498,754 gal

POWER OUTPUT
90–540 kWh/day



ASTM A572 Gr. 50 modular steel • 3-coat HP epoxy 20–30 mils DFT • US units throughout • ASTM / NFPA / OSHA / EPA referenced

CONFIDENTIAL TECHNICAL BROCHURE

Technical process model · Equipment requirements · Safety systems · Project economics

For use by qualified engineers and project developers only

INSIDE THIS BROCHURE

01 Process layout & tank inventory

Process flow, system topology, full inventory of nine modular units with totals

03 Gas storage, digestate & power

Biogas buffer, CHP genset, digestate handling, SCADA & controls architecture

06 Safety systems & US regulatory compliance

Explosion prevention, overpressure, gas monitoring, personnel safety; standards-referenced

02 Tank specifications

Detailed engineering specs for receiving, mix, primary digesters, secondary expansion

04–05 System I/O & performance KPIs

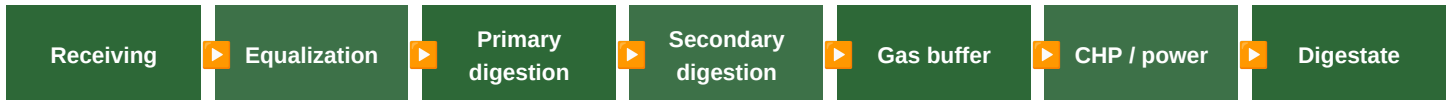
Daily/weekly/annual flows on every stream; ten benchmarked performance indicators

07–09 Economics, expansion & capabilities

CAPEX, payback, US incentives & financing, retrofit pathway, engineering deliverables

01 Process Layout & Tank Inventory

The EnviroBox® biogas system integrates nine modular steel tanks into a continuous anaerobic digestion process — feedstock receiving and equalization, two stages of anaerobic digestion, gas buffering, combined heat-and-power generation, and digestate storage. All tanks are constructed from **ASTM A572 Gr. 50** steel with 3-coat high-performance epoxy interior lining (20–30 mils DFT) per NACE SP0108 and AWWA D103.



Process flow: Feedstock enters Receiving, is conditioned in Mixing/Equalization, then digested in Primary Digesters; effluent overflows to Secondary Expansion for additional HRT and gas recovery. Combined biogas routes through the Gas Holder to the CHP genset, with jacket-water heat returned to all four digester loops. Stabilized digestate flows to the Digestate Storage tank for land application.

UNIT / TANK	QTY	SIZE (ENVIROBOX)	VOLUME (GAL)	VOLUME (FT ³)	FUNCTION
Feedstock Receiving	2	53'L × 8'W × 20'H	63,435 ea.	8,480 ea.	Raw material intake & storage buffer
Mixing / Equalization	1	53'L × 8'W × 26'H	82,465	11,024	pH adjust, dilution, homogenize feedstock
Primary Digester	2	53'L × 8'W × 32'H	101,496 ea.	13,568 ea.	Main anaerobic digestion (mesophilic or thermophilic)
Secondary Expansion	2	53'L × 8'W × 32'H	101,496 ea.	13,568 ea.	Additional HRT, gas production boost, buffer
Biogas Buffer / Gas Holder	1	53'L × 8'W × 32'H	— gas only	13,568 cap	Peak-shaving gas storage (4–8 hr CHP runtime)
Digestate Storage	1	53'L × 8'W × 20'H	63,435	8,480	60+ day liquid digestate holding
System total — 9 units		End-to-end facility	~498,754	Liquid retention capacity	

All tanks: ASTM A572 Gr. 50 modular steel, bolted construction, 3-coat HP epoxy interior (20–30 mils DFT). Domes are HDPE double-membrane (40–60 mil) per GRI-GM13 and ASTM D7407.

