THE ELECTRICIAN INC.
POWER SYSTEMS

7/11/16

Based on examination and evaluation of the existing AC hydro power system as well as year round electrical load demands of Marble Mountain Ranch Resort (see attached calculation), we recommend converting and to interconnect the existing AC hydro system for winter use with 60KW propane generator and a 80KW (5280 sqf of space) photovoltaic system with 300KWh Aquion salt water battery at 90 % dod. (aquionenergy.com) This new system is the minimum size necessary to cover energy consumption of 126,265.68 KWh a year (see attached) by marble mountain ranch resort.

Due to variations in load distances some load (not all) need to be supplied at 480 V and step down to system voltage of 120/240V AC at load destination. Some loads power supply will stay at 120/240V.

This solution will minimize or eliminate need to rebuild the extensive existing power distribution at marble mountain ranch and stay in compliance with new water regulations.

hybrid hi energy efficiency system main componence supply and installation (Turn key)

80KW solar PV ground mount (5280sqf)

300KWh salt water storage (Aquion)

60KW generac propane generator

2x 1000 gl LP tanks

Steel/aluminum mounting structure

Inverters, transformers, disconnect

New electrical room

Grand total 425,000.000 US dollars

It would be interesting to look also in to PG&E solution as the only possible reliable solution besides this proposal.

If you have any questions or concerns please feel free to contact by email or phone.

Pavel Nalezek RMO

Office 530 629 4240

Cell 530 277 5345

Address P.O.Box 251 Salyer CA 95563 humboldtsolar.net

From:	Barbara Brenner
To:	S. Nicole Hirschfield
Cc:	Kerry Fuller
Subject:	RE: Progress report
Date:	Tuesday, October 04, 2016 11:38:02 AM
Attachments:	image001.png

The email needs to be saved as well. Thanks-

Churchwell White LLP

Barbara A. Brenner | Partner
916.468.0625 | barbara@churchwellwhite.com

From: Barbara Brenner
Sent: Tuesday, October 4, 2016 11:37 AM
To: S. Nicole Hirschfield <Nicole@churchwellwhite.com>
Cc: Kerry Fuller <kerry@churchwellwhite.com>
Subject: FW: Progress report

Nicole-
Please save, thanks.

Churchwell White LLP

Barbara A. Brenner | Partner
916.468.0625 | barbara@churchwellwhite.com

From: Marble Mountain Ranch [mailto:guestranch@marblemountainranch.com]
Sent: Tuesday, October 4, 2016 11:30 AM
To: Barbara Brenner <Barbara@churchwellwhite.com>
Subject: Fwd: Progress report

Barbara, FYI see the attached solar quote. We are back at home and at work again. Thank you again for your visit and work in our behalf. Doug

> Begin forwarded message:
>
> **From:** Hal Slater <Hal@GoldenWestEnergy.com>
> **Subject: Progress report**
> **Date:** October 4, 2016 at 10:45:32 AM PDT
> **To:** Marble Mountain Ranch <guestranch@marblemountainranch.com>
> **Cc:** Scott Sherman <Scott@goldenwestenergy.com>
>
> Doug,

I have a completed quote of $526,000 for the 65kW solar with 500 kWh battery packaged in two shipping containers and replacement underground 240V electrical grid with a new panel at each building (100A for the houses and 50A for each cabin) using the nickel-iron technology http://ironedison.com/high-voltage-nickel-iron-battery with the Princeton all-in-one microgrid inverter http://ironedison.com/100kw-solar-and-battery-inverter-by-princeton-power-dri100 . It is higher than the other quote but will virtually eliminate diesel use due to the nearly double battery capacity and battery is what costs.

I am awaiting a competitive quote from a manufacturer of flow batteries (see attached). These two are the only technologies that offer a 20+ year warranty on the batteries like the PV panels have. With the freight and their container, the batteries are over half the cost of the system, you don't want to have to replace them, ever. The Aquion and LI-ion batteries have 8 and10 year warranties, respectively. You may choose from either SolarWorld or LG for the solar panels both of which have 25 year warranties.

I also obtained a lease quote that I have attached but it has no provision for any grants or other cost reductions that I may find through the CSE (who I haven't heard back from, yet). In this, the lender takes the tax benefits so the net cost is less than the purchase price and the payments of $55,130 per year are about $20,000 per year more than the diesel cost, at todays rate. It is a 6 year lease, then there is a $142K payoff and you own it outright. I plan to use that $20K/year as a target for a subsidy through CSE. We could also put it out to Joey and see what the State officials say.

I have requested a PACE quote which would be longer term but would provide you with about $270,000 in tax savings which could be used over a 5-10 year period. These loans are simple to obtain but typically have higher rates (probably around $4,000/month for 20 years) than a mortgage which would offer the same tax benefits for about $750-800 per month less. If you can use the tax benefits you could probably prepay the loan as you recover them and own it within 8 years or less. Or use the tax savings to grow the business.

I will forward the additional information as soon as I get it and always feel free to call if you want.

Hal Slater
Hal@GoldenWestEnergy.com
(619) 248-3592
Lic. 474818 B/C46
www.goldenwestenergy.com

FOR IMMEDIATE RELEASE

ViZn's New 20 Year Warranty and 95% Power Guarantee Sets the Bar for Stationary Energy Storage

AUSTIN, Texas – October 4, 2016 – ViZn Energy Systems Inc. (ViZn), a leading provider of non-toxic flow battery energy storage systems, announced today that it is offering an optional 95 percent power guarantee on their large scale energy storage systems for up to 20 years. This guarantee will be available to supplement ViZn's best-in-class comprehensive warranty which is offered in multiple durations up to 20 years, twice the industry average. The guarantee is straightforward, simple, and is independent of battery duty cycle or energy throughput.

"Lithium-ion battery life and their limited warranties have been one of the limiting factors for the widespread adoption of energy storage," said Ron Van Dell, CEO of ViZn Energy Systems. "Our flow batteries have been thoroughly evaluated by Black and Veatch for longevity and performance over a long system life. The system's long term warranty and ability to deliver 95 percent of the rated power for 20 years will give utilities, developers, and banks confidence that their energy storage is engineered to last as long as the infrastructure or generation system it is typically coupled with. We hope to bring simplicity, consistency and project lifetime-based warranties to customers, which have been encumbered by partial-coverage warranties."

