



ELECTROCELL™ | THE BIOLOGY OF CHANGE

BIO-ELECTRIC WASTE, POTABLE & IRRIGATION WATER TREATMENT SOLUTIONS

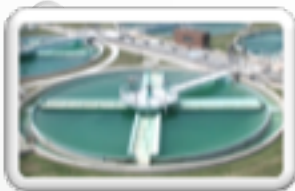
- ✓ **Patented award winning** bio-electric wastewater treatment system.
- ✓ **One technology; five water solutions:** (1) Municipal Waste Water with Digesters, (2) Food & Beverage Waste Water, (3) Distributed On-site Water Treatment, (4) Potable Water, and (5) Irrigation Water.
- ✓ **Operating and selling systems since 2008;** third-party validation, awards and certifications.
- ✓ **Add to existing or new infrastructures;** improves performance, processing capacity and operational efficiency.
- ✓ **Extraordinary performance metrics:** cleaner water, decreased bio-solids, lower biologic oxygen demand, increased natural gas production.
- ✓ **75% lower CAPEX** and **30 to 40% lower OPEX** than competing technologies; Simple payback in three to five years.
- ✓ **Purchase and own** or financed performance-based joint-venture operating agreement.



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ONE TECHNOLOGY, FIVE WATER SOLUTIONS

ELECTROCELL TECHNOLOGIES COST-EFFECTIVELY SOLVE SIGNIFICANT WATER QUALITY CHALLENGES



MUNICIPAL WASTE WATER TREATMENT PLANTS WITH DIGESTERS

- **WHAT** - DIGESTER ENHANCEMENT TECHNOLOGY USED AS WATER QUALITY FINISHING SYSTEM
- **RESULTS** - IMPROVES OPERATIONAL EFFICIENCIES THAT LOWER COSTS AND IMPROVES WATER QUALITY OUTPUTS; LOWERS BIO-SOLIDS; INCREASES METHANE GAS & ELECTRICITY PRODUCTION; EXCEEDS REGULATORY STANDARDS.



COMMERCIAL WASTE WATER TREATMENT PLANTS – FOOD AND BEVERAGE

- **WHAT** - ENHANCEMENT TECHNOLOGY USED AS WATER QUALITY FINISHING SYSTEM
- **RESULTS** - IMPROVES OPERATIONAL EFFICIENCIES THAT LOWER COSTS AND IMPROVES WATER QUALITY OUTPUTS; LOWERS BIO-SOLIDS; INCREASES METHANE GAS & ELECTRICITY PRODUCTION; EXCEEDS REGULATORY STANDARDS.



DISTRIBUTED ON-SITE WASTE WATER TREATMENT

- **WHAT** - PRE-TREATMENT POINT-SOURCE SOLUTION CAN BE USED UPSTREAM OF EXISTING WWTP OR STANDALONE; SELF-GENERATING ELECTRICITY VIA GAS-POWERED TURBINE OR SOLAR
- **RESULTS** – MEETS US EPA GREY WATER EFFLUENT QUALITY STANDARDS; DOES NOT REQUIRE WWTP; LOW COST



TRANSFORM BRACKISH OR SALINE WATER TO POTABLE WATER

- **WHAT** – ELECTROCELL & PROPRIETARY REVERSE OSMOSIS & ULTRA-VIOLET TECHNOLOGIES FOR TURNKEY MODULAR SCALABLE SOLUTION
- **RESULTS** – DRINKING WATER AT LOW COST



TRANSFORM BRACKISH OR SALINE WATER TO IRRIGATION WATER

- **WHAT** – ELECTROCELL & PROPRIETARY REVERSE OSMOSIS TECHNOLOGIES FOR TURNKEY MODULAR SCALABLE REALTIME SOLUTION
- **RESULTS** – IRRIGATION QUALITY WATER AT LOW COST

MUNICIPAL WASTE WATER TREATMENT WITH DIGESTERS

Solves capacity, cost, regulatory and efficiency issues in municipal wastewater treatment industry.