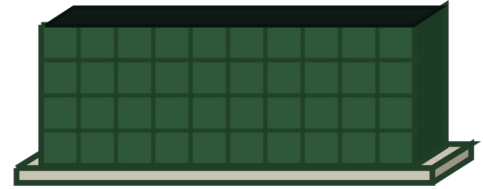
Typical feedstocks accepted	
Food waste (SSO, ICI)	70–120 m ³ CH ₄ /t VS — depackaging required
Animal manure (dairy/swine)	20–45 m ³ CH ₄ /t VS — consistent supply
FOG (fats, oils, greases)	400–700 m ³ CH ₄ /t VS — high-yield co-substrate
WWTP sludge (primary + WAS)	200–400 m ³ CH ₄ /t VS — combined or thickened

System advantages	
▶	Modular bolted steel: 8–12 week installation vs 6+ months for cast-in-place concrete
▶	53'L × 8'W footprint stacks linearly to fit narrow rural / industrial sites
▶	Factory-coated and holiday-tested before shipment — no field-applied coating risk
▶	Standard panel sizes simplify IBC, mechanical, and electrical permitting
▶	Modular scaling: add secondary expansion in pairs without primary shutdown

02 Tank Specifications

Feedstock receiving tanks (2 × 63,435 gal)

Dimensions	53 ft L × 8 ft W × 20 ft H
Gross volume	8,480 ft ³ / 63,435 gal
Quantity required	2 units (126,870 gal combined)
Wall construction	ASTM A572 Gr. 50; 3/16"–1/4" plate; bolted modular panels
Interior coating	3-coat HP epoxy; 20–30 mils DFT; NACE SP0108 / AWWA D103
Roof type	Flat steel cover panels with vent; no gas holder required
Agitation	2 HP submersible mixer; 20 min/hr; NEC Cl. I Div. 2
Fill rate	Up to 2,500 GPM gravity or pump-fed
Level control	Ultrasonic level transmitter; SCADA high/low alarms
Heating	None required (storage only); insulated walls optional
Standard	ASTM D7407 liner; ACI 318-19 base slab



Mixing & equalization tank (82,465 gal)

Dimensions	53 ft L × 8 ft W × 26 ft H
Gross volume	11,024 ft ³ / 82,465 gal
Quantity required	1 unit
Wall construction	ASTM A572 Gr. 50; 1/4" plate; bolted modular panels
Interior coating	Chemical-resistant HP epoxy; 25 mils DFT; pH range 4–12
Roof type	Flat steel cover; VCS vent; no dome needed
Mixing system	3 HP progressive cavity pump recirculation; SS 316 wetted
pH dosing	NaOH / H ₂ SO ₄ metering pumps; auto-control via in-line pH probe
Dilution water	Potable or process water; flow-metered; SCADA controlled
HRT	1–3 days equalization buffer
Throughput	1,300–5,300 GPD to primary digesters
Standard	NFPA 820 ventilation; OSHA 1910.146 CS entry plan

Pre-treatment & feedstock conditioning

Bar / rotary screen	1/4"–3/8" mesh; removes plastics, fibers
FOG separator	Floating fats/oils removal; prevents scum
Depackager	Separates organics from packaging
Pasteurization	Optional 70 °C × 60 min for Class A biosolids

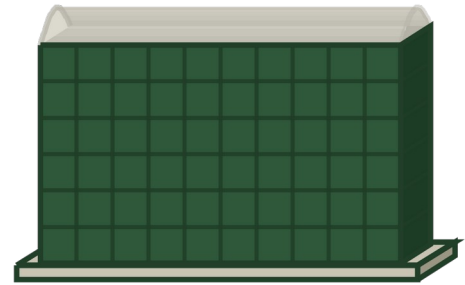
Optional accessories & upgrades

External insulation	2–3" closed-cell PU; reduces heat loss 40–60%
Heat tracing	Self-regulating cable; freeze prevention
Sampling ports	Multi-elevation per ASTM D7407 protocol
Roof access	Caged ladder + railed platform per OSHA 1910.23

02 Tank Specifications (continued)

Primary digesters (2 × 101,496 gal = 202,992 gal total)

