



THIS IS DAYLIGHT SAVINGS.

Harvest more energy
from more places.

For Less.

Investor Presentation
March 2017

Forward Looking Statements

This presentation may contain forward-looking information about NanoFlex Power Corporation, a Florida corporation and its wholly-owned subsidiary, Global Photonic Energy Corporation, a Pennsylvania corporation (collectively, the “Company”).

All statements other than statements of historical facts included herein regarding the Company’s financial position, business strategy, growth strategy and other plans and objectives for future operations, are forward-looking statements. The words “anticipate,” “believe,” “estimate,” “expect,” “intend,” “plan” and similar expressions that may tend to suggest a future event or outcome are not guarantees of performance and are inherently subject to numerous risks and uncertainties, many of which cannot be predicted or anticipated.

Future events and actual results, financial or otherwise, could differ materially from those contained herein. Potential investors are cautioned that any such forward-looking statements are not guarantees of future performance and involve significant risks and uncertainties, and that actual results may differ materially from those projected in the forward-looking statements as a result of various factors, including without limitation, the risks set forth "Risk Factors" contained in the Company’s Annual Reports on Form10-K. Potential investors are urged to carefully consider all risk-factors highlighted in the private placement memorandum. All forward-looking statements are expressly qualified in their entirety by the foregoing cautionary statement.



This is not a solicitation to sell nor offer to buy.



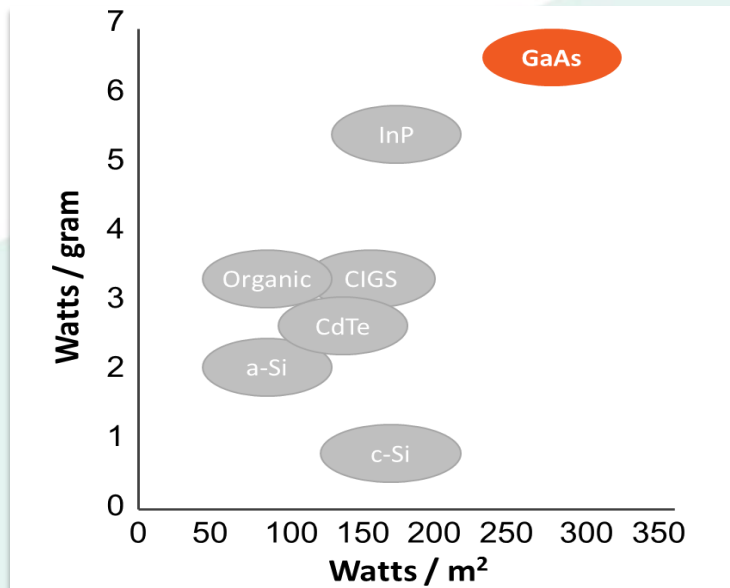
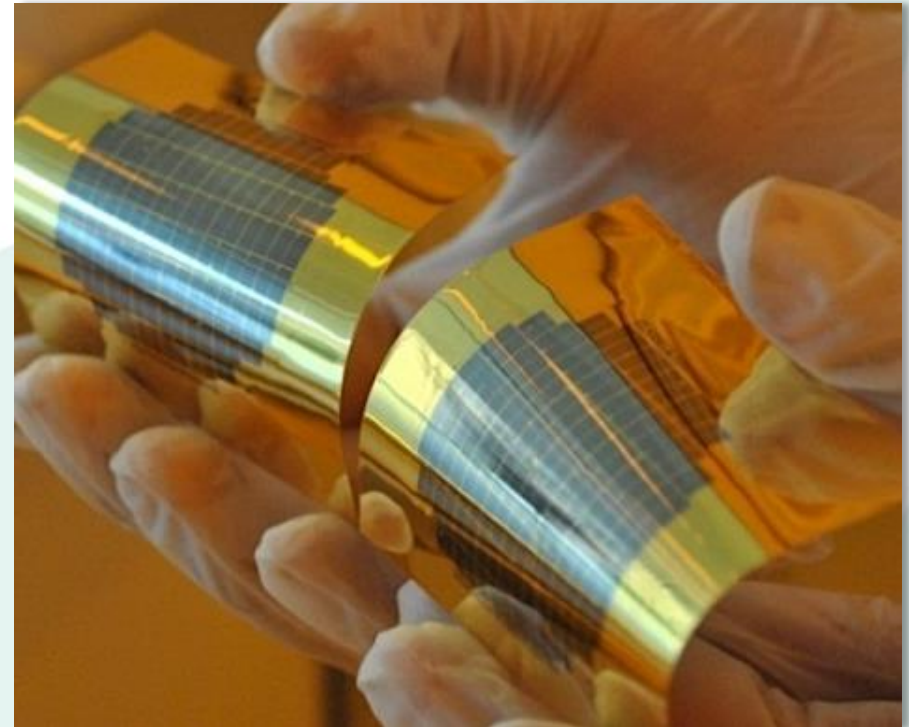
Investment Highlights



- Current solar technologies limit solar output and applications
- NanoFlex-enabled solar solutions dramatically outperform currently commercialized thin films – enabling new applications & unlocking markets
- Target priorities: military & portable power applications, high density solar farms and multi-story/space-constrained rooftops
- Commercialization of NanoFlex technologies via joint development with manufacturing partner SolAero Technologies
- Currently pursuing multiple sponsored development projects to accelerate commercialization & generate near-term revenue
- Capital-efficient business model via fab-less manufacturing & licensing with industry partners accelerates commercialization & mitigates risk
- Additional growth opportunity via extensive NanoFlex IP in Organic Photovoltaics (OPV) with semi-transparent films for windows/glass