CHALLENGES

- **COST-EFFECTIVELY EXPAND** CAPACITY OF EXISTING INFRASTRUCTURES
- **MEET REGULATORY REQUIREMENTS** AT LOWEST COST
- **NET ZERO ENERGY AND NET ZERO CHEMICAL USE** ARE INDUSTRY GOALS TO LOWER COSTS AND MEET REGULATORY COMPLIANCE
- **MODULAR, SCALABLE, EFFICIENT, COST-EFFECTIVE** SOLUTIONS TO KEEP PACE WITH FLUCTUATING POPULATION PRESSURES
- **DECREASE OPERATING** COSTS

SOLUTION

- **HIGHLY COST** EFFECTIVE WITH RAPID ROI
- **ADD TO EXISTING** OR NEW WASTE WATER TREATMENT FACILITIES
- **EXTENDS LIFE** OF EXISTING WASTE WATER FACILITIES
- **SCALABLE**, MODULAR, PLUG-N-PLAY SYSTEM
- **EXCEEDS REGULATORY** REQUIREMENTS
- **HIGHLY EFFICIENT** - DESTROYS PATHOGENS > 99.8%, DECREASES BIOSOLIDS, DECREASES BIOLOGIC OXYGEN DEMAND, INCREASES METHANE GAS PRODUCTION
- **SELF-CONTAINED**; ENERGY SELF-SUFFICIENT; NO CHEMICALS
- **EASY TO DEPLOY**, OPERATE AND MAINTAIN
- **FLEXIBLE PURCHASE** AND USE MODELS
- **LOW CAPEX**, LOW OPEX



FOOD & BEVERAGE WASTE WATER TREATMENT

Solves capacity, cost, regulatory and efficiency issues in commercial wastewater treatment industry.

CHALLENGES

- **COST-EFFECTIVELY EXPAND** CAPACITY OF EXISTING FACILITIES
- **RESPOND TO REGULATORY** REQUIREMENTS AT LOWEST COST
- **OPTIMIZE EXISTING PLANTS** AND REDUCE COSTS TO MEET GROWING COMMERCIAL MARKETS
- **NET ZERO ENERGY AND NET ZERO CHEMICAL USE** ARE INDUSTRY GOALS TO LOWER COSTS AND MEET REGULATORY COMPLIANCE
- **DECREASE OPERATING** COSTS (AND INCREASE OPERATING MARGINS)
- **MODULAR, SCALABLE, EFFICIENT, COST-EFFECTIVE** SOLUTIONS TO KEEP PACE WITH COMMERCIAL GROWTH

