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*“Quantum’s Next Generation Device™ could provide a paradigm shift in the way solar power technology is provided today.”*

—Daryl Ehrmantraut, CEO

## Developing the Next Generation of Solar Cells

Quantum Solar Power Corp.’s scientific team has taken a radical new approach to the development of photovoltaic design with the potential to obtain higher efficiencies at a lower cost per kilowatt/hour than coal without using any rare elements.

### Solar Power is the Energy Answer

In 1839 the French physicist Alexandre-Edmond Becquerel discovered what we call the photovoltaic effect — creating electric current from light. With the development of the semiconductor in the 50’s the modern photovoltaic industry was born. Using silicon, semiconductors were discovered to work as a vehicle for creating the modern solar cell to convert sunlight to electricity. Since then the quest has been to create ever more efficient and inexpensive solar cells so that they may one day replace our dependency on fossil fuels for our energy needs.

Every day the sun provides more energy in an hour than we as human beings require in an entire year by nearly 6,000 times. Given this abundance, solar energy is the obvious choice for our future energy needs. However, as of 2011, solar energy remains a more expensive and difficult energy solution than cheap and readily available coal and natural gas. Coal generated electricity currently provides 40% of the global electricity supply and is growing. China, for example, is building one new coal-burning plant a week. On average coal-fired electricity costs a mere \$0.10/kWh. The current best average for solar PV is \$0.16/kWh. Solar electricity accounts for less than 1% of the global electricity supply. Three main factors restrict solar’s competitive advantage, solar cell efficiency,

cost and in some cases, the use of rare elements. Finding the right combination of these three factors will be the key to the successful development of solar cells that can truly replace fossil fuels.

## The Quantum Solar Power Solution

In 2008 a small team of scientists in Canada discovered a novel process that had the potential to revolutionize the solar power industry. Out of that discovery Quantum Solar Power Corp. was formed to fully realize a true next generation solar energy device. Today, Dr. Andras Pattantyus-Abraham (CTO) and Dr. Gary Leach (Lead Scientist) and their team at Simon Fraser University are closer than ever to realizing Quantum’s ground-breaking technology.

Solar PV Technology Attributes			
	Silicon (Si)	Thin-film	NGD™
Efficiency	High ✓	Low ✗	High ✓
Cost	High ✗	Low ✓	Low ✓
Materials Availability	High ✓	Low ✗	High ✓

The Quantum NGD™ technology has the potential to remove the three main barriers to solar energy — efficiency, cost and scalability.

## What Makes Quantum Different

Conventional photovoltaic (PV) technologies share the same fundamental concepts. Sunlight passes through a glass coating, past the anti-reflective barrier and is absorbed by the semiconductor layer. This semiconductor layer is the key, and two main types of semiconductor layers dominate the current PV market: crystalline silicon (Si) and thin-film. Silicon solar cells account for 80% of the market and have been the mainstay of the industry since its inception. Although silicon (sand) semiconductors are incredibly abundant, the manufacturing process required to grow the crystals is very expensive, nullifying their efficiency advantage. On the other hand, thin-film PV uses microscopically thin layers of semiconductor material to overcome the expense issues of traditional silicon but the trade-off is lower efficiencies. Additionally, thin-film technologies use rare elements that are limited in their global supply and exist in only a few countries preventing these solar cells from ever achieving world wide implementation.

Quantum's device avoids using a semiconductor absorber, significantly reducing production costs and eliminating reliance on expensive silicon components. The unique patent-pending NGD™ charge separation system provides broadband response (full spectrum of light) while avoiding the use of rare elements found in thin-film PV (Gallium, Tellurium or Indium) that limit large-scale deployment.

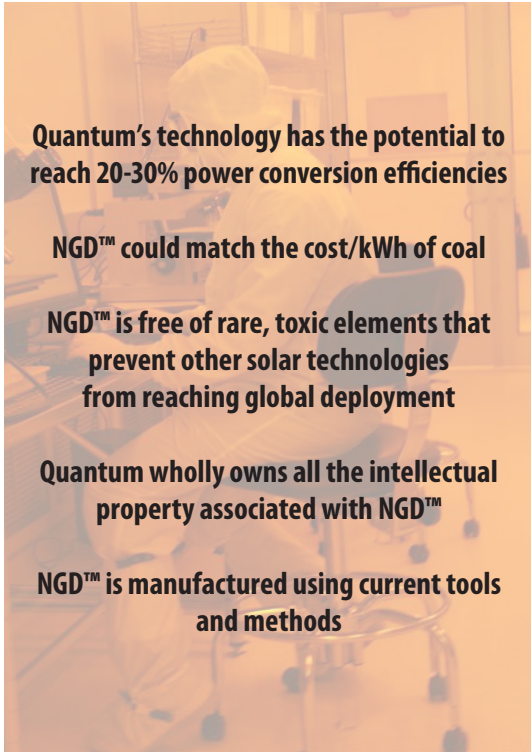
## The Bottom Line

Quantum Solar Power Corp.'s NGD™ may be a true "Black Swan" solution to our energy needs. Their disruptive technology is nearing realization and could hold the key to the three barriers to global solar implementation by:

- **Obtaining higher efficiencies than leading solar technologies**
- **Achieving lower cost/watt than leading solar technologies and...**
- **Overcoming limitations of rare elements used in many solar technologies**

Once realized, Quantum's NGD™ could be the long awaited "holy grail" of solar energy, making the world cleaner while providing for all of our energy needs for eons to come.

You can find Quantum Solar Power Corp. at: [www.quantumsp.com](http://www.quantumsp.com)  
Ticker Symbol: QSPW



**Quantum's technology has the potential to reach 20-30% power conversion efficiencies**

**NGD™ could match the cost/kWh of coal**

**NGD™ is free of rare, toxic elements that prevent other solar technologies from reaching global deployment**

**Quantum wholly owns all the intellectual property associated with NGD™**

**NGD™ is manufactured using current tools and methods**