Dimensions	53 ft L × 8 ft W × 32 ft H
Gross volume	13,568 ft ³ / 101,496 gal
Quantity required	2 units (202,992 gal combined)
Wall construction	ASTM A572 Gr. 50; 1/4" plate; AISC 360-22; ring stiffeners @ 8 ft
Gas holder (dome)	HDPE double-membrane; 40–60 mil; GRI-GM13 / ASTM D7407
Interior coating	100% solids epoxy; 20–30 mils DFT; NACE SP0108 / API 652; holiday-tested NACE SP0188
Operating temp.	95–99 °F (mesophilic) or 126–131 °F (thermophilic)
HRT	20–30 days (meso) / 10–15 days (thermo)
OLR	0.06–0.19 lb VS/ft ³ /day
Gas yield	~1,800–5,300 ft ³ /day per unit (combined ~3,600–10,600 ft ³ /day)
CH ₄ content	55–75% by volume
Heating	CHP jacket water HEX; 75,000–200,000 BTU/hr per tank; ASME Sec. VIII
Mixing	Submersible pump + recirculation; 3–7 HP; ATEX NEC Cl. I Div. 1
Biosolids class	Class B (meso) / Class A (thermo); 40 CFR Part 503



Secondary expansion tanks (2 × 101,496 gal)

Dimensions	53 ft L × 8 ft W × 32 ft H (identical to Primary)
Gross volume	13,568 ft ³ / 101,496 gal each
Quantity required	2 units (202,992 gal combined)
Gas capacity (each)	~11,000 ft ³ / ~82,300 gal equiv. usable gas storage
Operating pressure	0.5–2.5 in. W.C. (~0.02–0.09 PSI)
Interior coating	Same as primary: 20–30 mils HP epoxy; NACE SP0108
Role	Secondary digestion + biogas buffer / peak-shave storage
HRT (additional)	+5–15 days added to system HRT
Gas uplift vs. primary	+15–35% additional biogas recovery
Buffer storage	2–6 hrs uninterrupted CHP runtime per unit
VS destruction (total)	55–72% system-wide VS reduction
Heating	CHP jacket water return; same HEX configuration as primary
Instrumentation	Pt100 temp, ultrasonic level, pressure, pH/ORP; SCADA
Standard	AISC 360-22 / NACE SP0108 / NFPA 69 / OSHA 1910

03 Gas Storage, Digestate & Power Generation

Biogas buffer / gas holder (~13,568 ft³)

Dimensions	53 ft L × 8 ft W × 32 ft H
Usable gas cap.	~13,568 ft³ per unit
Operating press.	0.5–2.5 in. W.C.; PRV at 3.0 in. W.C.
Membrane	HDPE double-membrane; 60 mil; GRI-GM13; -40 °F to +165 °F
Outer dome blower	0.75 HP; ATEX / NEC Cl. I Div. 1; maintains outer shape
Gas offtake	DN6" SS 316; motorized ball valve; ASME B16.5; flame arrestor NFPA 69
H ₂ S scrubber	Iron oxide media tower; reduces H ₂ S to <200 ppm pre-engine
Gas flow meter	Thermal/ultrasonic; ±2%; AGA Report No. 9; NIST calibration
Gas analyzer	Inline CH ₄ /CO ₂ /O ₂ /H ₂ S; 4–20 mA + Modbus; NEMA 4X
Emergency flare	Enclosed ground torch; auto-ignition; 120% peak flow; EPA §60 Sub. AAAAA

Digestate storage tank (63,435 gal)

Dimensions	53 ft L × 8 ft W × 20 ft H
Gross volume	63,435 gal (8,480 ft³)
Min. retention	60+ days liquid storage per NRCS Practice 313
Wall construction	ASTM A572 Gr. 50; 1/4" plate; flat cover
Interior coating	Chemical-resistant epoxy; NACE SP0108; odor-sealed cover
Liquid quality	Class B or Class A (thermo); 40 CFR Part 503; low odor
N/P/K content	~200–400 lb N/acre-ft; valuable biofertilizer
Screw press	2–10 HP; 25–35% TS fiber out; filtrate returns to mix tank
Fiber output	Low-odor compost; ~0.5–2 tons DM/day (feedstock-dependent)
Land app. permit	NRCS 632 Nutrient Management Plan; annual soil sampling
Spill prevention	SPCC plan per 40 CFR §112; 110% secondary containment

