



**OSSiQ**<sup>™</sup>  
REAL WIRELESS POWER

# GUIDE TO REAL WIRELESS POWER

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THE NEW TREND IN PRODUCT INNOVATION

## GUIDE TO REAL WIRELESS POWER: THE NEW TREND IN PRODUCT INNOVATION

For those that are tech savvy and those that aren't, one of the most exciting moments is when an idea becomes a new solution. Just as Jules Verne envisioned the modern day submarine in *20,000 Leagues Under the Sea*, 30 years before it became a reality; the idea of wireless power has been around for over a century, but was not considered practical or even possible, until now.

Technology has finally caught up with the quest to charge devices without plugging them into power sockets; Cota® real wireless power will completely revolutionize the way electronic gadgets are manufactured and marketed. If you are interested in understanding more about this new trend and how you can gain competitive edge in product innovation, explore these topics with Ossia:

1. History of Wireless Power Transfer (WPT)
2. Wireless Charging versus Wireless Power
3. What makes Cota lightyears ahead of the competition?
4. What industries will benefit most from Cota wireless power technology?
5. What is the roadmap?
6. What does the future hold?

### 1. History of wireless power

WPT is the transmission of electrical energy without wires. Contrary to the popular belief, Nikola Tesla was not the first to propose this type of technology. However, he was the first to execute it successfully, establishing several methods that are still widely used to charge everything from electric toothbrushes to electric cars.

The concept of charging anything at a distance existed for over a century, but became commercially viable only for the past decade. The proliferation of smart, wireless devices has rapidly intensified the need to excel the efficiency of wireless power (the proximity power market which is expected to exceed \$25 billion by 2023) to achieve the previously unheard of, power without cords.

#### The Birth of IoT

As we become increasingly reliant on technology, a new definition of connectivity has arisen: The Internet of Things (IoT) is a network of physical devices, vehicles, home appliances, and other items that require the exchange of data.



Experts estimate that the IoT will consist of over **thirty billion devices** by 2020, setting the bar very high for wireless power transmission over the coming years. Technological progress is cumulative and so is our desire to keep up with it. As a result, many industries are scrambling to accommodate the rapid improvement of this technology.

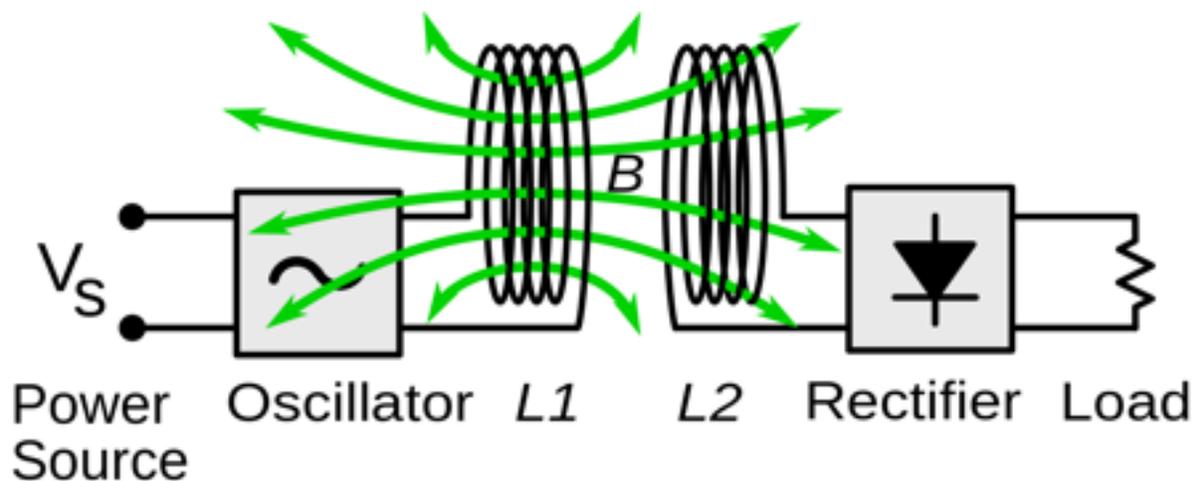
## 2. Wireless Charging versus Wireless Power

Wireless charging technologies use time-varying electric, magnetic, or electromagnetic fields. There are several methods by which these time-varying currents operate, but when it comes to charging contemporary mobile devices like smartphones and tablets, they can be grouped into a single category known as “electromagnetic induction.”

