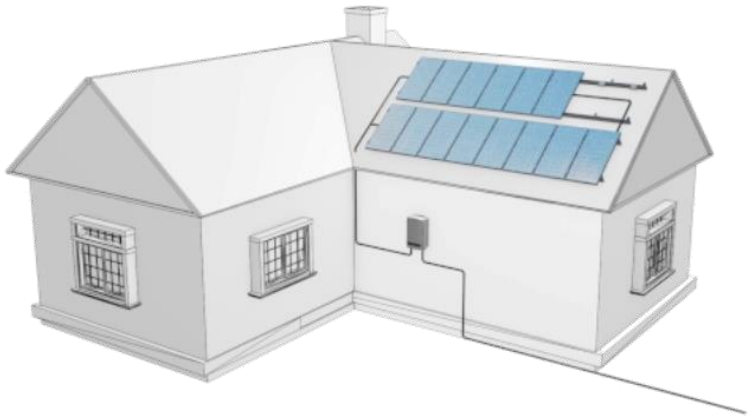
HD-Wave Inverter Technology

Innovation to Date

- In 2007, SolarEdge broke the mold with Optimized Inverters
- Breaking apart DC and AC operations led to new possibilities
- Cost efficient
  - Distributed harvesting
  - Module-level monitoring
  - SafeDC
  - Simplified designs

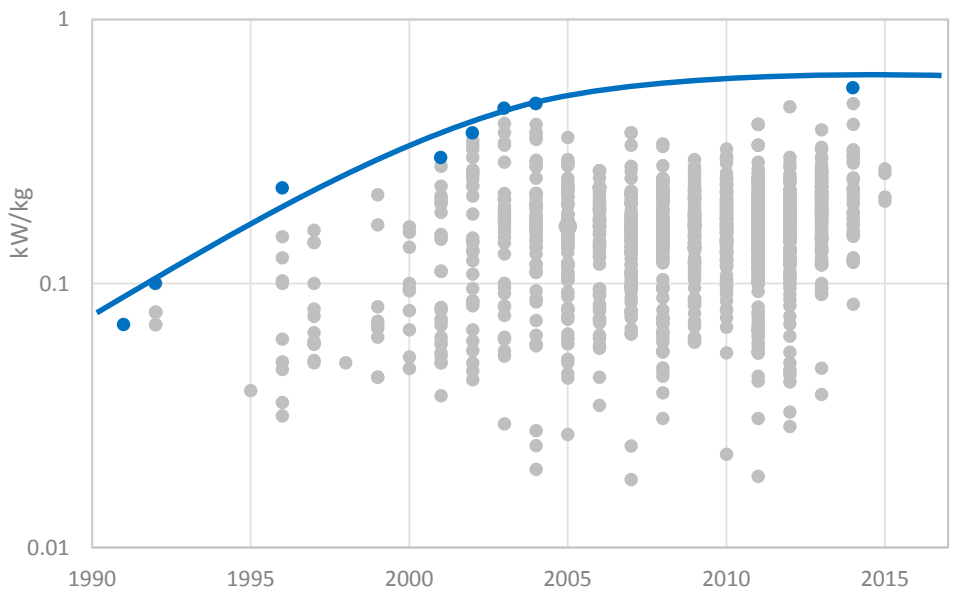
SolarEdge Solution



- **Now its time to do it again…**

PV Inverters – Slow Pace of Change

- PV inverter technology has made limited progress in improving size, efficiency, and manufacturing costs
  - For example, the maximum power per kg ratio* improved by only 5x
- Compare this to the computer industry, which has seen a doubling in processing power every 18-24 months



Source: Photon database, August 2015

* Measures power per weight

* Very good metric for inverter cost structure

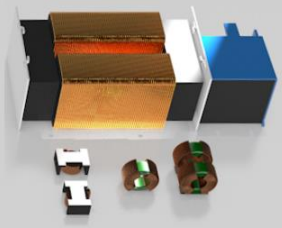
What is Holding Back Progress?