ViZn's unprecedented guarantee is made possible because, unlike lithium-ion batteries, their flow batteries avoid traditional wear out mechanisms that can degrade battery power and capacity over time. Contrast this with other stationary storage systems that are frequently oversized up to 40 percent to account for anticipated degradation or wear-out and have life-limiting dependencies due to temperature variations, discharge power amounts, and discharge cycles. In economic terms, developers, installers, and integrators can count on a ViZn Energy stationary storage system to provide unmatched project ROI as it delivers high power services and high energy capacity for the life of their system. There is no longer a need to account for added costs such as cell replacement, out-of-coverage O&M, and reduced performance typically experienced with today's lithium-ion battery systems.

ViZn's flow batteries are manufactured by Jabil's ISO 9001-certified production team in Florida and the technology utilizes a non-toxic, low-cost zinc and iron chemistry that makes sighting and permitting

relatively painless and time efficient. Unlike lithium-ion battery systems, ViZn's versatile flow batteries are capable of performing both high-power and long-duration applications, which allows our customers to incorporate multiple value streams and realize more favorable project ROI than other energy storage technologies. ViZn is currently building the largest flow battery in North America and is on track to be the largest global producer of flow batteries by the end of 2016.

About ViZn Energy Systems, Inc.

ViZn Energy Systems, Inc. is comprised of a visionary team of scientists, engineers and business leaders who are passionate about creating and commercializing a revolutionary energy storage solution for the commercial & industrial, microgrid and utility-scale markets. Founded in 2009 and based on eight previous years of research, ViZn is commercializing highly scalable energy storage systems, ranging from tens of kilowatts to mega-watt storage. The ViZn solution is safe, reliable, cost effective, and scalable to meet the needs of today's ever-changing energy landscape. For more information, visit: www.ViZnEnergy.com

###

For additional information, please contact:

Press Contact:
Wendy Prabhu
Mercom Communications, a division of Mercom Capital Group
1-512-215-4452
vizn@mercomcapital.com

ViZn Energy Systems Inc. Contact:
Mike Grunow / VP Marketing
ViZn Energy Systems, Inc.
1- 630-841-8710
mike.grunow@viznenergy.com

ViZn ENERGY®

Performance
-
Safety
-
Value

Overview

Founded in 2009

- 8Y of DoE research
- 8Y of productization
- Black & Veatch verified

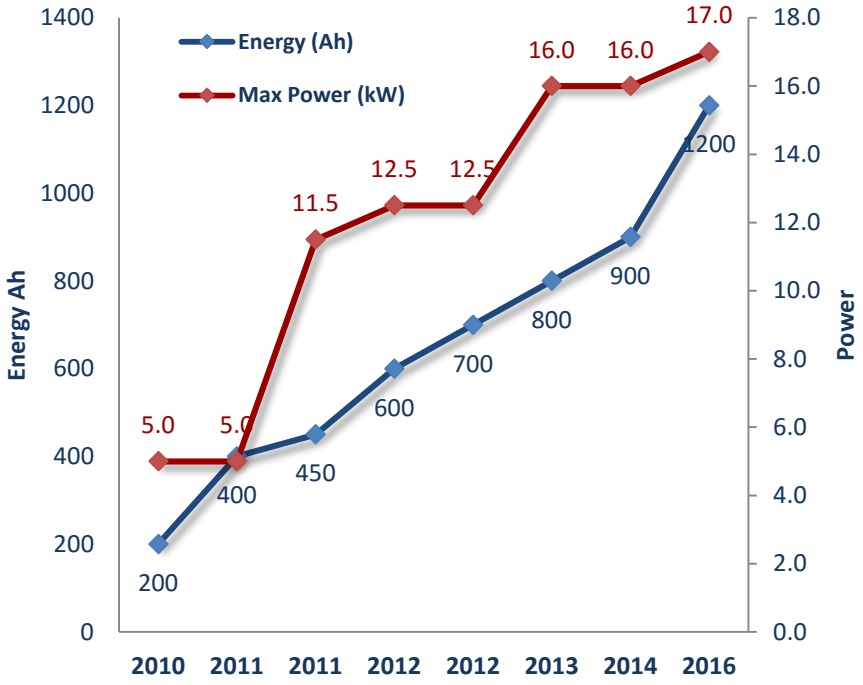
Breakthrough Technology

- Safest chemistry available
- Long duration + High power
- Multiple daily cycles
- 100% useful State of Charge
- Scales from 100kW to 100MW
- Stacked Behind and in Front Of Meter Services

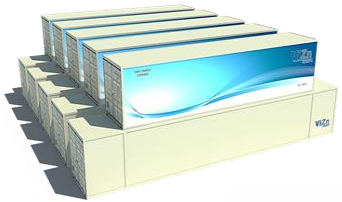
Ramping Production

- Jabil Manufacturing
- Global Project Wins : BTM and FOM
- Made in America

Over 16 Years of Technology Commercialization



- ’80s: 8 Years of DoE Research
- ViZn took over in 2008
  - 6X Energy ↑
  - 3.5X Power ↑
- 8 Years of productization



ViZn ENERGY

PERFORMANCE

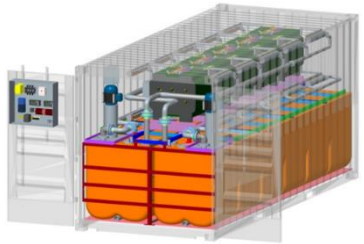
One unique battery for both long duration energy and high frequency power services. Easily stack multiple planned or unplanned services to maximize income streams.

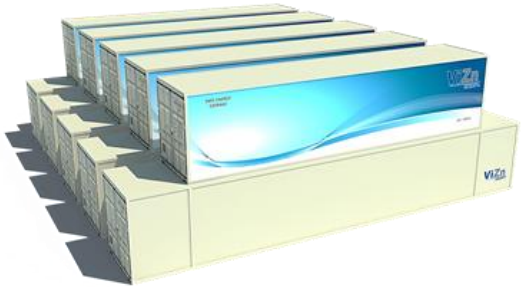
SAFETY

Deploy near densely populated areas and high value grid infrastructure. Runs on a safe chemistry that is non-toxic, non-flammable, and non-explosive. Easy to recycle at end of life.