Wireless power use power transmitters to deliver real power wirelessly at a distance to stationed and moving devices within the vicinity, that is, without having to distancing the power receiver devices.

### Electromagnetic Induction

Discovered by Michael Faraday in 1831, **electromagnetic induction** involves two conductors configured such that a change in current through one wire induces a voltage across the end of another. The farther the conductors are from one another, the weaker the charge. This process was refined over time and has become the primary method by which most of today’s wireless chargers operate.



### Qi Wireless Charging Standard

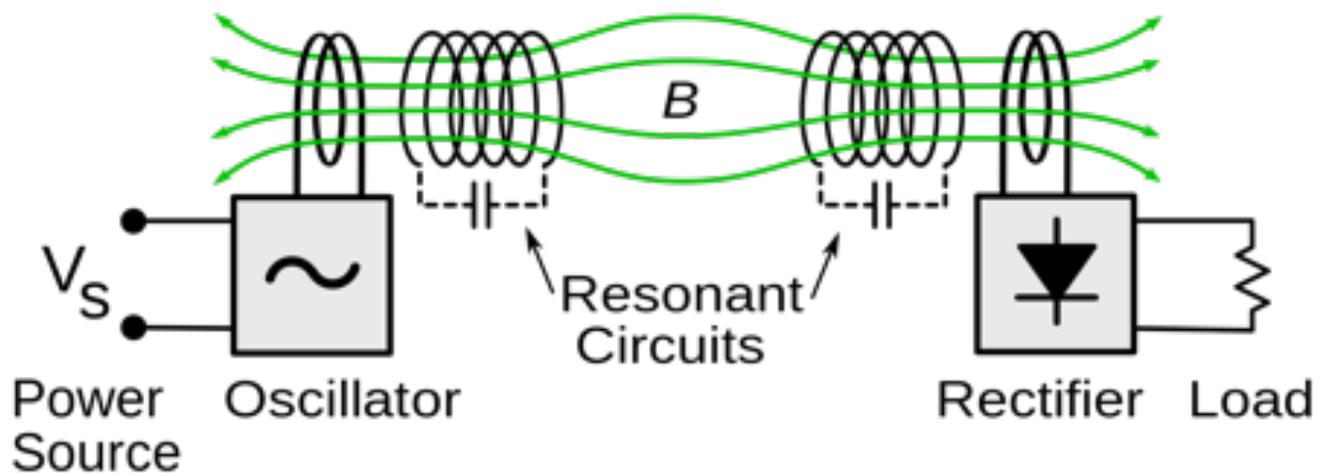
The **Qi** (pronounced “chee”) specification is the current standard in wireless charging. First introduced by Nokia in 2012, it was developed by the Wireless Power Consortium and is used in a majority of smartphones. The latest version of the Qi specification supports **magnetic resonance**, which is essentially the same process, but creates a stronger magnetic field around the device, allowing it to charge at a distance of up to 1.8 inches.

## What makes Wireless Power different than Wireless Charging?

Wireless power is like power, while wireless charging is like charging. This is the way that your desktop computer is powered constantly, consuming exactly as much power as it needs, while a laptop consumes more power when its charging that it uses to later use that extra power to run the laptop without the power supply.

Charging is to use the power later, so you need to charge quickly to get the device back. While powering means you don't have to worry about the charge amount, usually is significant when the device is constantly powered in its intended environment. Examples like thermostats, security motion sensors, shelf labels are powered, while a mobile phone is charged – until Cota is everywhere, like Wi-Fi, where your phone would receive power everywhere.