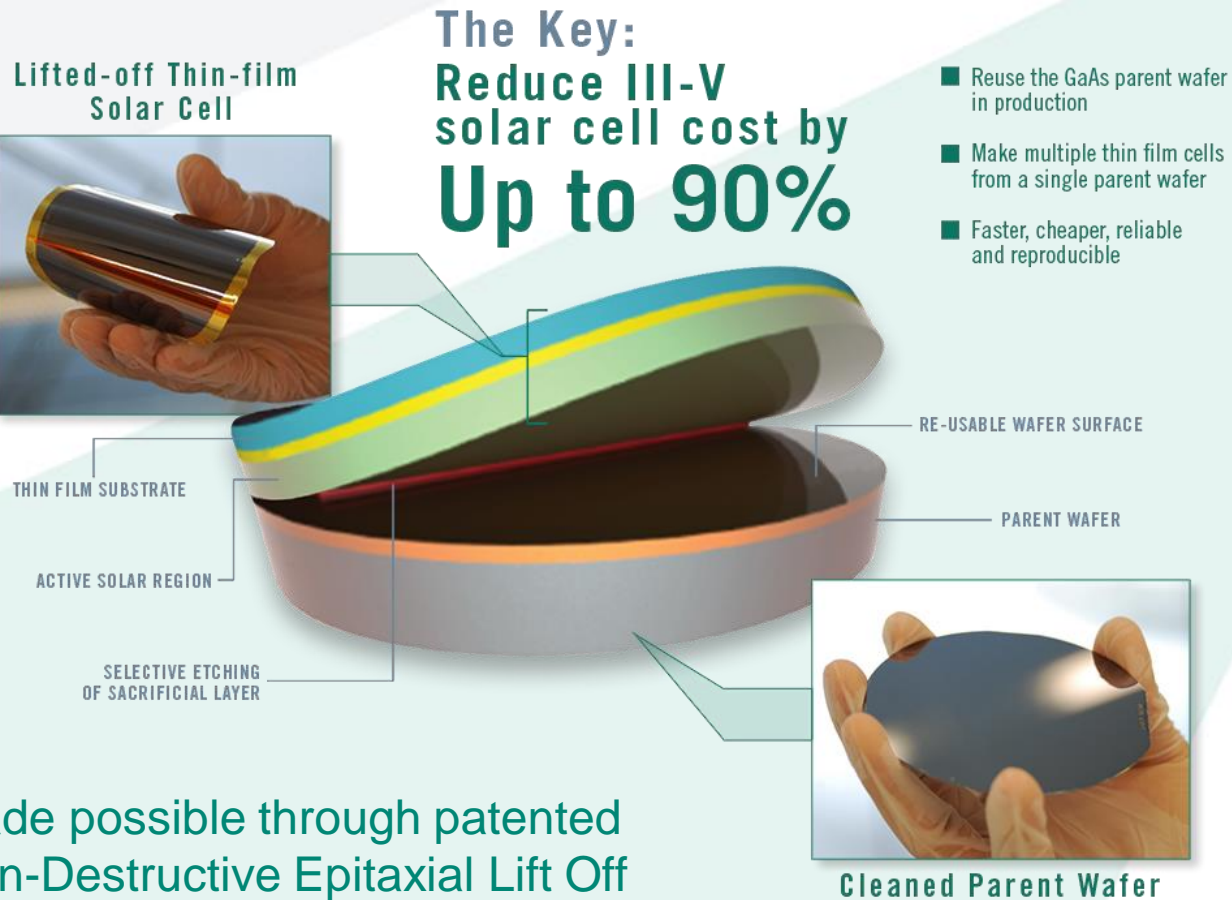
Opening New Markets to Solar Power

NanoFlex technology makes the highest efficiency III-V space-program solar cells cost-competitive, thin, and flexible for terrestrial applications



Source: University of Michigan, NanoFlex Power

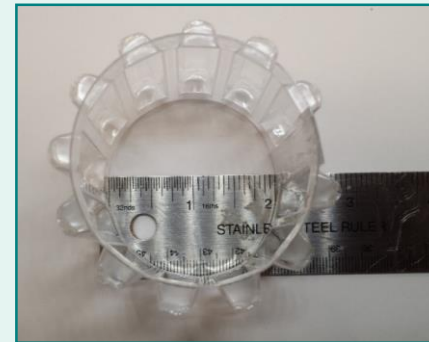
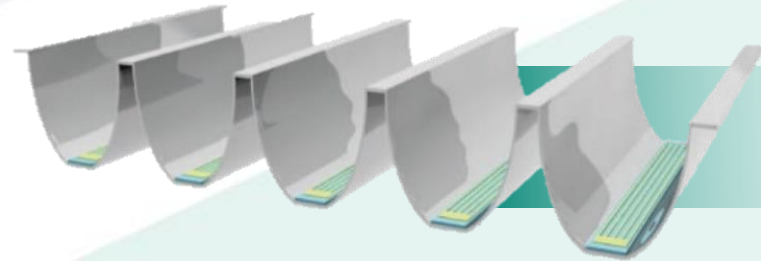
Patented Wafer Reuse Technology Creates High Efficiency Solar Thin Films at Breakthrough Prices



Made possible through patented Non-Destructive Epitaxial Lift Off

More Savings: Mini-Concentrators

Enabling energy harvesting in diffuse light further reduces cost by using a smaller solar cell in the module