VALUE

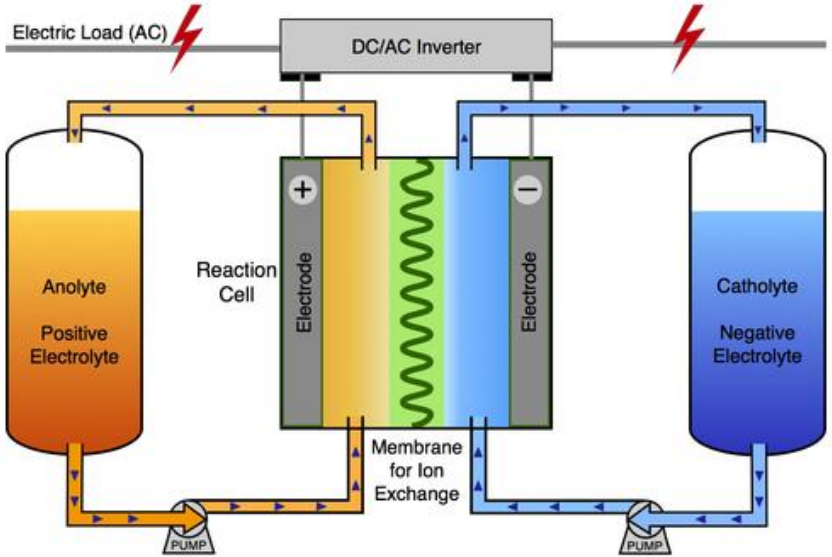
Superior ROI due to multiple income streams, 20-year life, lower O&M expense and negligible degradation across 100% state of charge.





ViZn ENERGY

Core Technology

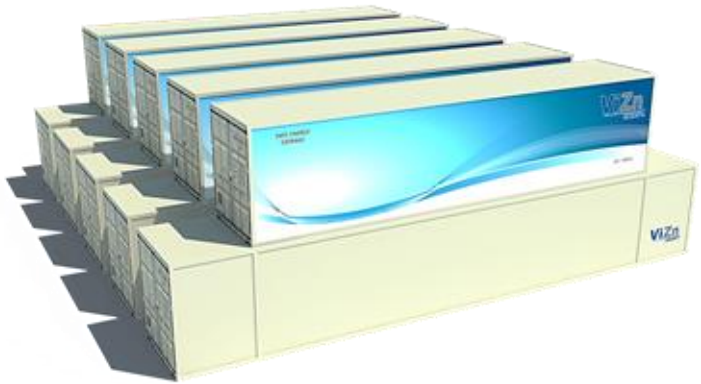


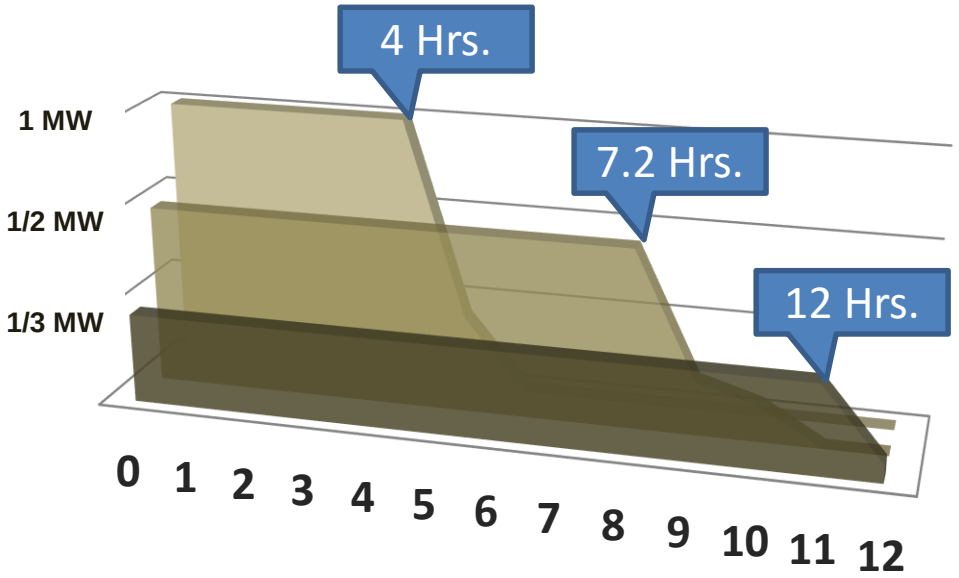
Versatile, Scalable & Safe

ViZn ENERGY

1 MW/4 MWh Building Block

ViZn Standard Building Block





Multiple Deep Cycles Per Day For 20 Years

ViZn ENERGY

Independent Engineering Assessment

BLACK & VEATCH
Building a world of difference.

Company	"Key differentiators from other flow battery technologies are safety of the electrolytes, abundance of core raw materials, and a 20-year expected system"
Design	"ViZn improved upon the original technology developed by Lockheed Martin and the US DOE to achieve higher electric charge capacity, power capacity, and improved reliability."
Manufacturing	"Black & Veatch believes that Jabil's vendor qualification and monitoring process is well established and should be able to ensure quality materials and components for ViZn's products."
Leadership	"Black & Veatch believes that ViZn's senior management team has experience in the manufacturing commercialization of novel products in the energy industry and appears to have the skills required to manage ViZn."
Performance	"Black & Veatch believes that the ViZn batteries outperform systems with lithium based chemistries at high ambient temperatures due to the fact that the ViZn ESS requires a smaller HVAC load."

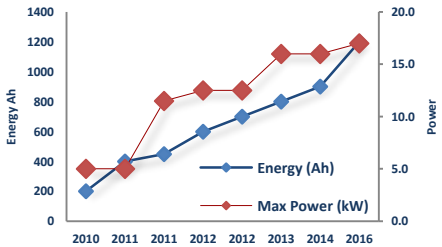
ViZn ENERGY

Scaling Rapidly With Best In Class Partners

In Production Now

- Jabil shipping
- ISO 9001 certified
- >80 patented inventions
- 7 Years of productization
  - 6X Energy ↑
  - 3.5X Power ↑

JABIL



3rd Party Validation

- B&V diligence complete
- Jabil investigation was exhaustive
- TUV efforts critical for EU expansion
- Awards & recognition

BLACK & VEATCH
Building a world of difference.

ees electrical energy storage AWARD 2014 WINNER

Energy Storage 100 — ViZn ENERGY

TÜV SUD

Market Acceptance

- Secured 1st 80 MWh in orders & commitments
- Selected by customers for next 100 MWh
- Partnered for global deployment