CHP / power generation

Generator set	50–250 kW; CAT/Cummins biogas-flex engine; skid-mounted
Electrical output	90–540 kWh/day total system (2 pri + 2 sec tanks)
Thermal output	100–600 kWh(th)/day; jacket water + exhaust HEX
Combined eff.	78–85% CHP overall
Jacket water	160–180 °F; distributed to all 4 digester heating loops
Exhaust HEX	Additional 30–50 kW thermal recovery from flue gas
Emissions std.	NSPS 40 CFR §60 Subpart JJJJ; CARB (if CA); NO _x <1.0 g/HP-hr
Noise attenuation	Acoustic enclosure; <70 dBA @ 50 ft
Paralleling	Grid-tie with utility disconnect; IEEE 1547
Backup / transfer	Automatic transfer switch; island mode capable











SCADA / controls system

PLC / HMI	Allen-Bradley ControlLogix; 15" color touchscreen HMI; NEMA 4X
Remote access	4G LTE + Ethernet; web HMI; SMS/email alarms; ISA-99
SCADA tags	100+ analog/digital I/O; 30-day onboard data historian
Level monitoring	All tanks: ultrasonic + hydrostatic redundancy; 4–20 mA
Temp monitoring	Pt100 RTD top/mid/bottom per digester; ±0.5 °F accuracy
Gas detection	Fixed CH ₄ (LEL), H ₂ S, CO arrays; UL 2075; NFPA 72 integrated
Flow metering	Feedstock inlet GPM; gas ft³/day; digestate GPD; all SCADA logged
Lab integration	Weekly auto-sample trigger; LIMS connectivity option
Energy dashboard	Real-time kWh, BTU/hr, gas ft³/day, carbon offset display
Compliance reports	Auto-generate 40 CFR §98 GHG report; state discharge reports

04 Complete System Inputs & Outputs

PARAMETER	FEEDSTOCK IN	BIOGAS OUT	ELECTRICITY OUT	THERMAL OUT	DIGESTATE OUT
Daily flow	1,300–5,300 GPD	3,600–10,600 ft ³ /day	90–540 kWh/day	100–600 kWh(th)/day	1,100–4,800 GPD liquid
Weekly	9,000–37,000 GPD	25,000–74,000 ft ³ /wk	630–3,780 kWh/wk	700–4,200 kWh(th)/wk	7,700–33,600 GPD
Annual	~3.3–13.5 M gal/yr	~1.3–3.9 M ft ³ /yr	~33,000–197,000 kWh/yr	~36,500–219,000 kWh(th)	~400,000–1.75 M gal/yr
Quality / content	6–12% TS; pH 5–8; 0.06–0.19 lb VS/ft ³ /day	55–75% CH ₄ ; 25–45% CO ₂	120/240/480 V 3-phase	160–180 °F jacket water	Class B or A; 40 CFR §503
Capacity	Up to 5,300 GPD slurry pump; 1–3 day equalization buffer	~13,568 ft ³ buffer storage	n/a (CHP rated)	n/a	63,435 gal storage = 60+ day retention

05 System-Wide Key Performance Indicators

Total CH ₄ conversion efficiency		65–68%
Total system VS destruction		55–72%
CHP electrical efficiency		33–38%
CHP combined thermal + elec. efficiency		78–85%
Pathogen reduction (thermophilic)		>99.99% (4-log)
Biogas storage buffer coverage		4–8 hrs CHP runtime
Epoxy coating holiday-free (all tanks)		100% spark-tested
System liquid retention capacity		~498,754 gal total
Carbon offset potential		330–880 tCO ₂ e/yr
Target system uptime		>95% annual

Factors affecting yield

VS load (OLR)	Sweet spot 0.06–0.19 lb VS/ft ³ /day
C : N ratio	20–30 : 1 optimal; co-digest as needed
Temperature stability	±1 °F drop = 10–15% yield loss
pH (digester)	6.8–7.4; <6.5 indicates VFA accumulation

Mesophilic vs thermophilic

Mesophilic (95–99 °F)	20–30 day HRT; Class B biosolids; stable
Thermophilic (126–131 °F)	10–15 day HRT; +20% yield; Class A
Pathogen reduction	Meso 2–3 log; thermo >4 log (>99.99%)
Switchover	Gradual ramp 1 °F/day; 10–14 day transition