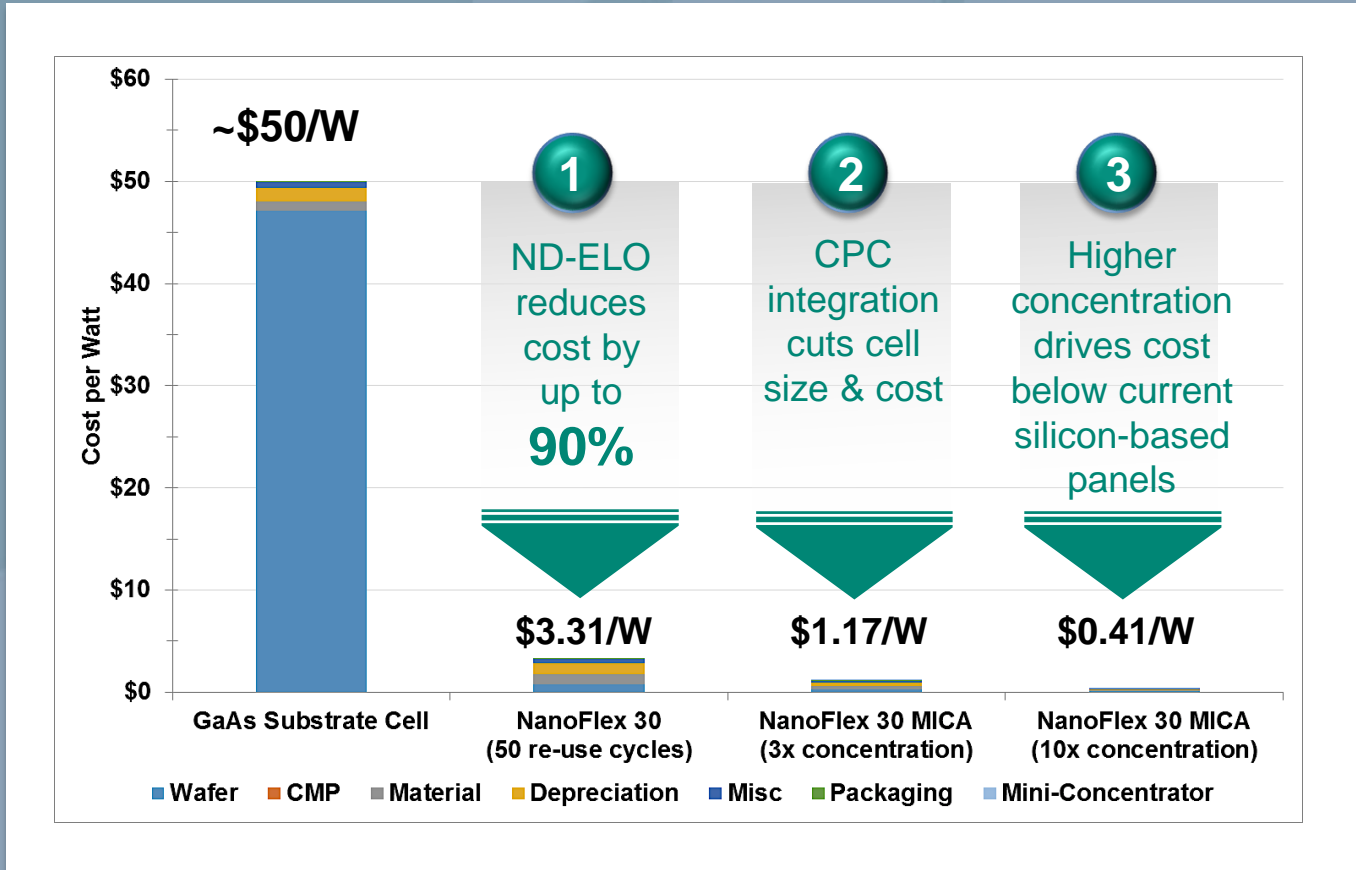
More Energy from a Smaller Solar Cell:

- Wide acceptance angle enables energy harvesting in diffuse light
- Dramatically lowers cost by decreasing required solar cell size by up to 90%
- Maintains lightweight and flexible form factor

Images from top:
Schematic cross section of a CPC integrated with solar cell strips;
Prototype CPC array bent around a 2-inch radius;
Prototype of 12 CPCs integrated with 30 mm x 2 mm solar cell strips