Hecate Energy

INL Idaho National Laboratory

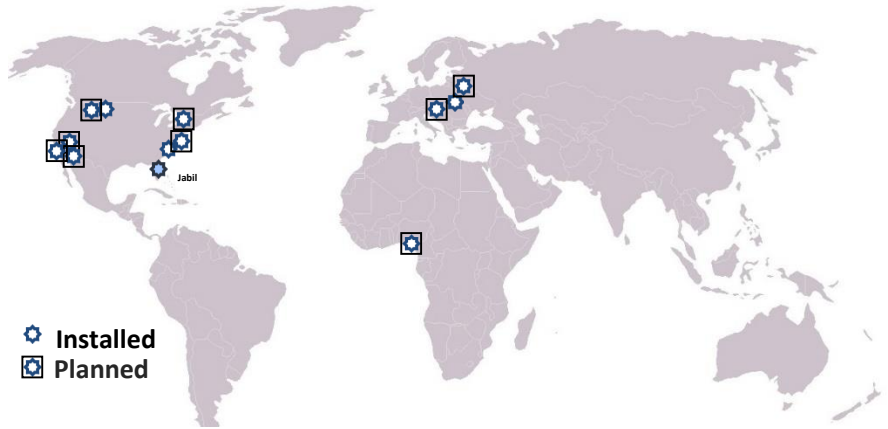
Dominion

Schneider Electric

the alpha GROUP

ViZn ENERGY

Accelerating Deployment With World Class Partners



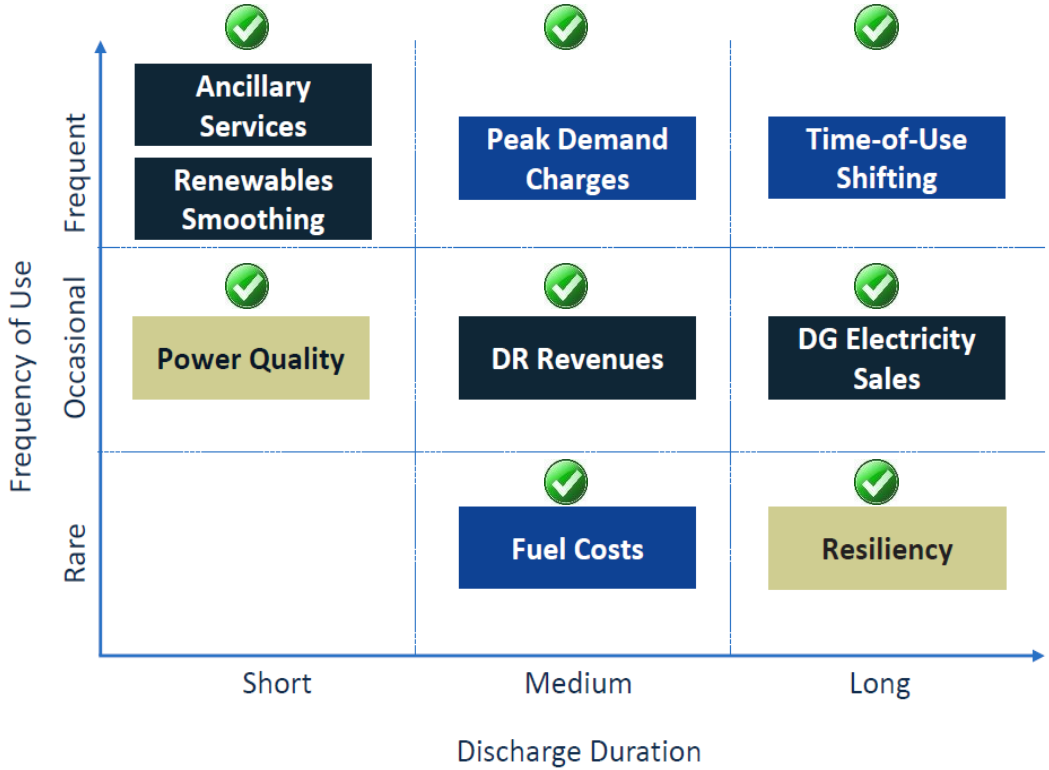
- Delivering largest flow battery in North America
- Contracted for 2 largest flow batteries in Europe
- 80 MWh to ship in next 12 months
- Wins in Utility, C&I and Microgrid
- NA, EU, ROW

