



Energy Storage With Dollar \$en\$

4D ENERGETICS

Problem

- ❑ Today energy storage installation does not make dollar sense
- ❑ Only demonstration projects
- ❑ New set of operating conditions
 - ❑ Frequent cycling (>5 cycles per day)
 - ❑ Deep discharging
 - ❑ Fast charging
- ❑ New set of technical requirements
- ❑ Incremental improvement of existing technologies does not work

	Payback Time	Lifetime
Now	10 years	2 years
Need	2 years	10 years

**New
technologies
must be
developed**

Suggested Solution

- Develop energy storage technology specifically for stationary storage applications
 - Payback time 1 – 2 years and lifetime 10+ years
 - Scalable from kW-h to MW-h level
 - “Plug & play”
 - Safe to operate
 - No service required
 - Low cost and environmentally friendly recycling
- **“Market Pull” instead of “Technology Push” approach**

Technology

- New type of rechargeable battery
- Physical adsorption of organic ions at activated carbon electrodes
- Combination of key parameters
- Developed by US and Russian scientists
- Protected by US Patent
- Independently tested at Sandia National Laboratory (USA)
- Payback time 1 – 2 years with lifetime 10+ years
- Electricity “on demand” with 15 – 40% lower cost

Must have ALL, not just SOME

#	Parameter	Value	Units
1	Low cost of batteries and electronics	300	\$/kW-h
2	Long cycle lifetime	30,000	cycles
3	Deep discharging	90	%
4	Fast charging	10	min
5	High roundtrip efficiency	85	%
6	No service required	yes	-
7	Low cost abundant raw materials	yes	-
8	Low cost mass production	yes	-
9	“Green” recycling	yes	-

Status



Design

1 kW-h to
1 MW-h
product line

Ready for mass
production

May be produced
at existing Li-ion
battery factories

(no CAPEX)



Mass Production

Modern Li-ion
battery factory in
Europe is ready
to start mass
production for us

(OPEX only)



Partnership

Independent
testing

Production design

System
integration

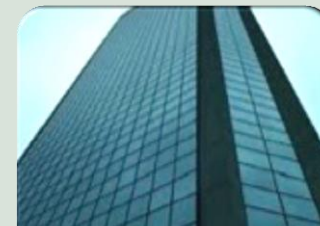
Sale channels



Customers

Letters of interest
for \$50M/year

Sufficient to keep
company fully
loaded
for first
2 – 3 years



Financing

Received
\$1.160M
VC seed investment

Rising
\$6M Round A
for OPEX to start mass
production and sales

Have
Two co-investors for
\$3.5M

In process
Skolkovo grant
application

Looking for
Leading investor with
\$2M

Thank you

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