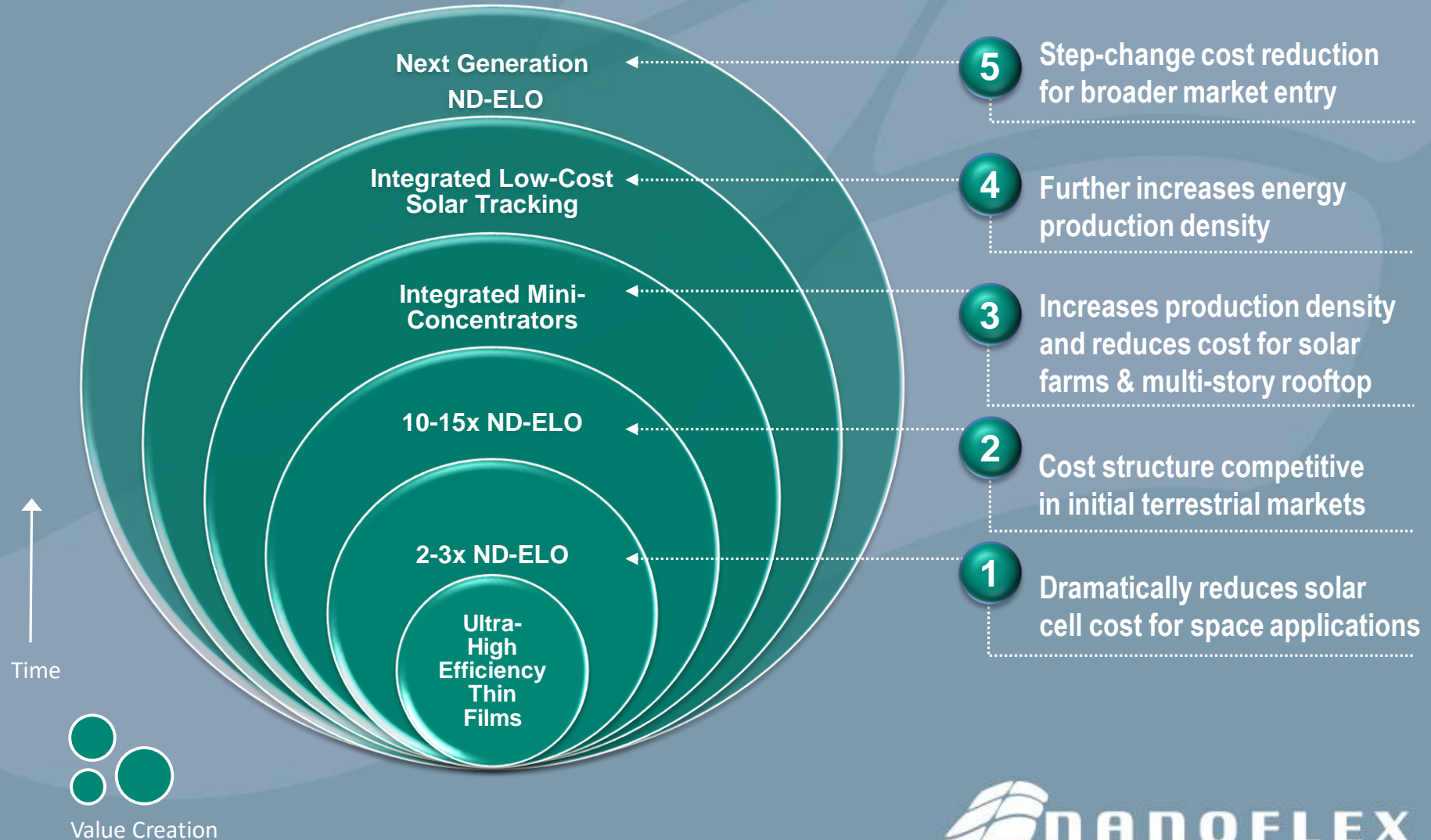
Wafer Reuse & Mini-Concentrators

Break the Cost Curve for High Efficiency Solar Thin Films



Notes: Preliminary directional pricing projections reflect estimated dual-junction III-V solar cell costs in the 2020 timeframe at production scale. Source: Price projections from National Renewable Energy Laboratory, NanoFlex Power, University of Michigan.

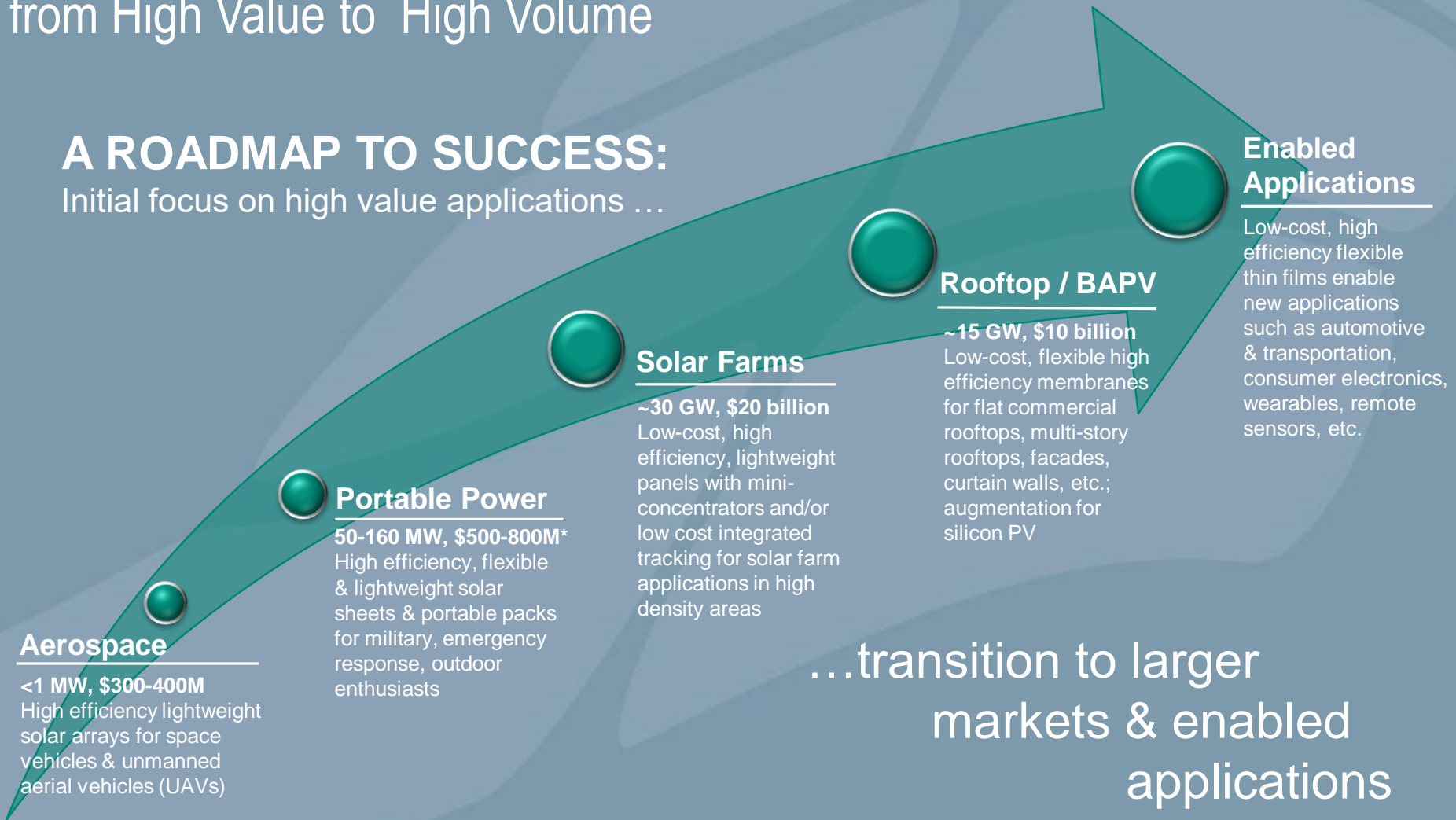
NanoFlex Technology Evolution, Value Creation & Market Expansion