JABIL

- 2015 Revenue: $19B
- ISO 9001
- Cost Reduction

ViZn ENERGY

Energy & Power Versatility Is Critical For Modern Markets



Customer-site application

Front-of-meter application

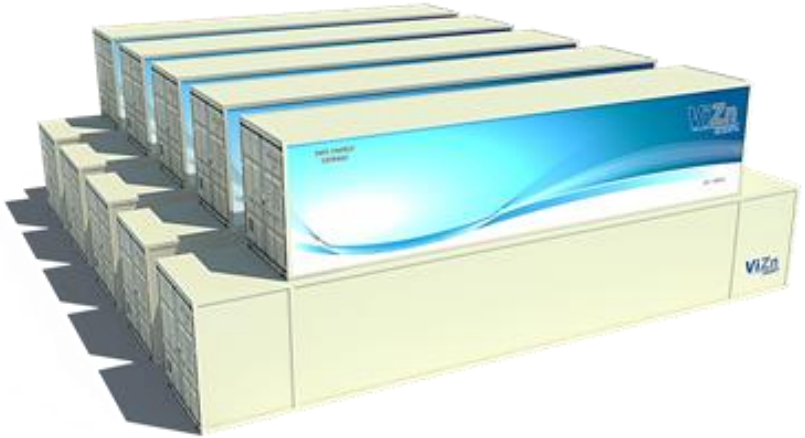
Both sides of meter

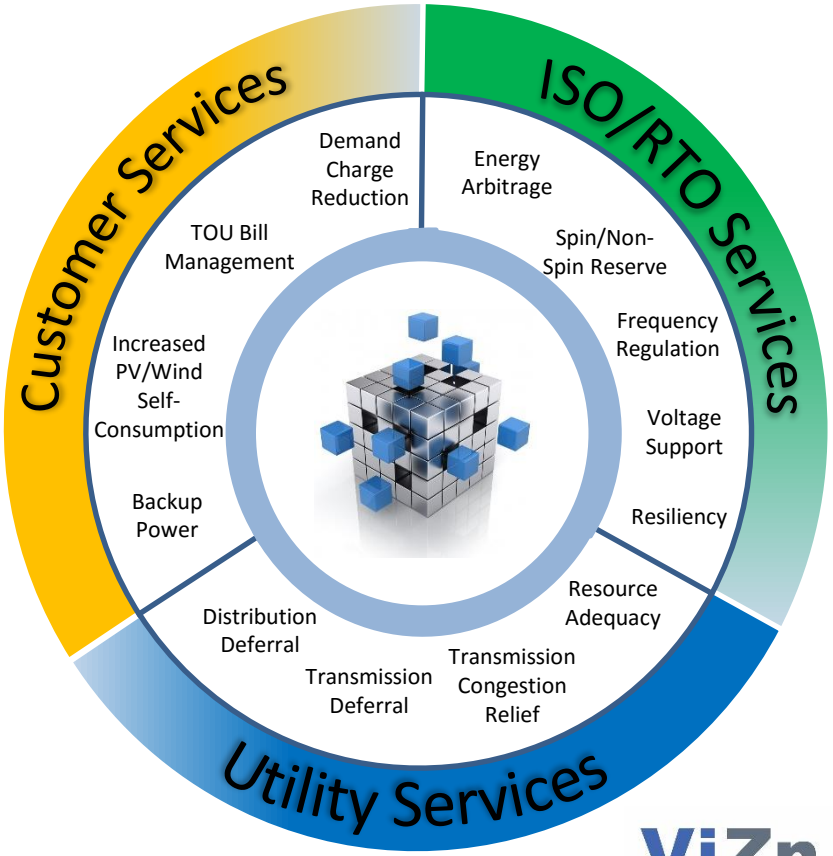
ViZn system capability

ViZn's Versatility Eliminates Stranded Asset Risk

Source: GTM May 2016

Multiple Services → Greater Returns & More Optionality

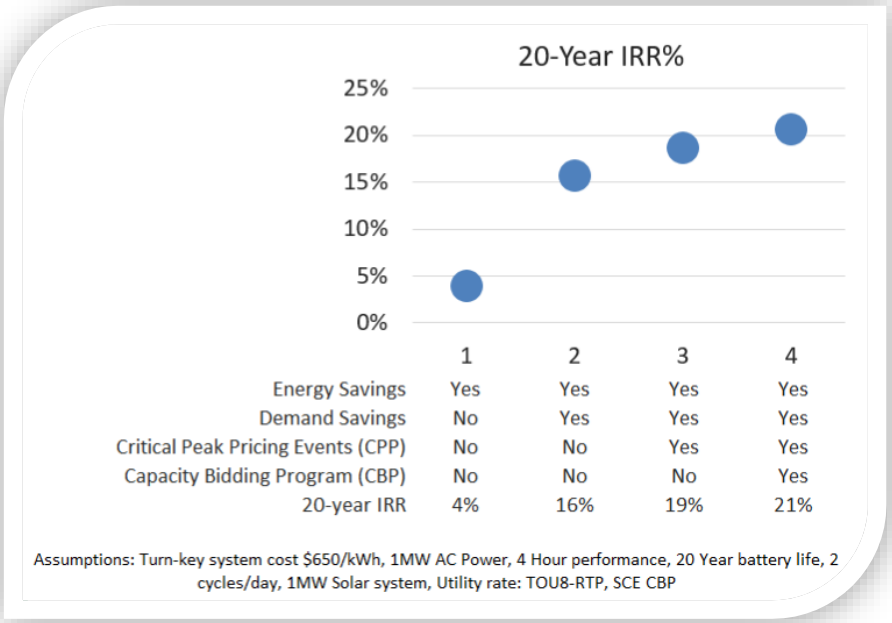




Scales From 200 kW to 100 MW

ViZn ENERGY

Use Case Versatility → Greatly Enhanced Economics



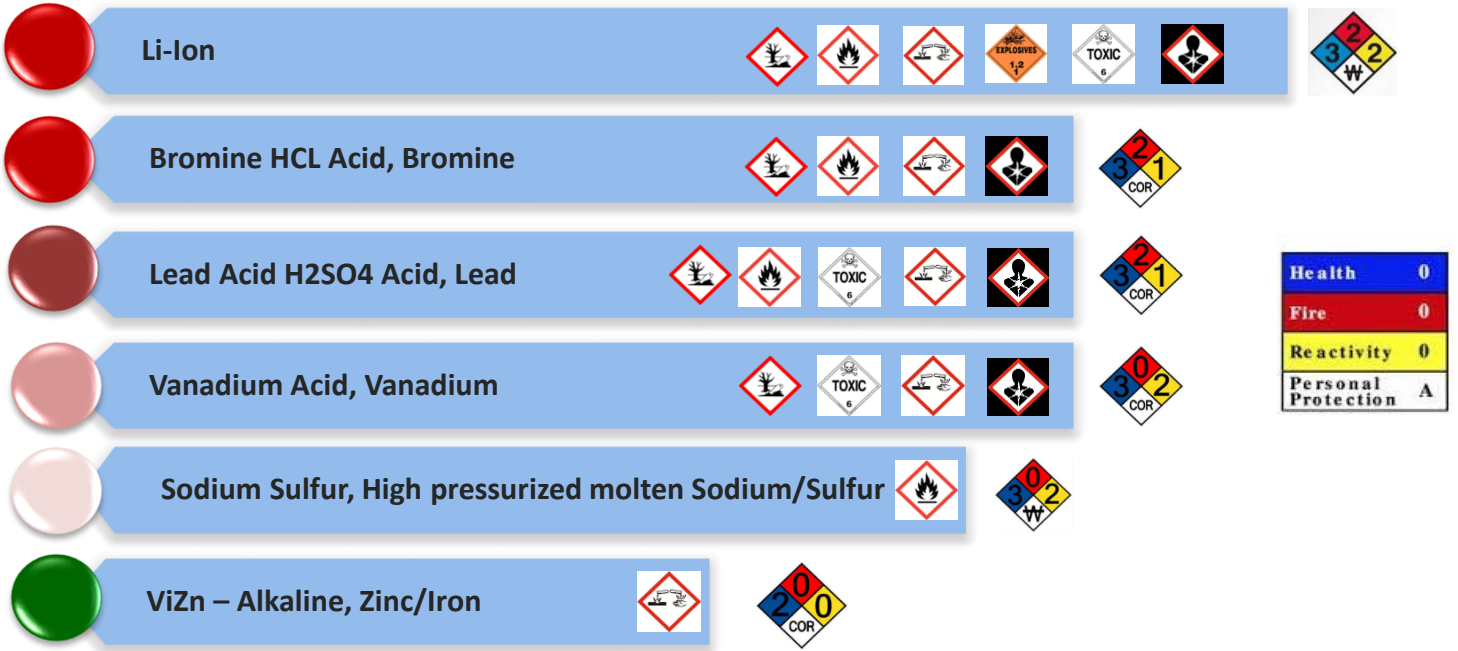
	1	2	3	4
Energy Savings	Yes	Yes	Yes	Yes
Demand Savings	No	Yes	Yes	Yes
Critical Peak Pricing Events (CPP)	No	No	Yes	Yes
Capacity Bidding Program (CBP)	No	No	No	Yes
20-year IRR	4%	16%	19%	21%