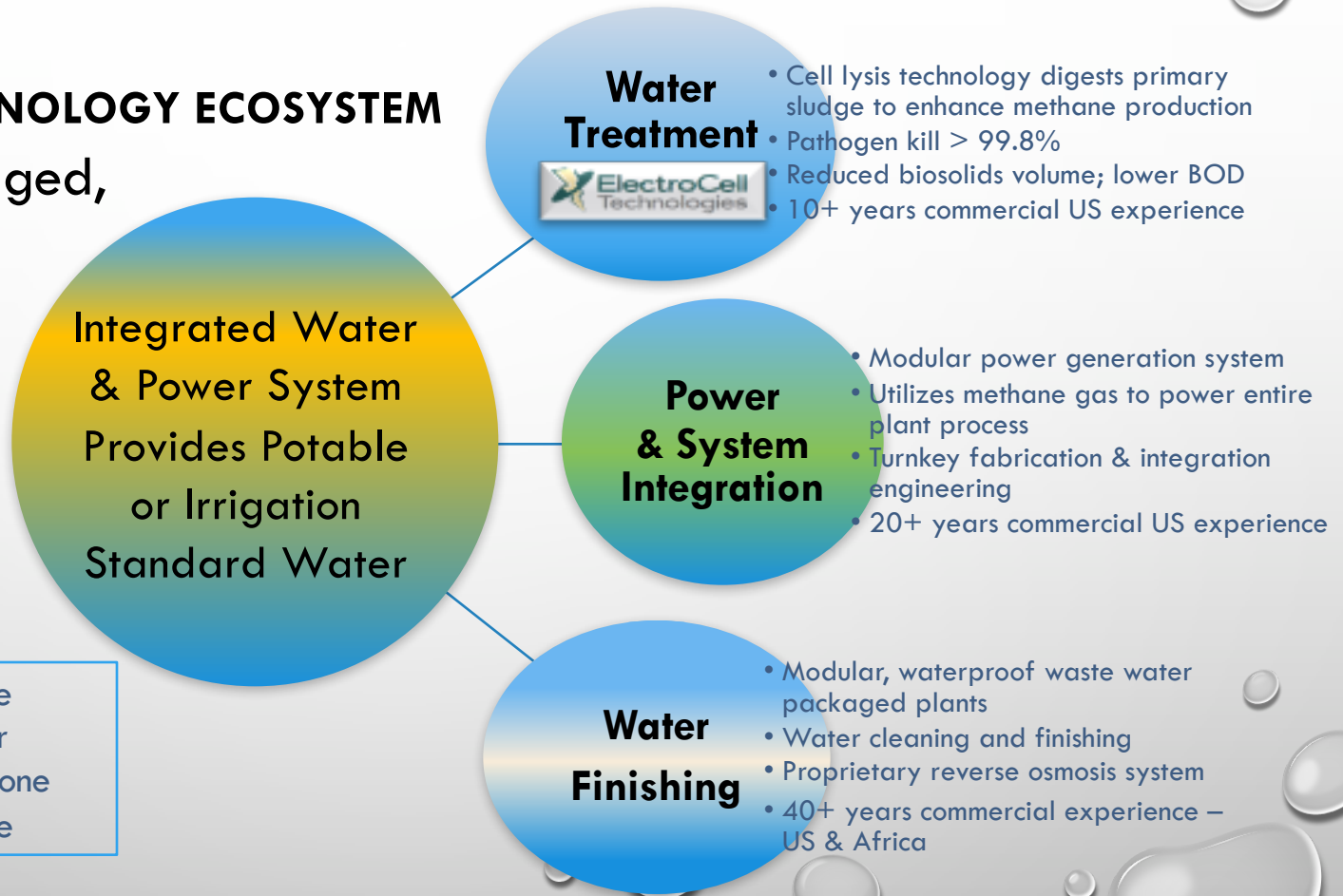
SOLUTION

- **HIGHLY COST** EFFECTIVE WITH RAPID ROI
- **ADD TO EXISTING** OR NEW WASTE WATER TREATMENT FACILITIES
- **EXTENDS LIFE** OF EXISTING WASTE WATER FACILITIES
- **SCALABLE**, MODULAR, PLUG-N-PLAY SYSTEM
- **HIGHLY EFFICIENT** - DESTROYS PATHOGENS > 99.8% AND LOWER BOD LEVELS WHICH LOWERS COSTS
- **SELF-CONTAINED**; ENERGY SELF-SUFFICIENT; NO CHEMICALS
- **EASY TO DEPLOY**, OPERATE AND MAINTAIN
- **LOW CAPEX**, LOW OPEX

INTEGRAL TECH IN CLEAN WATER & POWER ECOSYSTEM

COMPLEMENTARY TECHNOLOGY ECOSYSTEM

Integrated, pre-packaged, self-sufficient system produces pre-treated irrigation or potable water in realtime exceeding US EPA grey water standards.



- ✓ Cost-effective
- ✓ Customizable
- ✓ Certified
- ✓ Turnkey

- ✓ Scalable
- ✓ Modular
- ✓ Standalone
- ✓ Movable

DISTRIBUTED ON-SITE WASTE WATER TREATMENT

- *Solves waste water treatment and pre-treatment for communities or facilities not on grid.*

CHALLENGES

- **ISOLATED OR STANDALONE COMMUNITIES** OR REAL ESTATE DEVELOPMENTS NOT ON MUNICIPAL GRID FOR WATER TREATMENT
- **MEET HEALTH** AND REGULATORY STANDARDS FOR PRE-TREATED WATER
- **MEET US EPA** REGULATORY IRRIGATION WATER STANDARDS
- **FLEXIBLE** COST-EFFECTIVE EXPANSION TO POTABLE AND/OR IRRIGATION WATER SYSTEMS
- **EASY TO DEPLOY**, EASY TO OPERATE AND MAINTAIN
- **ENERGY SELF-SUFFICIENT**
- **LOW CAPEX**, LOW OPEX