06 Safety Systems & US Regulatory Compliance

Explosion & fire prevention

- ▶ NEC/NFPA 70 Art. 500 — Class I Div. 1 inside all dome gas spaces; Div. 2 within 10 ft perimeter of any gas-holding tank *NFPA 70 Art. 500 / NFPA 820*
- ▶ All electrical equipment in hazardous areas: UL 844 / FM 3600 approved; NEC Class I Div. 1 or Div. 2 *NEC Art. 501 / NFPA 70*
- ▶ Deflagration flame arrestors on ALL gas outlet connections; end-of-line arrestors on atmospheric vents *NFPA 69 / API 2000*
- ▶ Auto gas shutoff (motorized ball valve) at >10% LEL CH₄; hard-wired fail-safe closed on power loss *NFPA 72 / ISA 84*
- ▶ Static grounding and bonding on all dome membranes, pipework, and steel panels site-wide *NFPA 77 / API RP 2003*
- ▶ Enclosed emergency ground flare; auto-ignition; 120% peak gas flow capacity; continuous pilot *NFPA 69 / EPA §60 Sub. AAAA*
- ▶ No open ignition sources within 25 ft exclusion zone of any tank; hot work permit system site-wide *OSHA 29 CFR 1910.119 PSM*

Gas & process monitoring

- ▶ Fixed catalytic bead CH₄ detectors at each tank: 10% LEL warning; 20% LEL auto-shutdown; UL 2075 listed *NFPA 72 / UL 2075*
- ▶ Electrochemical H₂S fixed detectors: 5 ppm TWA warning; 10 ppm ceiling evacuation alarm *OSHA 29 CFR 1910.1000*
- ▶ CO detectors at CHP room and all access points: 35 ppm TWA alarm; 200 ppm peak per OSHA PEL *OSHA 29 CFR 1910.1000*
- ▶ Fugitive CH₄ emissions monitoring per EPA 40 CFR §98 Subpart C; OGI camera survey annually *EPA 40 CFR §98*
- ▶ Continuous SCADA telemetry with 30-day local historian; 100+ tags; cybersecurity per ISA-99 *ISA-99 / NERC CIP*
- ▶ Weekly lab analysis: TS/VS, ammonia-N, VFA, alkalinity; monthly fecal coliform for land app. permit *40 CFR Part 503*

Training & operator certification

Initial operator	80 hr total: 40 classroom + 40 hands-on per cluster
Annual refresher	8 hr safety + 8 hr ops; documented competency

Overpressure & structural

- ▶ PRV set at 3.0 in. W.C. on each gas-holding tank; manual test quarterly; routed to enclosed flare *ASME Sec. VIII / API 520*
- ▶ Vacuum protection valve (VPV) on each dome; prevents collapse during temperature drop or gas drawdown *NFPA 69 / API 2000*
- ▶ High/low pressure alarms on all gas tanks; SCADA audible + visual + remote SMS/email notification *NFPA 72*
- ▶ Outer dome blower for each unit; pressure switch alarm on blower failure; SCADA auto-restart *Mfr. spec / NFPA 72*
- ▶ Structural PE inspection: visual monthly; engineering survey annually; all 9 tanks *IBC 2021 / AISC*
- ▶ NACE CIP-certified coating inspector at commissioning and every 5 years; pull-off test *NACE SP0188 / ASTM D4541*

Personnel safety & permits

- ▶ Permit-required confined space (PRCS) entry program; mandatory atmospheric testing; retrieval system at each tank *OSHA 29 CFR 1910.146*
- ▶ Lockout/tagout (LOTO) procedures for all 9 tanks; mechanical and electrical isolation; annual training *OSHA 29 CFR 1910.147*
- ▶ PSM / RMP threshold evaluation for on-site H₂S and CH₄ quantities; site-wide emergency response plan *OSHA 1910.119 / EPA RMP*
- ▶ PPE station at each tank cluster: SCBA, H₂S escape set, face shield, chemical gloves; OSHA hazard assessment *OSHA 29 CFR 1910.138*
- ▶ Emergency eyewash and safety shower within 10 sec travel of all tanks; tepid water year-round *ANSI Z358.1*
- ▶ SPCC plan per 40 CFR §112; 110% secondary containment at each tank; monthly containment inspection *40 CFR Part 112*
- ▶ Air permit (Title V or minor) for CHP engine; NSPS 40 CFR §60 Sub. JJJJ; annual stack test *EPA 40 CFR §60 JJJJ*