Assumptions: Turn-key system cost $650/kWh, 1MW AC Power, 4 Hour performance, 20 Year battery life, 2 cycles/day, 1MW Solar system, Utility rate: TOU8-RTP, SCE CBP

- Behind & front of meter income
- Two “Power” services
- Two “Energy” services
- Co-located with solar

ViZn ENERGY

Material Safety Comparisons

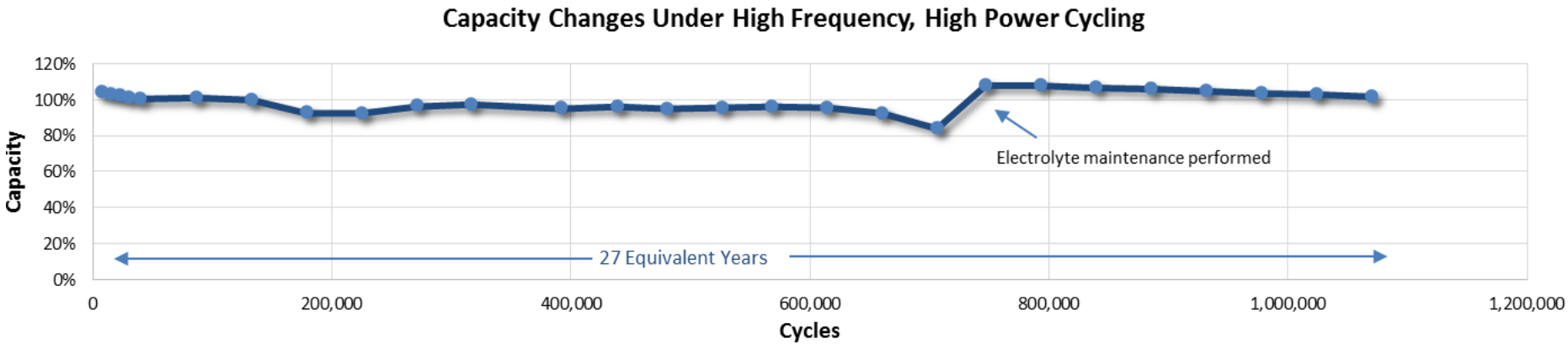


Simplified Siting, Permitting, Insurance, Transport and End of Life Recycling

Source: "NFPA 704: Standard System for the Identification of the Hazards of Materials for Emergency Response

ViZn ENERGY

Unprecedented Power Cycling From A Flow Battery

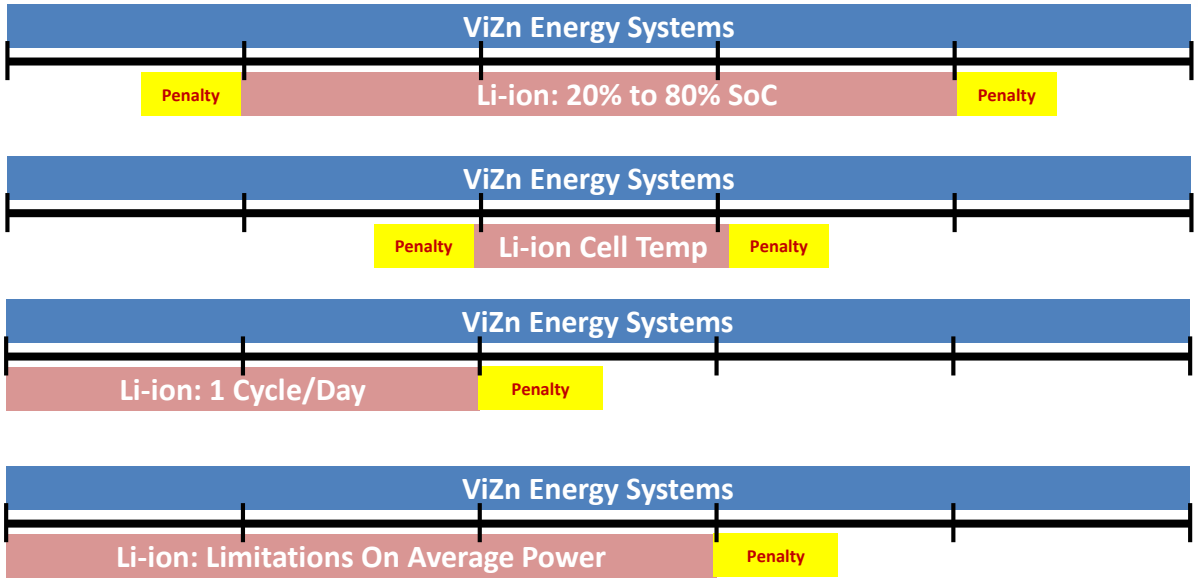


- Over 1 million high frequency power switching cycles → Over 27 years PJM cycling
- Tested across complete State of Charge from 10% to 50% to 90%
- ZERO cell replacements