Sustainable Market Development Strategy from High Value to High Volume

A ROADMAP TO SUCCESS:

Initial focus on high value applications ...



Sources: Aerospace market data from Emcore SEC filings & Spectrolab media sources; *Field & Mobile reflect NanoFlex estimates of potential for specialty markets; BIPV estimates from BCC Research (c 2019); Solar Farm and Rooftop/BAPV volume estimates from SolarPower Europe, NanoFlex est. 1/2 of rooftop market is commercial; pricing assumptions from DOE Sunshot Targets

Example:

Portable Power Markets & Specialty Field Applications

Soldier Power Mission



Develop, acquire and field expeditionary, lightweight Soldier power solutions intended for the most austere operating environments and designed to reduce Soldier load and increase lethality.

Lighten the Load & Bring Power Forward

One out of eight U.S. casualties during Operation Iraqi Freedom was sustained by a soldier protecting a fuel supply convoy. Cumulatively, over the past decade, more than 3,300 U.S. troops have died during attacks on fuel convoys.¹

U.S. military operations in Afghanistan have paid the equivalent of \$400 per gallon of fossil fuel when security, transportation, and mortality costs are tallied up. The largest consumer of fuels on the battlefield is electricity generation.²

Why NanoFlex is Better:

- Highest power per area
- Highest power per weight
- Flexible
- Lightweight
- Rugged
- Harvest diffuse light
- High thermal tolerance
- Cost competitive
- Made in the USA

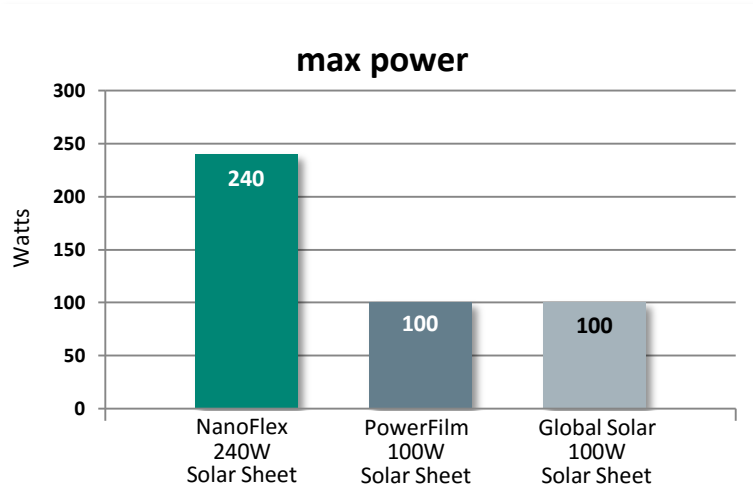
Notes: ¹ Solar Energies Industries Association & PV Magazine (May 2013) ; ² Navigant Consulting/Pike Research (4Q 2012); - Claims based on preliminary specifications

Example:

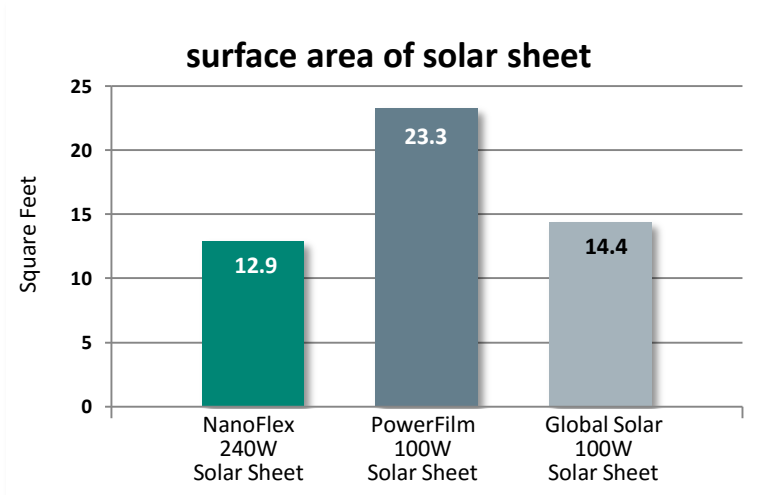
Portable Power Markets & Specialty Field Applications