SOLUTION

- **STANDALONE, ENERGY SELF-SUFFICIENT** TURNKEY SYSTEM
- **UPSTREAM PRE-TREATMENT** BEFORE WASTE WATER FACILITIES
- **OUTPUT EXCEEDS US EPA GREY WATER STANDARDS** SO CAN BE USED FOR IRRIGATION WATER
- **SCALABLE**, MODULAR, PLUG-N-PLAY SYSTEM
- **HIGHLY EFFICIENT** - DESTROYS PATHOGENS > 99.8%
- **EASY TO DEPLOY**, OPERATE AND MAINTAIN
- **LOW CAPEX**, LOW OPEX
- **EXPANDABLE TO POTABLE WATER** SYSTEM WITH TECHNOLOGY PARTNERS
- **USEFUL IN REMOTE**, ISOLATED, OR SELF-CONTAINED ENVIRONMENTS
– RURAL VILLAGES, HOSPITALS, UNIVERSITIES, COMMERCIAL FACILITIES, REAL ESTATE DEVELOPMENTS

POTABLE & IRRIGATION WATER EXCEEDS US EPA STANDARDS

Proprietary ecosystem using ElectroCell integrated with ultra-violet and reverse osmosis technologies dynamically converts waste, brackish and saline water to pure drinking water.

CHALLENGES

- **SALTWATER INTRUSION** TO AQUIFERS IN COASTAL COMMUNITIES
- **AQUIFER DEPLETION** FROM OVER-PUMPING DUE TO POPULATION PRESSURES
- **SEVERE DROUGHTS** DEplete WATER RESERVES
- **POPULATION GROWTH** DRAMATICALLY INCREASES NEED FOR PURE DRINKING WATER
- **MUNICIPALITIES COMPROMISED** FINANCIALLY AND ENVIRONMENTALLY
- **HIGH COST OF IRRIGATION** WATER FOR AGRICULTURE

SOLUTION

- **HIGHLY COST EFFECTIVE** WITH RAPID ROI
- **ELECTROCELL** TECHNOLOGY DESTROYS PATHOGENS TO > 99.8%.
- **PROPRIETARY UV** TECHNOLOGY FURTHER DESTROYS PATHOGENS TO “UNDETECTABLE” LEVELS.
- **PROPRIETARY REVERSE OSMOSIS** REMOVES PARTICULATES, SUSPENDED SOLIDS AND ALL LIFE FORMS.
- **CHLORINATION** CAN BE ADDED AS REQUIRED.
- **PHARMACEUTICALS** AND MICROBEADS CAN BE REMOVED AS REQUIRED.
- **NEUTRAL ENVIRONMENTAL** FOOTPRINT; ENERGY SELF-SUFFICIENT
- **EXCEEDS US EPA** STANDARDS FOR GREY WATER

GLOBAL LEADER IN PRICE-PERFORMANCE

Patented disruptive waste water treatment solution primed to scale in domestic and global markets.

BUSINESS

- **LOWEST PRICE** IN MARKET – USD \$400,000
- **CAPEX** - 75% LESS THAN COMPETING SOLUTIONS
- **OPEX** - 30 TO 40% LESS THAN CONVENTIONAL SYSTEMS
- **GLOBAL LEADER** IN OPERATIONAL EFFICIENCY & PERFORMANCE
- **INTEGRATED TECHNOLOGY** ECOSYSTEM WITH PARTNERS



TECHNOLOGY

- **LOWEST ENERGY** CONSUMPTION - < 3WATTS/GAL
- **HIGHEST SYSTEM** CAPACITY – 4,800 TO 6,000 GPH
- **HIGHEST METHANE** GAS INCREASE - +10% TO 50%
- **HIGHEST BIO-SOLIDS** SEPARATION - +10% TO 30%
- **ADD TO EXISTING** OR NEW TREATMENT FACILITIES