ViZn ENERGY

Li-Ion Warranty Restrictions vs. ViZn Offering

Lithium Ion

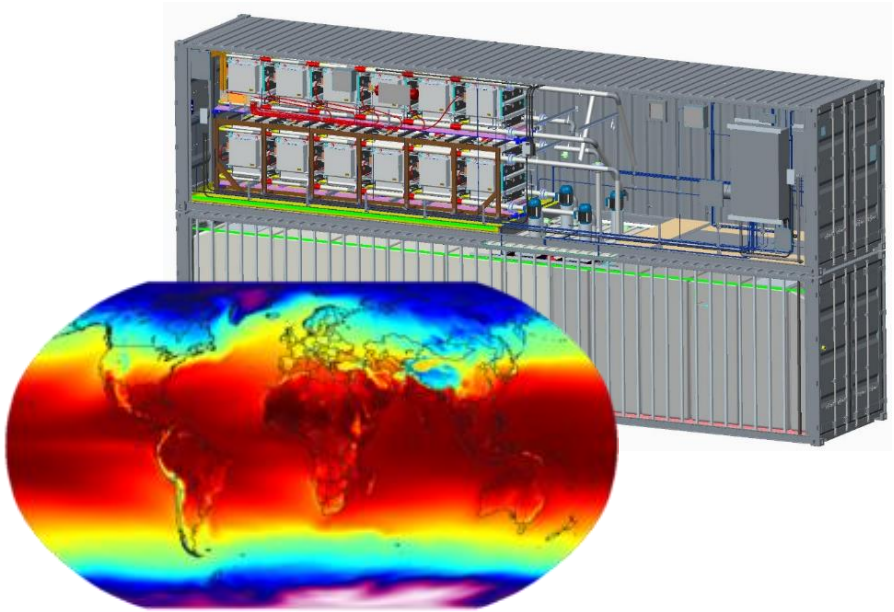


"85% of Li-Ion Battery Controls Code Is Dedicated To Protecting The Battery From Itself." – Controls Company Executive

"We monitor customer installation 24/7 to ensure warranty compliance." – Turnkey Solutions Provider Executive

Source: Tier 1 Li-Ion Warranty Documents ; ViZn from corporate

Storage Without Boundaries



ViZn Compared to Li-Ion:

- No parasitic HVAC load or expense
- No limits on duty cycle
- No limits on state of charge
- No expensive cell replacements
- Simple and easy O&M
- Works in all temperature ranges

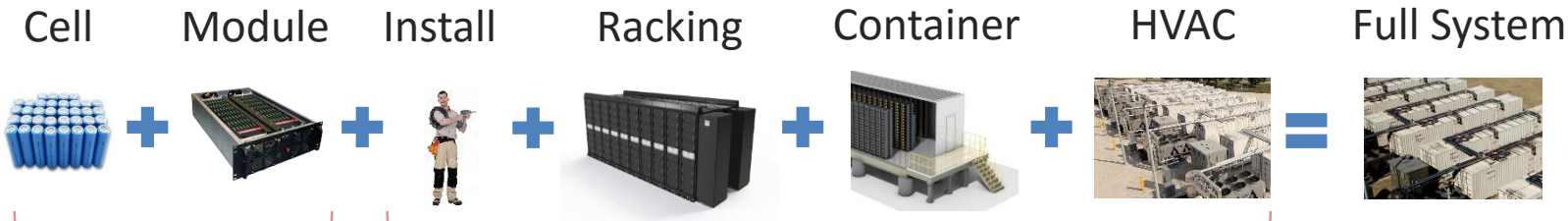
BLACK & VEATCH
Building a world of difference.

"Black & Veatch believes that the **ViZn batteries outperform systems with lithium based chemistries at high ambient temperature** due to the fact that the ViZn ESS requires a smaller HVAC load."

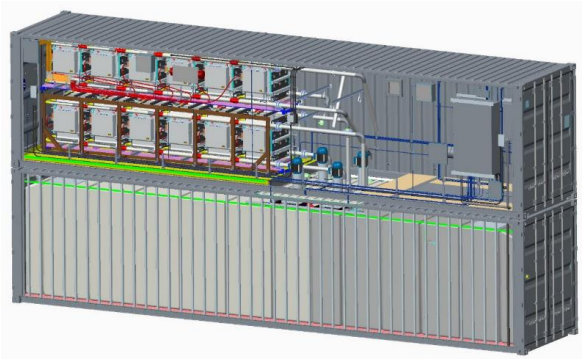
ViZn ENERGY

Scope Comparison: ViZn vs. Li-Ion

Tier 1 Li-Ion 3 Hours



ViZn Baseline 200 kW – 3 Hours



GS200 System

To discuss pricing apples to apples, Li-Ion quotes need to be increased by value = **$90/kWh**

ViZn ENERGY

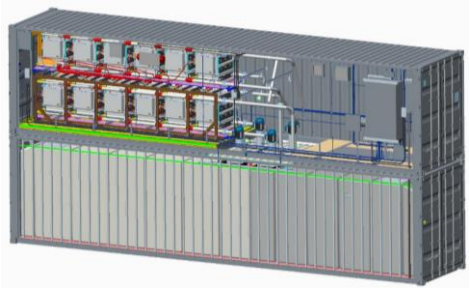
Performance Comparison: ViZn vs. Li-Ion

	Li-Ion	ViZn	
Power (MW)	1		
Hours	3		
SOC Access	80%	100%	1.25X
Cycles/Day	1	>2	>2X
Lifetime	<10	20	>2X

Li-Ion Performance Issues:

- Materials & labor replacement cost 2X in 20 years
- Performance degradation driven by duty cycle & temperature
- Efficiency losses driven by excessive HVAC loads
- Increased O&M expenses driven by excessive materials

ViZn Baseline 200 kW – 3 Hours



GS200 system:

For a the same IRR%, Li-Ion systems must be cheaper by a = **$100/kWh**

ViZn ENERGY

Comparing ViZn Energy to Other Existing Products

	ViZn	Li-Ion		Vanadium Flow	
20-Year System Life	✓	✗	7-10 Years	✓	New electrolyte every 7 years
Power + Energy Applications	✓	✗	Power Only	✗	Energy Only
Safe & Non-Toxic Chemistry	✓	✗	Fire, Toxic	✗	Acidic/Toxic
No Air Conditioning Loads	✓	✗	24/7 HVAC	✓	None
Access to 100% State of Charge	✓	✗	80%	✓	100%
Duty Cycle >2 Full Cycles/Day	✓	✗	<1/Day	✓	>2
Low Raw Material Cost	✓	✗	Supply constrained	✗	Vanadium = 40X Zn Cost
Simple End of Life Recycling	✓	✗	Hazmat	✗	Hazmat