Hazard area classification (typical)

Inside dome gas space	Class I Div 1 — NEC Art. 500
≤10 ft of any gas tank	Class I Div 2 perimeter zone

07 Project Economics & System Integration

METRIC	SMALL SYSTEM (2 pri + 2 sec)	MEDIUM SYSTEM (4 pri + 2 sec)	LARGE SYSTEM (4 pri + 4 sec)	NOTES
Daily biogas	3,600–6,000 ft ³ /day	5,000–9,000 ft ³ /day	7,000–14,000 ft ³ /day	Feedstock-dependent; 55–75% CH ₄
Daily electricity	90–270 kWh/day	150–400 kWh/day	250–540 kWh/day	At 33–38% CHP electrical efficiency
Annual electricity	33,000–99,000 kWh/yr	55,000–146,000 kWh/yr	91,000–197,000 kWh/yr	Net of ~8–15% parasitic load
Carbon offset	165–440 tCO ₂ e/yr	275–730 tCO ₂ e/yr	450–1,200 tCO ₂ e/yr	Eligible LCFS / voluntary C credits
RNG premium (opt.)	\$38K–\$75K/yr	\$65K–\$130K/yr	\$105K–\$210K/yr	\$15–\$30/MMBtu + D3 RINs
Gate fee income	Site-specific	Site-specific	Site-specific	\$15–\$55/ton tipping fee (food waste)
Indicative CAPEX	\$1.2M–\$2.0M	\$1.8M–\$3.0M	\$2.8M–\$4.5M	Incl. tanks, coating, civil, controls
Simple payback	4–8 years	3–7 years	3–6 years	Shorter w/ IRA §45Z + gate fees + RINs

Available US incentives

IRA §45Z Clean Fuel	\$0.20–1.00/gal eq biofuel (2025–2027)
IRA §48 / §48E ITC	30–50% Investment Tax Credit
D3 RINs (RFS2)	\$2–3 per RIN; 1 RIN ≈ 77,000 BTU
LCFS (CA, OR, WA)	\$50–200 per MT CO ₂ e for low-CI biomethane

Financing structures

Direct purchase	Owner finances; full ITC + depreciation
Equipment lease	Capital-light; 7–10 yr; lessor holds tax benefits
Power purchase (PPA)	Pay \$/kWh; third-party owns & operates
Tax-equity partnership	Partner monetizes ITC; flips at year 5–7

08 Retrofit & Modular Expansion

Modular expansion parameters

Modular expansion path	Add secondary expansion tanks in pairs; each adds ~101,496 gal / +15–35% gas
Gas header tie-in	4"–6" flanged SS; motorized isolation valve; combine with existing gas train
Heating tie-in	CHP jacket water return; 140–180 °F; plate HEX per tank; 75,000–200,000 BTU/hr
Controls add-on	New I/O module per tank; min. 15–20 new SCADA tags per unit; remote HMI update
Commissioning time	4–8 weeks to stable gas production per added tank; 8–12 weeks to full design load
Civil works	Additional RC base slab; bund extension; pipework interconnect; ASME B31.3
Permits required	Building permit (IBC); air permit amendment; SPCC plan update; land app. update
Startup inoculum	Seed each new tank with 20–30% vol. (~20,299–30,449 gal) from active adjacent tank