The question is no longer how quickly a device can be charged, but how fast and what if it doesn't need to be 'charged' at all. Anywhere you go, you can be receiving power, from the home, to car, to coffee shop, to office, Cota technology offers Real Wireless Power. Cota not only brings the end of wires and cords, but also ends battery usage altogether- and while in motion at a distance!



## 3. What makes Cota lightyears ahead of the competition?

Real Wireless Power requires 5 different aspects to be truly practical:

1. Deliver power over a distance.
2. Send power to the location of the intended device
3. Deliver power to a moving device or environment
4. Deliver power in non-line-of-sight fashion
5. Deliver power safely.

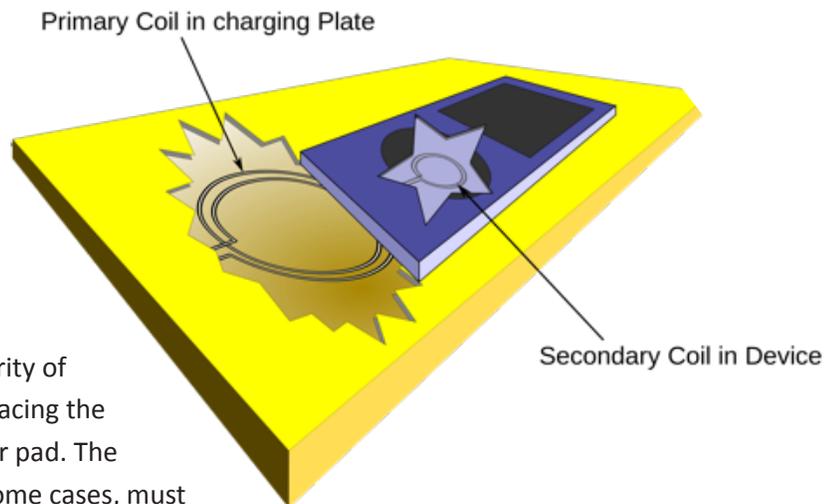
No other technology can achieve this.

Cota technology offers continuous real wireless power at a distance just as Wi-Fi offers continuous Internet. It's a completely different offering than most of the 'wireless charging' products on the market today. Being tethered to a pad to charge your phone is a one-off use case to smartphone users. Cota, is a solution of wireless power that spans industries, vertical markets and use cases, from personal electronics, to industrial workspaces, to IoT, to billions of sensors worldwide.

### Limitations of Qi Wireless Charging

The reason WPT technology has not become the standard for all new mobile electronics has a lot to do with the current limitations of the Qi wireless charging standard, and a misunderstanding about what Real Wireless Power is and what it can achieve.

The Qi wireless charging system used in a majority of mobile electronics is often slow and requires placing the battery-powered device on a charging station or pad. The device cannot be used while charging, and in some cases, must be precisely aligned with the charging pad to operate. It also requires consumers to carry a charger with them at all times. Although this is far superior to anything that existed a decade ago, it defines "wireless" as a few feet away from a power outlet and is considered archaic by contemporary standards.



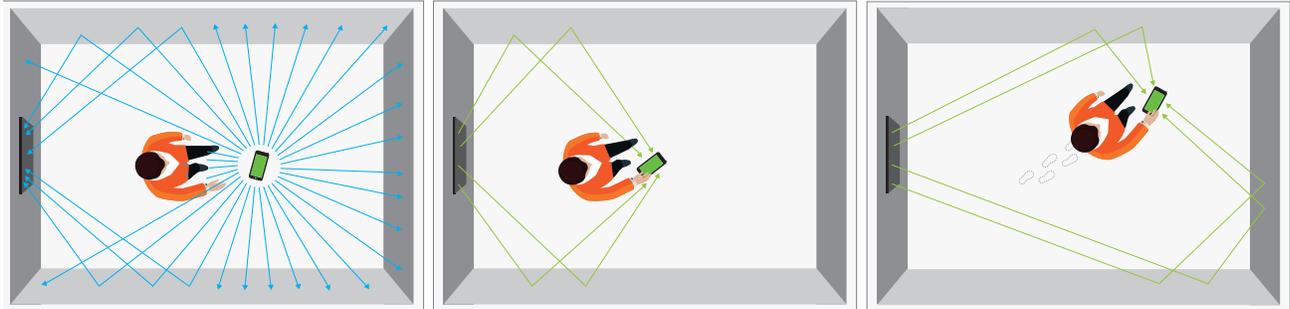
### Cota Wireless Power and its Potential