CUSTOMER VALUE: INCREASED EFFICIENCY & LOWER COSTS

Low CAPEX | Lower OPEX | Simple to Implement | Easy to Operate and Maintain | Expands Plant Capacity

INCREASED BIO-GAS PRODUCTION & REVENUE

- ✓ ELECTRICITY PRODUCTION INCREASE
10 TO 50%
- ✓ NATURAL GAS PRODUCTION INCREASE
10 TO 50%



DECREASED WASTE DISPOSAL VOLUME & COSTS

- ✓ BIO-SOLIDS VOLUME DECREASE
10 TO 30%
- ✓ DISPOSAL COST PER TON DECREASE
10 TO 50%



CLEANER WASTE WATER TO ENVIRONMENT

- ✓ PATHOGEN KILL > 99.8%
- ✓ NITROGEN DECREASE
- ✓ PHOSPHOROUS DECREASE



Increased Plant Capacity Results from Increased Digestion Speed Resulting from Lowering Retention Time

SOLUTION DELIVERY: RAPID COST-EFFICIENT DEPLOYMENT

Easily integrates in existing and new facilities and mobile environments.



Multiple Use Scenarios

- ✓ Add-on to existing municipal or commercial waste water treatment plants.
- ✓ Upstream pre-treatment.
- ✓ Distributed on-site waste water treatment produces irrigation water.
- ✓ Partner technology ecosystem transforms saline or brackish water to potable or irrigation water.

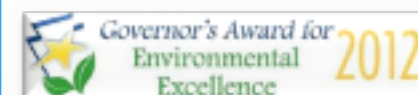
- ✓ 30 YEAR LIFECYCLE | 1 YEAR WARRANTY
- ✓ INDUSTRY STANDARD OPERATIONS; EASY TO TRAIN
- ✓ LOW PERSONNEL REQUIREMENTS TO OPERATE
- ✓ USA / GLOBAL CONTRACT MANUFACTURING
- ✓ MODULAR AND EASILY SCALABLE
- ✓ EXCEEDS INDUSTRY STANDARDS
- ✓ ON-SITE MONITORING
- ✓ RAPID DEPLOYMENT
- ✓ EASY TO OPERATE AND MAINTAIN

THIRD-PARTY VALIDATION, CERTIFICATIONS & AWARDS

Lowest cost most efficient system on market enables customer payback in 3 to 5 years.

Awards

- ✓ **Governor's Environmental Excellence 2012** – USA, PA Dept. of Environmental Protection http://www.electrocell.us/ElectroCell_Technologies_Rev_2/electrocell-technologies-blog/Entries/2012/4/20_ElectroCell_Wins_Pennsylvania_Award_for_Environmental_Excellence.html
- ✓ **Water Environmental Research Foundation** – Digester optimization. http://www.werf.org/lift/lift/docs/Lift_Notes_Docs/Technology_Spotlight_3-19-15.aspx
- ✓ **Innovation for a Better World** – Water Environmental Research Federation http://www.electrocell.us/ElectroCell_Technologies_Rev_2/electrocell-technologies-blog/Entries/2012/8/29_Innovation_for_a_better_world..html



Case Studies

- ✓ **Kraft Foods - Biological Oxygen Demand** http://electrocell.us/ElectroCell_Technologies_Rev_2/electrocell-Industrial-Pre-treatment.html
- ✓ **Hazen & Sawyer, Professional Engineers - Biosolids Treatment** http://www.electrocell.us/ElectroCell_Technologies_Rev_2/electrocell-technologies-blog/Entries/2013/2/16_Hazen_and_Sawyer_to_present_results_of_ElectroCells_wastewater_pilot_test_at_PennTec_conference_in_June..html
- ✓ http://www.electrocell.us/ElectroCell_Technologies_Rev_2/electrocell-technologies-blog/Entries/2013/1/7_Biosolids_treatment_trial_results_exceed_expectations._files/ElectroCell%20TCA%20Case%20Study%20V3Web.pdf

News Video – Successful treatment of agricultural waste in USA

http://electrocell.us/Electrocell_Technologies_Rev_2/electrocell-manure-treatment-benefits.html

CASE STUDY: DERRY TOWNSHIP SIGNIFICANTLY IMPROVES WATER QUALITY USING ELECTROCELL FOR PRE-TREATING SLUDGE

Problem: Need to improve digester gas output, reduce retention time and stabilize biosolids.