Site integration requirements

Primary to secondary flow	Gravity overflow preferred; 4"–8" HDPE SDR 11; flanged isolation; ASME B31.3
Feedstock to mix tank	2"–4" SS pump discharge; flow-metered; SCADA-controlled GPM
Gas header (site-wide)	6"–8" SS 316 main header; individual tank isolation valves; 5 in. W.C. rated
Digestate routing	4"–6" HDPE; gravity or pump to storage; level-controlled draw-off valves
CHP heat distribution	2"–3" insulated SS hot water loop; circulator pump; per-tank HEX isolation
Electrical distribution	NEC Art. 500 throughout; site-wide ATEX zone map; equipotential bonding NFPA 77
SCADA network	Ethernet ring or fiber; redundant comms; gateway to cloud SCADA; ISA-99 firewall
Secondary containment	Site-wide bund 110% of largest tank; HDPE-lined; controlled drain to lagoon

09 Engineering Capabilities & Project Deliverables

Engineering & project capabilities	
Front-end engineering	Site & feedstock characterization, mass / energy balance, process selection
Detailed design	PFDs, P&IDs, civil / structural / mechanical / E&I; PE-stamped per state
Equipment specification	Tank, dome, CHP, controls, instrumentation specifications & datasheets
Construction management	Bid package preparation, contractor oversight, QA / QC inspection
Commissioning & startup	Hydrostatic, holiday, FAT/SAT, seed inoculation, ramp loading (8–12 weeks)
Operator training	40 hr classroom + 40 hr hands-on; full operations & emergency response
O&M support	Annual service contracts, remote SCADA monitoring, performance optimization
Permit support	Air, water, IBC, SPCC, NPDES, RFS / LCFS pathway certification assistance

Quality assurance & certifications	
AISC certified shop	Steel fabrication per AISC 360-22; AWS D1.1 certified welders
NACE coating QA	CIP-certified inspector; holiday testing; pull-off ASTM D4541
Material traceability	Mill test reports (MTR) per heat; ASTM A572 Gr. 50 verified
Pressure vessel	ASME Sec. VIII Div. 1 stamp where applicable (HEX, drums)
Electrical certs	UL 508A panel build; NEC Art. 500 hazardous area certification
ISO 9001:2015	Quality management system across design / fab / installation

Project deliverables	
Drawing package	30 / 60 / 90% and IFC drawings; PFD, P&ID, GA, structural, civil, E&I
Equipment package	Datasheets, BOMs, vendor cut sheets, MTRs for all major equipment
Controls package	SCADA narrative, I/O list, alarm matrix, sequence of operations, HMI screens
Coating specification	NACE-compliant 3-coat HP epoxy spec; holiday testing protocol; QA records
Operations manual	Site-specific O&M with startup, normal, upset, and shutdown procedures
Maintenance schedule	Preventive maintenance plan, spare parts list, lubrication chart
Training materials	Operator handbook, training curriculum, video library, competency assessments
Compliance documentation	Permit applications, SPCC plan, emergency response plan, GHG reporting setup

Typical project schedule	
Site survey & feasibility	4–6 weeks (feedstock, soils, utilities)
Permitting & design	12–16 weeks (parallel; PE-stamped)
Fabrication	16–20 weeks (concurrent with civil)
Site prep & civil works	8–12 weeks (slabs, bunds, utilities)
Installation & assembly	6–8 weeks (erection, piping, E&I)
Commissioning & startup	8–12 weeks (test, seed, ramp)

REFERENCED STANDARDS
AISC 360-22 · AWS D1.1 · ASTM A572 / D7407 / D4541 · NACE SP0108 / SP0188 / No. 2 · AWWA D103 · API 652 / 520 / 2000 / RP 2003 · NFPA 69 / 70 / 72 / 77 / 780 / 820 · OSHA 29 CFR 1910.119 / .138 / .146 / .147 / .1000 · EPA 40 CFR §60 / §98 / §112 / Part 503 · ACI 318-19 · ASME B31.3 / Sec. VIII · ASCE 7-22 · IBC 2021 · GRI-GM13 · UL 2075 / 499 / 844 · ANSI Z358.1 · ISA-84 / ISA-99 · AGA Report No. 9 · IEEE 1547 · NRCS Practice 313/632

DISCUSS YOUR PROJECT

EnviroBox® Modular Treatment Systems · Engineered, fabricated, and supported in the United States

Contact your project lead for site-specific feasibility, CAPEX estimates, and lead times.