



A Connected World, Unplugged™

Backgrounder

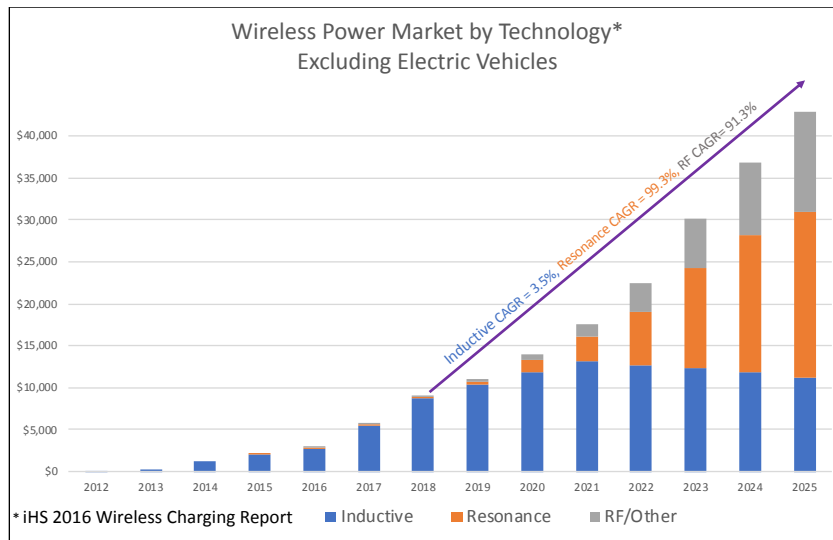
Company:

Founded in April 2016, PowerSphyr delivers a full range of universal wireless charging solutions. They deliver solutions that support power ranging from 500 watts down to low milliwatts. The solutions provide backward compatibility for existing wireless charge enabled smart devices (ex. Apple 8 and X; Samsung 8 and 9), as well as supporting next generation magnetic resonant (MR) charging which delivers faster charging, spatial freedom, and simultaneous charging of multiple devices with a range of power requirements.

The team PowerSphyr has assembled has been developing cutting edge wireless charging solutions for more than 10 years. The PowerSphyr architectural platform provides cross-compatibility with the 3 primary standards for wireless charging: Magnetic Resonant; Magnetic Induction (or Qi); and RF Harvesting (trickle charging).

The Market:

Current addressable market for inductive, resonance and RF (radio frequency) is market is \$2.3b with a CAGR of 23%.



The three primary markets for wireless charging by revenue are automotive, industrial and consumer.

**Automotive market:** PowerSphyr has a direct partnership with Faurecia (6<sup>th</sup> largest global automotive supplier) to deliver the automobile ‘cockpit of the



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future.' Solutions such as multi-mode center console charging pads, and integrated IoT sensors, are being delivered directly to automotive OEMs.

**Industrial market:** PowerSphyr is working directly with OEMs to design, develop and deliver wireless charging to high powered devices such as 2-way radios, flashlights, and power tools.

**Consumer market:** PowerSphyr is delivering, direct-to-consumer, their SkyCurrent III solution through a partnership with Kevin Harrington Enterprises (original 'Shark' on Shark Tank). to deliver a direct-to-consumer solution.

**The Technology:** PowerSphyr is the only company that delivers the 3 primary standards for wireless charging today.



### Magnetic Resonant

- Better spatial freedom
- Higher power delivery
- Better thermal management and friendly to metals (coins, keys, others)
- Supports multiple devices with various powers



### Magnetic Inductive

- Relatively easy to implement
- Requires very close proximity between transmitter and receiver
- Requires alignment between 1 transmitter and 1 receiver
- Limitation in spatial freedom, power delivery, and metal objects become very hot



### RF Energy Harvesting

- Complete spatial freedom and can work up to 40ft
- Does not need line of sight
- Can be used to harvest existing frequencies
- Regulatory standards limit power transfer



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### Solutions:

#### Automotive:

Dual mode wireless charging center console that supports multiple devices and both Magnetic Resonant (MR) and Qi charging modes:



Dual Mode Wireless Charging Center Console

RF-Harvesting for IoT – LIDAR sensors provides optimal spatial freedom and support trickle charging for distances up to 12 ft.



RF-Harvesting for IoT – LIDAR sensors

#### Industrial:

High-performance wireless charging mat leveraging Magnetic Resonance (MR) fast charge capability. The solution is capable of simultaneously charging multiple devices across varying charging and power requirements from 500 Watts down to low milliwatts.



MR high powered wireless charging mat

RF to DC secure charging to provide constant trickle charge capabilities with optimal spatial freedom of up to 12ft. The solution is capable of charging multiple devices such as key boards and monitors while harvesting existing radio frequencies.



RF to DC Secure Charging



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### Consumer:

PowerSphyr's SkyCurrent III is the ultimate wireless charging platform delivering its dual-mode wireless charging pad and a suite of 'fast charging' battery cases. The charging pad delivers Airfuel's 'fast charging' magnetic resonant (MR) and supports Wireless Charging Consortium's Qi technology which is embedded in devices such as the Apple X and Samsung 9. Slip on PowerSphyr's battery case, shown below, to 'fast charge' up to 8 devices simultaneous at up to 12 Watts, or charge up to 3 Galaxy or iPhones at up to 7.5 Watts. The SkyCurrent III delivers the ultimate in x- and y-axis flexibility. Drop your PowerSphyr enabled wireless charger anywhere on the pad for the ultimate in 'drop & go' flexibility!