ViZn ENERGY

PERFORMANCE

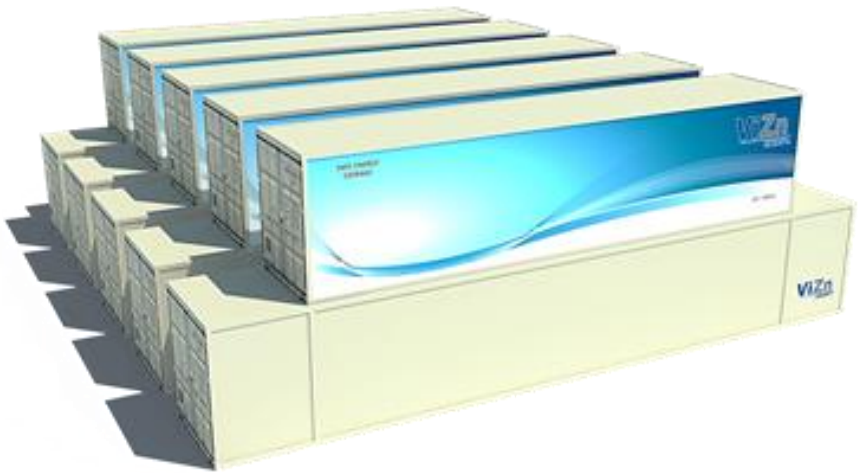
One unique battery for both long duration energy and high frequency power services. Easily stack multiple planned or unplanned services to maximize income streams.

SAFETY

Deploy near densely populated areas and high value grid infrastructure. Runs on a safe chemistry that is non-toxic, non-flammable, and non-explosive. Easy to recycle at end of life.

VALUE

Superior ROI due to multiple income streams, 20-year life, lower O&M expense and negligible degradation across 100% state of charge.



ViZn ENERGY

Thank You

Off-Balance Sheet Financing Simulation

Year	Current Utility Plan — Unpredictable & Unsteady Rates				Year	Off-Balance Sheet Financing Plan — 84- month Lease - Executing 72- month (Y6) Buyout Option						Off-taker receives SRECs, if applicable
	Electric Costs - 4.6142% Annual Inflation	Annual Solar Production (kWhs)	Annual Electric Expense	Cummulative Expense		Avoided Electric Rate Savings	Annual Solar Electric Production (kWhs)	Solar Energy Value Savings	Annual Lease Payment	Annual SREC Revenue	Cash In Hand Savings	SREC Value
1	$0.3838	91,189	-$34,997	-$34,997	1	$0.3838	91,189	$34,997	-$55,130	$0	-$20,133	$0
2	$0.4015	90,733	-$36,429	-$71,425.27	2	$0.4015	90,733	$36,429	-$55,130	$0	-$38,835	$0
3	$0.4200	90,279	-$37,919	-$109,344.12	3	$0.4200	90,279	$37,919	-$55,130	$0	-$56,046	$0
4	$0.4394	89,828	-$39,470	-$148,814.28	4	$0.4394	89,828	$39,470	-$55,130	$0	-$71,706	$0
5	$0.4597	89,379	-$41,085	-$189,899.22	5	$0.4597	89,379	$41,085	-$55,130	$0	-$85,752	$0
6	$0.4809	88,932	-$42,766	-$232,664.99	6	$0.4809	88,932	$42,766	-$147,860	$0	-$190,846	$0
7	$0.5031	88,487	-$44,515	-$277,180.37	7	$0.5031	88,487	$44,515	$0	$0	-$146,330	$0
8	$0.5263	88,045	-$46,337	-$323,516.93	8	$0.5263	88,045	$46,337	$0	$0	-$99,994	$0
9	$0.5506	87,605	-$48,232	-$371,749.17	9	$0.5506	87,605	$48,232	$0	$0	-$51,761	$0
10	$0.5760	87,167	-$50,205	-$421,954.66	10	$0.5760	87,167	$50,205	$0	$0	-$1,556	$0
11	$0.6025	86,731	-$52,259	-$474,214.13	**11**	**$0.6025**	**86,731**	**$52,259**	**$0**	**$0**	**$50,704**	$0
12	$0.6304	86,297	-$54,397	-$528,611.59	12	$0.6304	86,297	$54,397	$0	$0	$105,101	$0
13	$0.6594	85,866	-$56,623	-$585,234.53	13	$0.6594	85,866	$56,623	$0	$0	$161,724	$0
14	$0.6899	85,436	-$58,939	-$644,173.98	14	$0.6899	85,436	$58,939	$0	$0	$220,663	$0
15	$0.7217	85,009	-$61,351	-$705,524.72	15	$0.7217	85,009	$61,351	$0	$0	$282,014	$0
16	$0.7550	84,584	-$63,861	-$769,385.40	16	$0.7550	84,584	$63,861	$0		$345,875	
17	$0.7898	84,161	-$66,473	-$835,858.70	17	$0.7898	84,161	$66,473	$0		$412,348	
18	$0.8263	83,740	-$69,193	-$905,051.51	18	$0.8263	83,740	$69,193	$0		$481,541	
19	$0.8644	83,322	-$72,024	-$977,075.08	19	$0.8644	83,322	$72,024	$0		$553,564	
20	$0.9043	82,905	-$74,970	-$1,052,045.24	**20**	**$0.9043**	**82,905**	**$74,970**	**$0**		**$628,535**	
21	$0.9460	82,491	-$78,037	-$1,130,082.52	21	$0.9460	82,491	$78,037	$0		$706,572	
22	$0.9897	82,078	-$81,230	-$1,211,312.41	22	$0.9897	82,078	$81,230	$0		$787,802	
23	$1.0353	81,668	-$84,553	-$1,295,865.51	23	$1.0353	81,668	$84,553	$0		$872,355	
24	$1.0831	81,259	-$88,012	-$1,383,877.79	24	$1.0831	81,259	$88,012	$0		$960,367	
25	$1.1331	80,853	-$91,613	-$1,475,490.77	25	$1.1331	80,853	$91,613	$0		$1,051,980	
26	$1.1854	80,449	-$95,361	-$1,570,851.75	26	$1.1854	80,449	$95,361	$0		$1,147,341	
27	$1.2401	80,047	-$99,262	-$1,670,114.08	27	$1.2401	80,047	$99,262	$0		$1,246,603	
28	$1.2973	79,646	-$103,323	-$1,773,437.35	28	$1.2973	79,646	$103,323	$0		$1,349,927	
29	$1.3571	79,248	-$107,550	-$1,880,987.71	29	$1.3571	79,248	$107,550	$0		$1,457,477	
30	$1.4198	78,852	-$111,950	-$1,992,938.10	30	$1.4198	78,852	$111,950	$0		$1,569,427	
				Levelized $/kWh		$0.166		IRR	19.46%	ROI	371%	