Solution: Use ElectroCell in controlled trial to pre-treat sludge prior to loading into digester.

Results: April 2014: Controlled trial treating Thickened Waste Activated Sludge (TWAS)

- ✓ Significant decreases in suspended solids and increases in solubilization improves feedstock.
- ✓ Pre-condition for more food entering digester to promote growth of methane producing bacteria
- ✓ Pre-condition for improved dewatering and lower sludge retention time.
- ✓ http://www.electrocell.us/ElectroCell_Technologies_Rev_2/electrocell-technologies-blog/Entries/2013/8/19_Derry_Township_files/ECT%20Derry%20TWAS%20Pre-Treatment%20Pilot%20Results%208-192013%20Small%20File.pdf

TWAS Trial Derry Township, Pennsylvania, USA	Control (Day 7)	Trial (Day 7)	Percent Difference
Soluble Chemical Oxygen Demand (mg/L)	2,564	7,225	+281.79%
Semi-Soluble Chemical Oxygen Demand (mg/L)	2,000	2,300	+15%
Total Dissolved Solids (ppm)	10	1,065	+10,550%
Volatile Solids as % of Total Solids	64.3%	74.7%	+10.4%
Total Suspended Solids (mg/L)	77,050	31,680	-58.88%
Fecal Coliform (Colonies/100ml)	154,000	1,600	-98.96%



SALES PIPELINE: \$10.0+M IN CUSTOMER INSTALLS PENDING

Permitting and regulatory compliance pending.

Type of Facility & Installation

Municipal Waste Water Treatment

11 municipalities with 17 systems pending installation

2 ski resorts with 4 systems pending installations

5 municipalities in final stages of permitting

2 new proposals on Waste Water intercept systems

Municipal Desalination for Potable Water

5 ecosystem partner proposals

Ethanol Plants

Pilot for digester enhancement in process

Ecosystem Integrated Systems

6 complete systems proposed for distributed solution in Central America



COMPETITIVE DIFFERENTIATORS: LOW PRICE, HIGH PERFORMANCE

A paradigm shift in biological processes resulting in increased efficiency and lower CAPEX and OPEX.

Competing Companies	Capital Cost	Operating Voltage	Energy Usage	Flow Rate	Solids Grinder	Fecal Coliform Reduction	Nutrient Reduction N% / P%
Open Cell (U.S. Peroxide)	\$2+ MM	10kv – 100kV	50 Watts per Gallon	4.160 GPH	Yes	50%	None
Cambi Thermal Hydrolysis	\$25 MM	NA	170° C 6 – 9 bar	10MGD Plant	Yes	99%	None
Ostara Nutrient Recovery Technologies	\$4+ MM	NA	Pumping & Drying	Variable	NA	NA	20% / 90%
ElectroCell Technologies	\$400,000	0.1kV to 1.0kV	<3 Watts / Gallon	6,000 GPH	No	99+%	50% / 90%



TRADITIONAL BIOLOGY-BASED

TREATMENT REQUIRES LARGE AMOUNTS OF SPACE, CAPITAL AND ENERGY.

CHEMICAL TREATMENT

HIGH COSTS WITH ENVIRONMENTAL AND REGULATORY RISKS.

EMERGING TECHNOLOGIES

MAY WORK BUT TYPICALLY WITH HIGH CAPITAL COSTS AND/OR UNSUSTAINABLE HIGH ENERGY COSTS.

PURCHASE: OWN OR PERFORMANCE-BASED CONTRACT

Pay up-front and own and gain all financial value or joint venture with reduced financial return and no risk.