- Conversion design has remained fundamentally unchanged
- Existing technologies force the usage of large magnetics and cooling elements
  - This makes inverters expensive to manufacture and install

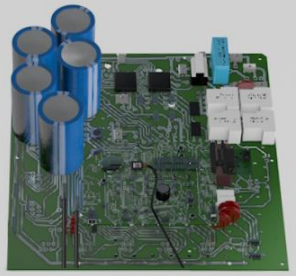
Current Inverter

Cooling Components

Magnetics



Electronics



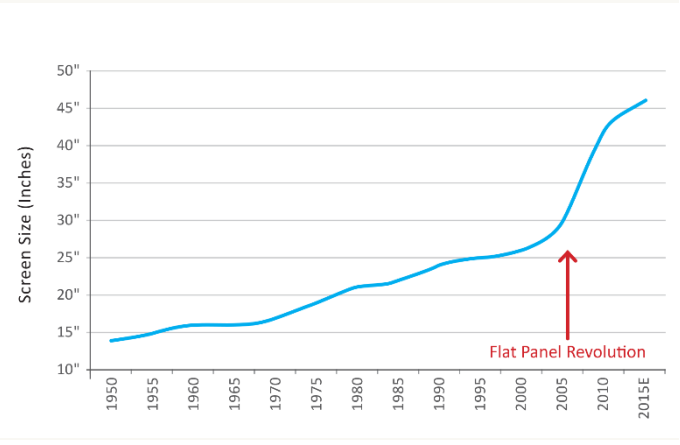
Inverters & TVs: A Comparable History

- Since the 1930s, TV technology was dominated by CRTs
- Even the best TVs were bulky, power hungry, used heavy glass and magnetics and were bound to mechanical constraints
- Improvements were limited:
  - Size due to physical nature of the components
  - Resolution due to analogue imaging
  - Difficult to manufacture
  - Costly components