Ultra-high efficiency, lightweight, and flexible thin films deliver 2.4x more power in a 10% smaller footprint and less than half the folded volume

2.4x more power



10% smaller footprint



NanoFlex Ultra-High Efficiency Flexible Solar Sheet vs. Competing Military Products

Notes: NanoFlex product estimates for 240W solar sheet by NanoFlex & GreenPath Technologies for production-level sheet assembly of NanoFlex solar cells & metrics; PowerFilm FM16-6000 100W solar sheet; Global Solar P3-100W 100W solar sheet



Example:

Solar Farms can make Sense in High Density Locations



NanoFlex overcomes disadvantages in high density areas, including:

- High real estate costs
- High installation & balance of systems costs
- Suboptimal lighting conditions

Why NanoFlex is Better:

- Increase energy density
- Reduce real estate footprint
- Reduce balance of systems
- Harvest diffuse light
- Optimize interconnection
- Lightweight & rugged
- High thermal tolerance
- Cost competitive
- Made in the USA

Notes: ¹ Claims based on preliminary specifications

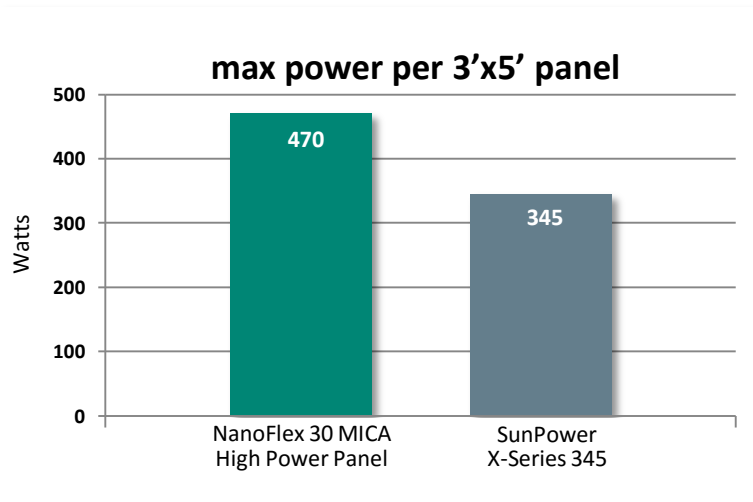
Source: Southern Sky Renewable Energy, 5.6MW solar farm on 15.5 acres

Example:

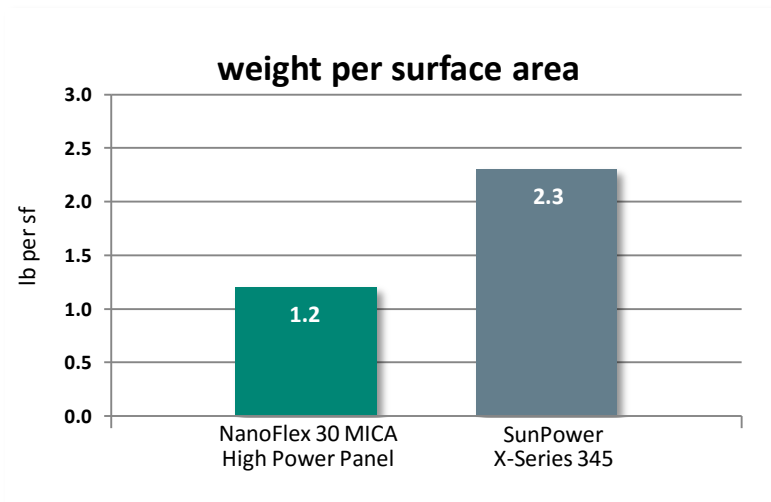
Solar Farms can make Sense in High Density Locations

Ultra-high efficiency, lightweight panels outperform current best-in-class solutions, yielding substantial balance of system cost reductions

36% more power per panel



48% lighter weight



NanoFlex 30 MICA Ultra-High Efficiency Panels vs. Current Best-in-Class Panels

Notes: Estimates by NanoFlex & GreenPath Technologies for production-level assembly of NanoFlex solar cells & metrics reflect energy production density (kW-hr/m²) associated with integrated mini-concentrators; SunPower X-Series X21-345 Panel



Example: Enabling Net Zero Energy Buildings

Global BIPV installations expected to increase from 1.6 GW in 2014 to more than 2.6 GW in 2019

- BCC Research



Source (L to R): CoolFlatRoof.com; PV Curtain Wall by BISEM at Guardian Industries Science and Technology Center in Detroit, Michigan