Cota technology works on the same principles and frequencies as Wi-Fi, allowing power to be sent up to several meters. Unlike Qi technology, which essentially requires direct contact with your device, Cota technology allows you to walk around a room and continue charging the device without interruption and without having to be plugged into a charging socket and without having to carry around a charger. In larger spaces, like retail stores, hospitals, and construction sites, multiple transmitters can be placed hidden throughout the area to ensure continuous charging.



## Cota Technology and Safety

When people, animals, or even plants get in the way of the wireless power signal, Cota avoids these paths and re-delivers power through an alternative path. Similar to Wi-Fi, the power moves around obstacles and cannot harm anyone or anything standing between the power transmitter and power receiver device.



## Cota and Energy Conservation

Cota is programmed to look for patterns in usage and monitors mobile devices when they leave or return so it can automatically charge any device in range without disruption. However, it is also designed to turn itself off when no devices are in range, minimizing unnecessary waste of energy. Cota also tracks the power level of any given devices to give priority to those devices that need power more than others.

## 4. What industries will benefit most from Cota wireless power technology?

Many assume that smartphones will garner the most commercial interest when it comes to wireless power. While this isn't completely incorrect, there are many other industries that have a lot more to gain from adopting real wireless power technology.

### Retail

Unlike many industries vying for wireless power transmission, retail is entirely consumer facing and has an **immediate need** to optimize the in-store customer experience. From handheld scanners and security cameras, to digital price displays and mobile checkout devices, the number of mobile appliances that would benefit from Cota wireless power transmission in any retail environment is almost too many to count.



## Automotive

The current automobile industry trend indicates the acceleration of electric car sales. With the rise in the electric cars demand and its impending shift, the auto makers are looking at determining the limitations of recharging techniques, such as availability of charging stations or alternating with battery-grade Lithium processors.

Cota technology does not tackle the high-powered charging needs of actually charging an electric car. However, Cota is made for the charging needs inside the automobile, including devices in the cabin and sensors under the hood.

## Medical

From hearing aids to pacemakers, mobile and one-the-go medical devices are becoming increasingly common. Rapid advances in micro/nanotechnology and wireless communication have dramatically **increased the number of biomedical devices** capable of diagnosis, prognosis, and treatment. As these devices become smaller, more affordable, and easier to implant, the need for real wireless power will increase exponentially, for its life-saving and commercial potential.

## Industrial

Wireless technology now **plays a very significant role** in industrial environments, helping managers gather data, monitor equipment, and perform remote troubleshooting. Real wireless power transmission not only improves the reliability of these devices, but allows for continuous use of equipment that requires a lot of power to operate, particularly in harsh environments.

## Consumer Electronics

There are currently **more mobile devices in circulation than people**, so it's not surprising that consumer electronics rely heavily on wireless charging capabilities. The industry first adopted the wireless charging technology in 2008; ever since, nearly every Android device has wireless charging capability. With Apple's release of iPhone 8, the concept of wireless charging stations or pads is no longer ubiquitous among smartphones, but in headphones, smartwatches, and other wearable electronics. By implementing Cota Real Wireless Power, the same charging techniques will become as obsolete as the cords they replaced.