CRT = Cathode Ray Tubes

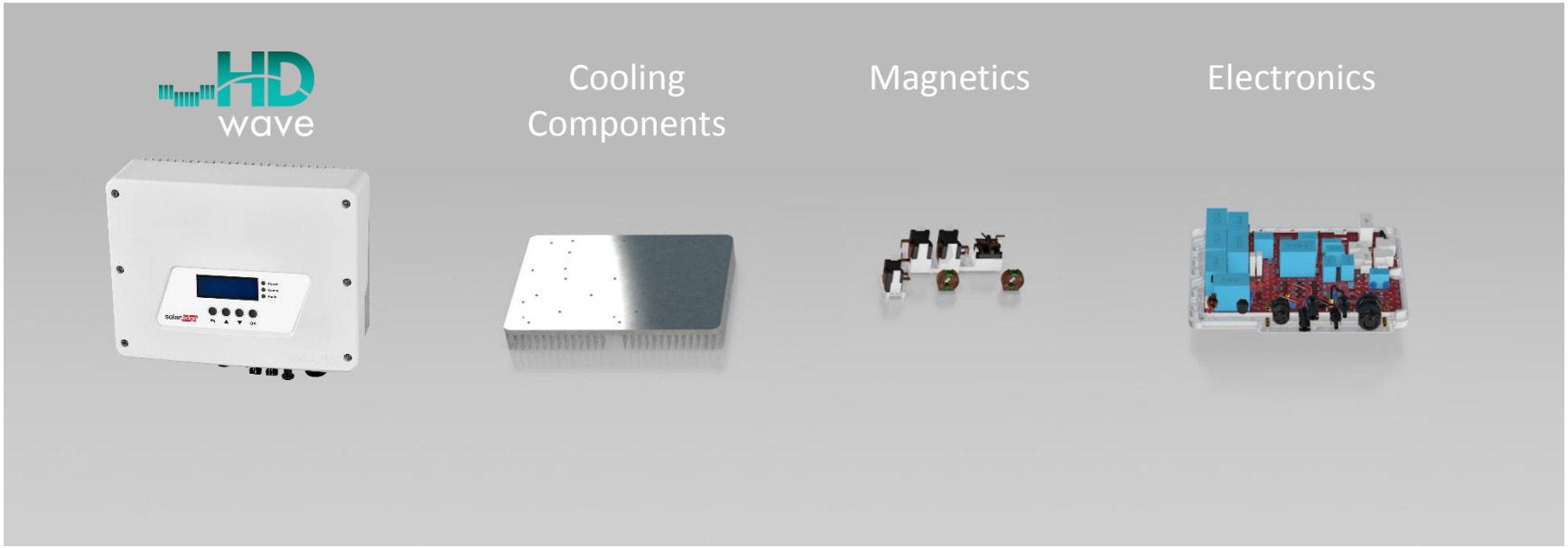
Digital Electronics Changed the Picture

- In the 2000s, flat screen TVs unlocked the industry by replacing CRT and magnetics with electronic components allowing:
  - Slimmer and lighter TV sets, for wall-mounting
  - Higher resolution using digital processing
  - Scalable manufacturing
  - Lower cost



A New Era for Inverters – HD-Wave

Distributed switching and powerful DSP processing to synthesize a clean sine wave for a dramatic reduction in the magnetics and heavy cooling elements