PURCHASE DIRECT FROM ELECTROCELL

- ✓ CAPEX EXPENSE
- ✓ GAIN IMMEDIATE OPEX SAVINGS
- ✓ SYSTEM PAYS FOR ITSELF IN 3 TO 5 YEARS
- ✓ DEFERS INFRASTRUCTURE EXPANSION
- ✓ LOWER COSTS TO FACILITIES
- ✓ MODEST RISK
- ✓ 100% OF LONG-TERM FINANCIAL GAIN
- ✓ DEFERS INFRASTRUCTURE EXPANSION

PERFORMANCE-BASED AGREEMENT

- ✓ COMPANY FINANCED BASED ON CREDIT
- ✓ OPERATIONS CONTRACT BASED ON MEETING PRE-SPECIFIED PERFORMANCE METRICS
- ✓ INSTALL FASTER
- ✓ AVOIDS CAPEX SPEND
- ✓ IMMEDIATE OPEX SAVINGS
- ✓ IMMEDIATE IMPROVEMENT IN WATER QUALITY
- ✓ NO RISK
- ✓ LESS FINANCIAL GAIN
- ✓ DEFERS INFRASTRUCTURE EXPANSION

SAMPLE: PERFORMANCE-BASED REVENUE

Municipalities implement immediately without using own budget but gain only 20% of financial value. ElectroCell gains annuity revenue at 80% of value creation with limited operational risk.

Sample Performance-Based Scenario for Municipalities Leasing System Through ElectroCell Financing											
\$ Thousands Per Year	1	2	3	4	5	6	7	8	9	10	Total
Savings	\$160	\$160	\$160	\$160	\$160	\$160	\$160	\$160	\$160	\$160	\$1600
Lease Cost -	\$53	\$53	\$53	\$53	\$53	\$53	\$53	\$53	\$53	\$53	\$530
Customer – 20%	\$34	\$34	\$34	\$34	\$34	\$34	\$34	\$34	\$34	\$34	\$340
Electrocell – 80%	\$73	\$73	\$73	\$73	\$73	\$73	\$73	\$73	\$73	\$73	\$730

FINANCING REQUIREMENTS

- Creditworthiness
- Service contract guaranteeing minimum payments
- Baseline costs of bio-solid disposal in contract
- Baseline gas production and value analysis

SOCIAL VALUE: TRIPLE BOTTOM LINE

Triple Win: Profits, People and Planet.

Social

- ✓ Living wage jobs
- ✓ Local manufacturing
- ✓ Improved corporate responsibility
- ✓ Lower health costs
- ✓ Potable water

Environmental

- ✓ Reduced waste
- ✓ Cleaner water
- ✓ Lower pathogens
- ✓ Renewable energy
- ✓ Lower greenhouse gases



Economic

- ✓ High profit product
- ✓ Large global market
- ✓ High growth market
- ✓ Best-in-Class technology
- ✓ Strong end-user value proposition

SOCIAL BENEFITS

- **LOWER MUNICIPAL WASTEWATER TREATMENT COSTS**
 - LOWER WATER / WASTEWATER BILLS
 - DECREASED / DEFERRED CAPITAL PROJECT COSTS
 - LOWER TAXES
- **DECREASED MUNICIPAL SOLID WASTE**
 - LOWER LANDFILL MATERIAL
 - DECREASED COMMERCIAL TRUCK TRAFFIC
- **INCREASED RENEWABLE ENERGY**
 - GREEN POWER PRODUCTION
 - POTENTIAL BIOFUELS PRODUCTION
 - REDUCED MUNICIPALITY CARBON FOOTPRINT
- **CLEANER WASTEWATER TO ENVIRONMENT**
 - LOWER PUBIC HEALTH CONCERN
 - HIGH PATHOGEN KILL
 - CLEANER WATERWAYS
 - REDUCED ALGAE BLOOMS

SUMMARY: CLEANER WATER AT LOWER COST

- ✓ ONE TECHNOLOGY, FIVE WATER QUALITY SOLUTIONS
- ✓ PATENTED TURNKEY COST-EFFECTIVE SOLUTION
- ✓ OWN OR FINANCED PERFORMANCE-BASED JOINT VENTURES
- ✓ TRIPLE BOTTOM LINE – COST SAVINGS | ENVIRONMENT | SOCIAL RESPONSIBILITY
- ✓ COMMERCIAL UNITS READY TO DEPLOY