## 5. What does the future hold?

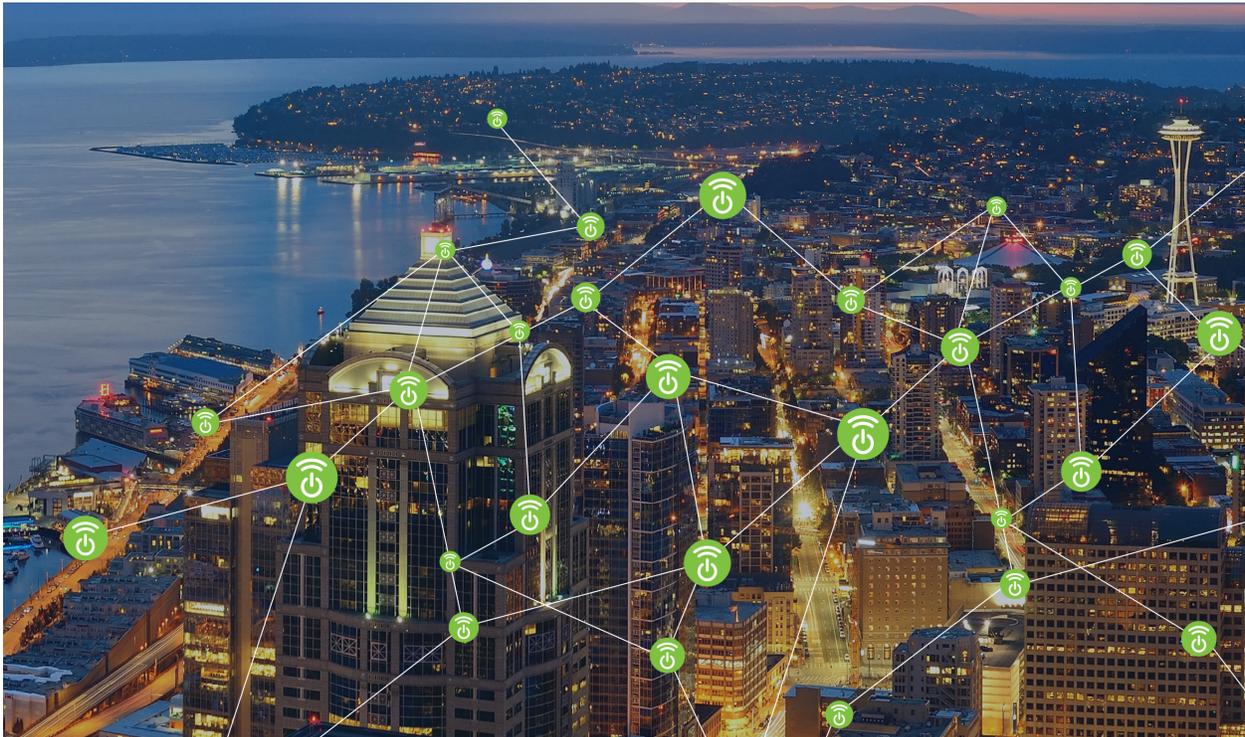
Cota's potential is limitless for remotely charging devices of all sizes. It is not restricted to smartphones and consumer electronics, but will likely make room for mobile devices that have not yet even been conceived; a coffee mug that keeps your beverage warm all day or temperature-controlled Tupperware that will keep your food cold.

Cota will eliminate the need for cords and wires entirely and in doing so, will eliminate any obstacles in the way of developing new mobile technology.

## When will Cota be ready for everyday use?

Today. Cota is 100% ready to license now, capable of deployment across multiple verticals and customized to fit your device, location, and to meet your specific needs. Introduced at TechCrunch Disrupt in 2013, what seemed like a pipedream has already become a reality.

Wireless power will revolutionize the way we use mobile technology, and with the introduction of Cota, its commercial potential is limitless. To learn more about how Cota technology works, its safety, and how it will shape the future, download [Real Wireless Power: The Definitive Guide to Our Interconnected Future](#).





1100 112th Ave NE, Suite 301

Bellevue, WA 98004

425.406.6477

[www.ossia.com](http://www.ossia.com)

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