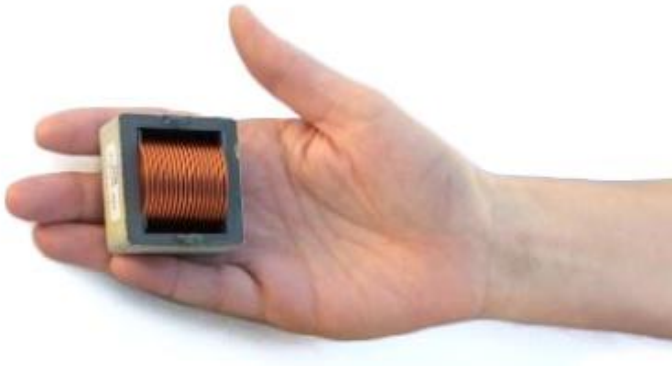
Breaking the Mold

Magnetics and cooling elements are no longer the barriers to progress

Current Technology

16 x less magnetics

HD-Wave Technology



Breaking the Mold

Magnetics and cooling elements are no longer the barriers to progress

Current Technology

2.5 x less cooling

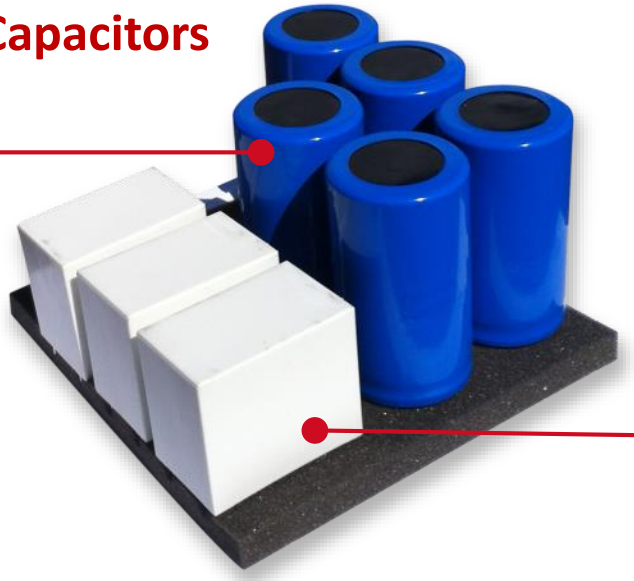
HD-Wave Technology

More Reliable Internal Components

Capacitors

Current Technology

Utilizes electrolytic capacitors as industry standard



HD-Wave Technology

Utilizes film instead of electrolytic capacitors

Switching Elements

Current Technology

Bulky and medium-performing transistor switches

HD-Wave Technology

Much smaller, efficient and cost effective standard silicon switches

Powered by HD-Wave

Current SolarEdge Inverter *

Power: **6 kW**

Volume: **29.9 liters / 7.9 gallons**

Weight: **22 kg / 48.5 lbs**

Efficiency: **97.5%**

** Already one of the smallest string inverters on the market*

Next Gen HD-Wave Inverter

Power: **6 kW**

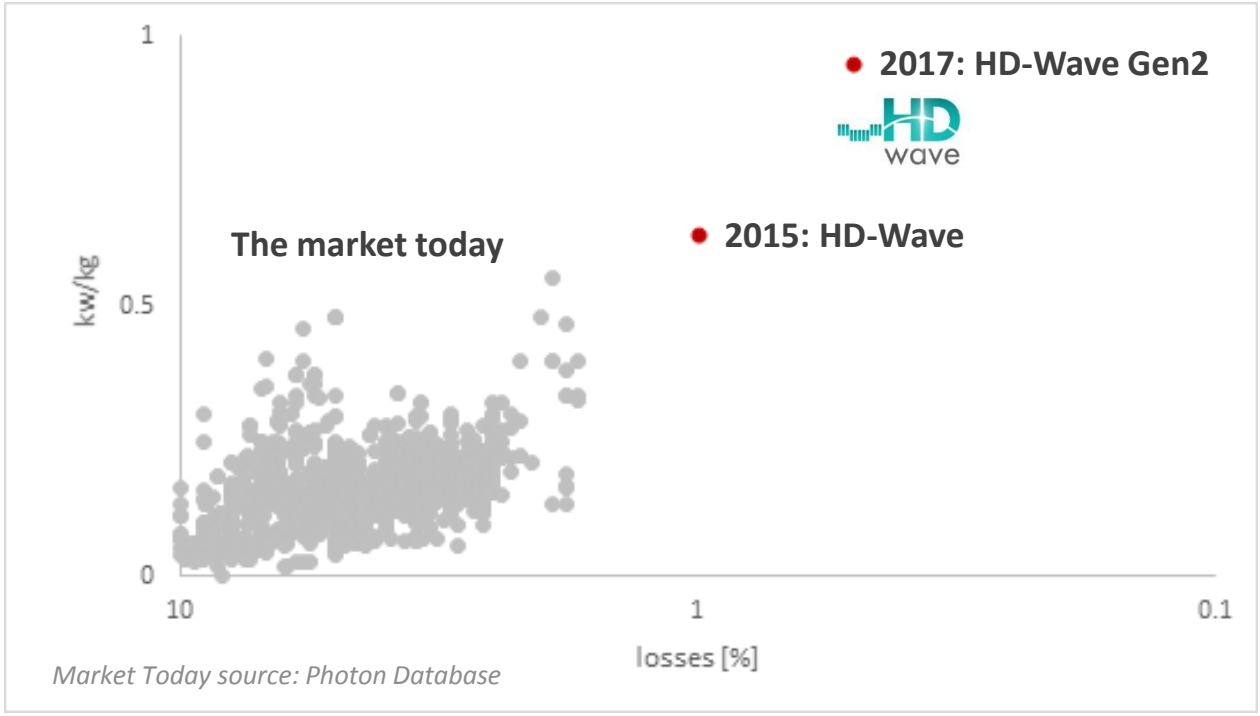
Volume: **14.5 liters / 3.8 gallons**

Weight: **9.5 kg / 21 lbs**

Efficiency: **99%**

What Does the Future Hold?

- HD-Wave will separate even further from the pack in efficiency and power per weight ratings
- Continuous improvement based on increased processing power and silicon integration



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