Traction

Awards:
- AU VSI
- Novus Unmanned
- Sikorsky
  A Lockheed Martin Company

Programs:
- Bridging the Gap
- DARPA
  Powered by Ideas
- United States of America

Featured in:
- Wired
- Gizmag
- Forbes
- Discovery Channel
- Popular Mechanics
- Fox News
Company overview

“Dolby Labs” business model: LPI develops and licenses compact & efficient power solutions, based on a new thermodynamic cycle & rotary engine technology.

Innovative Team
3 PhDs

45 Patents
(issued + pending)

$9M in DoD R&D Contracts

10x smaller

2x more efficient

Operational Prototype
TRL 6

Solutions Partners: Multiple

70% EBITDA Licensing Model

The “Old Way”  The “New Way”
Intro / Team

Dr. Alexander Shkolnik – Co-Founder & CEO
- PhD in Computer Science from MIT
- Technical focus on leading teams in modeling dynamic systems, optimization and controls

Dr. Nikolay Shkolnik – Co-Founder & CTO
- PhD in Physics from UConn
- Former Clean Energy Program Director, GEN3
- Motorola award for Creativity
- > 25 patents: engines, fuel cells, super caps, etc.
- TRIZ expert

Per Suneby, VP of Corporate Development
- MBA, Harvard; BASc Electrical Engineering, U. British Columbia
- Seasoned tech & clean tech startup executive
- NE Clean Energy Fellow

Independent Board Director
Dr. Tony Tether, Retired Director of DARPA; Oversaw $25B while at DARPA.

Team of 16 engineers; Network of advisors and consultants
POWER & ENERGY are limiting today’s vehicles {ground / sea / air}

Gasoline engines are inefficient

Diesel engines are heavy

Electric: 1000 lb. battery = 20 lb. fuel (!)

↓ Range
↓ Capacity
↑ Cost
↑ CO₂
Power Reimagined: Physics tells us – we can do better!

Advanced Thermodynamic Cycle

- 2x more efficient
- 2x quieter

New Rotary Engine Architecture

- 10x smaller & lighter
- 1000x less vibration
Technology: it’s not a Wankel!

Wankel Engine
- Poor combustion (long flat chamber)
- Poor sealing (apex seal corners)
- Poor lubrication (seals hard to lube)
  → Bad efficiency, durability, lubrication, emissions…

LPI Engine
- High compression ratio
- Constant-volume combustion
- Over-expansion
- Direct lubrication of seals
  → efficient, durable, good emissions
Extensive IP portfolio

- Comprehensive patent coverage
- 45 patents issued / pending (worldwide/PCT)
- Defensible & extensible
- IP strategy supports licensing model

HEHC Thermodynamic Cycle

Engine Architectures (e.g., LPI-X Rotary)

Enabling Technologies – e.g., sealing, cooling, controls, other
Key enabling technology for vehicle electrification

Today’s EV: big, heavy, expensive battery
Key enabling technology for vehicle electrification

HEHC ReV: Increased range, small, cheap battery
Recharge in 2 minutes
Traction with beachhead customer: U.S. DoD

$9M in government contracts

**Army:** 2kw hybrid electric power supply for M777 Howitzer.

**Sub-Contractors:**

**DARPA:** 40 HP high efficiency compact heavy fuel X-engine development contract. For UAVs and/or generators.
LPI-X Engines: Two initial application pathways

**LPI-X Platform**
- **2018**
  - 3-5 HP (70cc) X-Mini

**Military**
- **2018-2020**
  - 40 HP (750cc) X4 concept

**Commercial**
- **2020+**
  - Micro-CHP
  - LPI-X Platform
    - Military
    - Commercial
"Dolby Labs" Business Model: Engineering and Licensing

**Engineering Services**
- Engine design & testing for OEMs and mfg partners
- Productization & industrialization engineering support
- Post-sales technical support

**Government Contracts**
- DoD, DoE engine and energy conversion technology development
- System demonstration projects (propulsion, power gen., etc.)

**License/Royalties: Upfront & Recurring**
- Technology, engine design, and manufacturing licenses
- LPI is global IP and learning “clearinghouse”

**Engine Product Sales**
- Low volume pilot production or niche market supply
- Contract manufacturers managed by LPI
$1M Wefunder raise – use of funds

- Technology and platform development – endurance and other testing; initial next generation platform R&D

- Non-DoD funded expenditures for business development and commercial readiness – primary focus on signing 1-2 strategic partners (OEMs, engine manufacturers)

- Help extend company cash runway for $10M Series A raise in the next 6 – 9 months
Summary

Game Changing
- New thermodynamic cycle, rotary engine
- Up to 2x more efficient, up to 10x smaller
- 45 patents issued / pending

Customer Traction
- Beachhead customer: U.S. DoD {Army, DARPA}
- $9M in R&D contracts, 2016-2019
- Subcontractors: General Atomics, HDT
- Army to field test 2kW generator Q1 2019
- Multiple partnering engagements underway

Ramp Up
- Leveraging 10 years of prior R&D
- Raising $10M Series A – next 6 – 9 months
- Business model: licensing, engineering services
- Multiple exits possible in 3-5 years
Power Reimagined