SkyCurrent III: Dual Mode Wireless Charging

### Battery Management Solution:

SkyCurrent Power Analyzer (SPA™) is an extensible battery management solution that provides precision monitoring and control of the complete battery charge process and lifecycle. The solution provides precision monitoring and control to monitor complete charge process.



Integrated SkyCurrent Power Analyzer BMS

### Differentiators:

PowerSphyr designs, develops and delivers wireless power products and modules that eliminate the need for cables or precise coil alignment, enabling fast, easy to use, and secure charging ecosystems. These end-products and OEM solutions incorporate:



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**Flexibility:** combining multiple charging modes across multiple devices, differing power requirements, and varying form factors.

**High Performance:** wireless charging that is up to 66% faster than existing wireless charging solutions, and support power delivery from 10mW to 500W.

**Optimized designs:** the focus of all designs are on manufacturability. PowerSphyr is the only wireless solutions provider to offer improved power transfer efficiency through design of metamaterial structures. They have a full design, development and delivery team to create end-to-end wireless power receiving and transmission solutions.

### Management:

#### **Neil Ganz: Chairman and CEO, Co-founder**

Neil is an entrepreneur, seasoned executive, and business transformation expert with 27 years of leadership, manufacturing, sales, distribution, and corporate development experience in the US and abroad. In 2016, Mr. Ganz co-founded PowerSphyr to simplify power delivery, giving customers the wireless charging experiences they need. Prior to co-founding PowerSphyr, Mr. Ganz founded GPX International, which grew into the 30th largest tire manufacturer in the world through rapid transformation of sales, manufacturing, and operational practices.

Areas of Experience:

- Strategic planning
- New business development
- Capital/fund raising
- Operational transformation and management
- Outsourcing

#### **Will Wright: Chief Technology Officer, Co-founder**

Technologist and industrial designer with over 10 years of dedicated technology and product development experience with numerous patents related to wireless power. Will has a proven track record of solving complex design challenges and providing dynamic, future-proof solutions to benefit various industries. Prior to co-founding PowerSphyr, Mr. Wright founded Skyline Aeronautics and Vector Sky US in South Florida to develop solutions for the now booming sUAS market.

Areas of Experience:

- Product Development
- R & D
- Design & New Technology



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- Patents & Strategy
- RF Design

### **Dr. Ron-Chi Kuo: Director of System Architecture**

Dr. Kuo is a highly regarded researcher in the field of wireless power transfer and electromagnetic design. While conducting research as a member of the Radio Frequency Circuits & Systems Research (RFCSR) group at the University of Florida, Ron-Chi published multiple articles in the field of wireless power delivery. For her work, she received IEEE Wireless Power Transfer Conference awards in 2015 and 2016.

#### Areas of Expertise:

- Power Electronics
- Electromagnetics
- Wireless Power Transmission
- RF Engineering
- Modeling and Simulation

### **Brad Miller: Senior Vice President, Engineering**

Brad is a seasoned engineering executive with over 25 years of experience in developing global technologies and bringing innovative products to market for automotive, industrial, and consumer markets. Prior to joining PowerSphyr, Mr. Miller was the Chief Technology Officer for Gill Industries where he was responsible for research, technology development and product/process innovation across all of Gill's product lines. This includes General Manager for Gill Electronics with extensive efforts in innovation, integration, and commercialization of its TesLink® wireless power products into automotive, furniture, hospitality, medical and industrial applications.

#### Areas of Expertise:

- Innovation
- Product Development
- Problem Solving
- R&D/Technology Development
- Team Building

### **Jim Wogan: Chief Financial Officer**

Jim is a seasoned finance professional with over 30 years of leadership experience in both large and small companies. Mr. Wogan holds an MBA from Stanford Graduate School of Business, and a degree in Accounting from University of San Francisco. Prior to joining PowerSphyr in April 2018, Jim has held senior finance roles at Chevron Corporation, Pacific Gas & Electric, Robert Half, and e2v Aerospace & Defense.



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### Areas of Expertise:

- Financial budgeting and modeling
- Process improvement leveraging Six Sigma and Agile methodologies
- Asset acquisitions and divestitures
- ERP system implementation (SAP and Oracle)
- Team building and collaboration

### **Bill Lombardi: Chief Information Officer**

Bill is a 20+ year veteran business economist and pioneer in the field of advanced analytic and artificial intelligence (AI) led business transformation. His focus has been in establishing competitive advantage in consumer, automotive, finance, insurance, healthcare and industrial manufacturing industries across the globe. He comes to PowerSphyr from the IBM Watson AI Global Center of Competence where, as a Global Sales and Delivery Executive. Prior to IBM, Bill held multiple roles in advanced analytic and information management at HP Enterprise Services, Apple, WhiteWave Foods, and Clorox.

### Areas of Experience:

- Artificial Intelligence, Machine Learning & Advanced Analytics
- Data Discovery, Data Engineering, and Data Monetization
- Information Management & Architecture
- Operational Transformation, Process Adoption, and Culture Change

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