Big Bold Goals – Adopted 2007-08 by Energy, Utilities Commissions

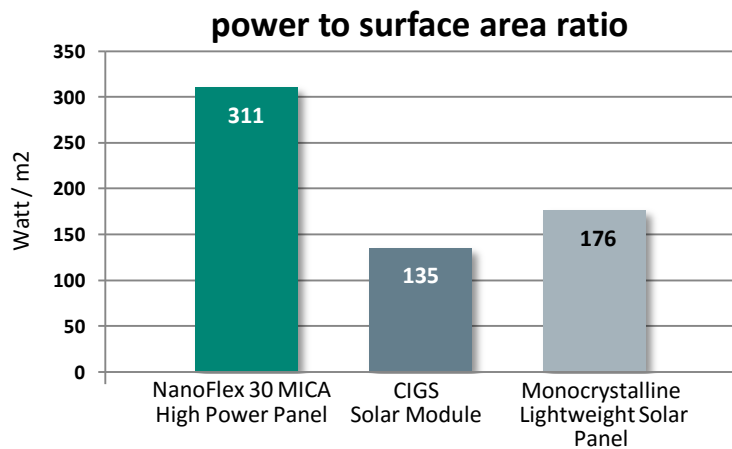
Source: California Public Utilities Commission

- All new residential construction in California will be zero net energy by 2020
- All new commercial construction in California will be zero net energy by 2030
- 50% of existing commercial buildings will be retrofit to ZNE by 2030

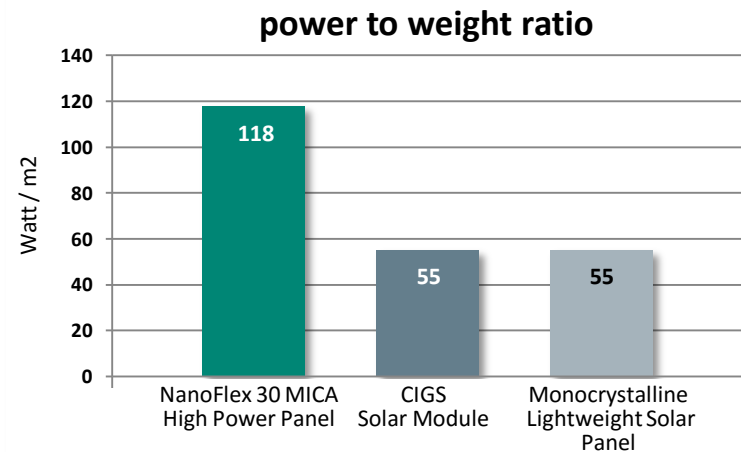
Example: Enabling Net Zero Energy Buildings

Ultra-high efficiency, lightweight panels dramatically outperform in multi-story rooftop and BAPV markets, enabling Net Zero Energy Buildings

2.3x more power per m²



2.3x more power per kg



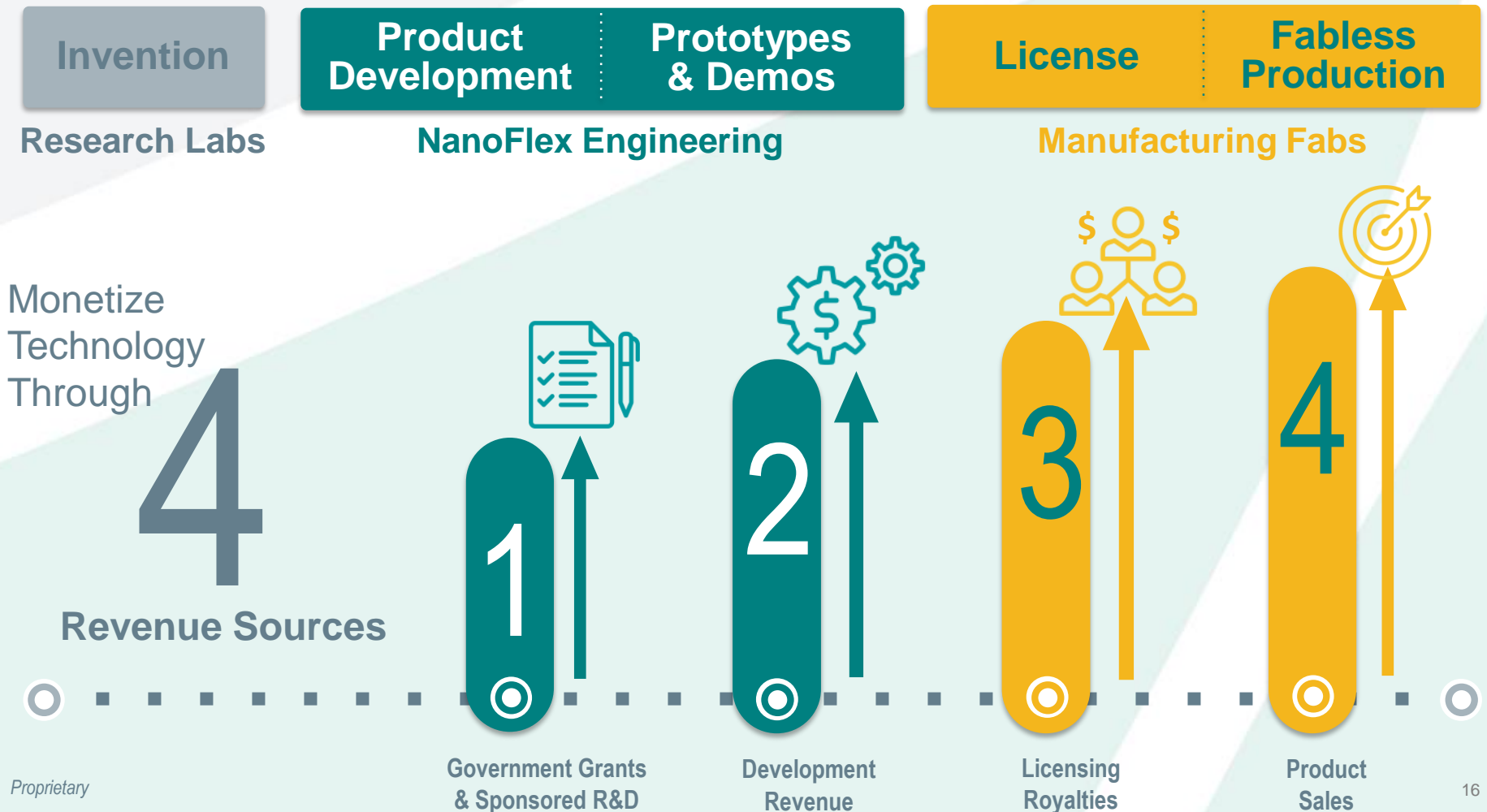
**NanoFlex 30 MICA Ultra-High Efficiency Panels
vs. Competing Lightweight Solar Products**

Notes: Estimates by NanoFlex & GreenPath Technologies for production-level assembly of NanoFlex solar cells & metrics reflect energy production density (kW-hr/m²) associated with integrated mini-concentrators; CIGS from MiaSole FLEX-01W specifications; Monocrystalline from Renogy RNG-100DB specification (100W)



Commercialization & Monetization Roadmap

Capital-efficient business model based on joint development, licensing, and product sales via fables manufacturing with major industry partners



Exclusive Worldwide Rights to Key Patents

Exclusive rights to an extensive portfolio of issued/pending patents covering all aspects of our breakthrough technologies

Materials

Materials made from common elements at very low costs that assemble into desired structures

- Fullerene acceptors
- Blocking layers
- New materials for visible & infrared sensitivity



Architectures

Proprietary device architectures utilize material-specific characteristics to enable high power output and long life

- Protective & sacrificial layering of III-V solar cell growth
- Mini-compound parabolic arrays
- Integrated tracking with Kirigami
- Monolithically integrated micro-inverters
- Multi-junction organic solar cell
- Mixed layer & nanocrystalline cells
- Transparent/semi-transparent cells

Processes

Proprietary processes for ultra-low-cost fabrication of high-performance materials and architectures

- High speed non-destructive epitaxial lift-off
- Cold weld bonding
- Roll-to-roll mini-concentrator array processing
- Scalable growth technologies



License Agreement Signed with High Performance PV Leader, SolAero Technologies



Validates NanoFlex's technology & begins commercialization of cost-competitive high efficiency thin films new, growing markets.

- SolAero is a world leader in III-V solar cells, powering >170 space missions
- Joint Development focused on commercializing NanoFlex's cost-reduction technology
- SolAero engineers implementing NanoFlex technology in their manufacturing process & in production-configuration solar cells
- Signed license agreement for space and near-space applications
- SolAero supplying NanoFlex with cells for customer demos & new market development
- NanoFlex & SolAero commercialization of low-cost GaAs thin films for terrestrial applications like mobile power, solar farms, and rooftop/BAPV



The NanoFlex Team

Management Team		
Dean L. Ledger	<i>Co-Founder, CEO, Director</i>	35 years experience financing & developing technology opportunities; prev Director & EVP at Universal Display Corporation (Nasdaq: OLED)
J. Norman Allen	<i>Chief Technology Officer</i>	35 years in battery, semiconductor, green energy ventures; prev President of New Products & Tech at Duracell; Founder/CEO of PowerSmart Electronics; Founder/COO of Ultracell; Founder/CEO of Solidia Technologies; Greentech Advisor at Kleiner Perkins; Operating Partner at Potomac Energy Fund
Mark Tobin	<i>Executive Vice President & Chief Financial Officer</i>	19 years experience with advanced technology development within industry and the capital markets; prev Director of Research at Roth Capital Partners; Science Applications International Corporation; U.S. Air Force officer
Research Team		
Dr. Stephen R. Forrest	<i>University of Michigan</i>	Professor of Electrical Engineering, Materials Science & Engineering, & Physics; track record of delivering commercially successful companies; Director at Applied Materials (Nasdaq: AMAT)
Dr. Mark E. Thompson	<i>University of Southern California</i>	Professor of Chemistry, Chemical Engineering, & Materials Science; instrumental in discovery & development of OLED technology

Key Milestones and Activities

- Expand engineering team to support technology transfer
- Receive sponsored funding to advance commercialization efforts through prototype development, testing, and manufacturing readiness
- Fabricate prototypes and conduct demonstration projects
- Advance process/technology to higher efficiency product configurations
- Sign license agreement and supply agreement with SolAero Technologies
- Reduce costs and adhere to strict spending discipline with a focus on supporting commercialization and revenue generation
- Initiate professional marketing campaign and accelerate business development efforts
- Secure development partner(s) to support commercialization of OPV

Investment Highlights



- Solar power has only scratched the surface of its total opportunity
- NanoFlex-enabled solutions can dramatically outperform current thin films, enabling new applications & unlocking markets
- Initially targeting military & portable power applications, followed by high density solar farms and multi-story/space-constrained rooftops
- Commercialization of NanoFlex's cost reduction technologies ongoing via joint development with manufacturing partner SolAero Technologies
- Currently pursuing multiple sponsored development projects to accelerate commercialization & generate near-term revenue
- Capital efficient business model via fab-less manufacturing & licensing with industry partners accelerates commercialization & mitigates risk
- Extensive additional IP in Organic Photovoltaics (OPV) presents a future growth opportunity with semi-transparent solar PV films for windows/glass



THANK YOU

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