

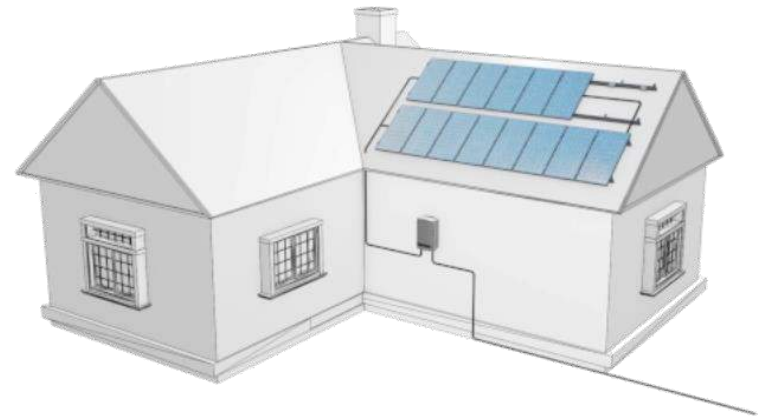
HD-Wave Inverter Technology

solaredge

HD
wave

- 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

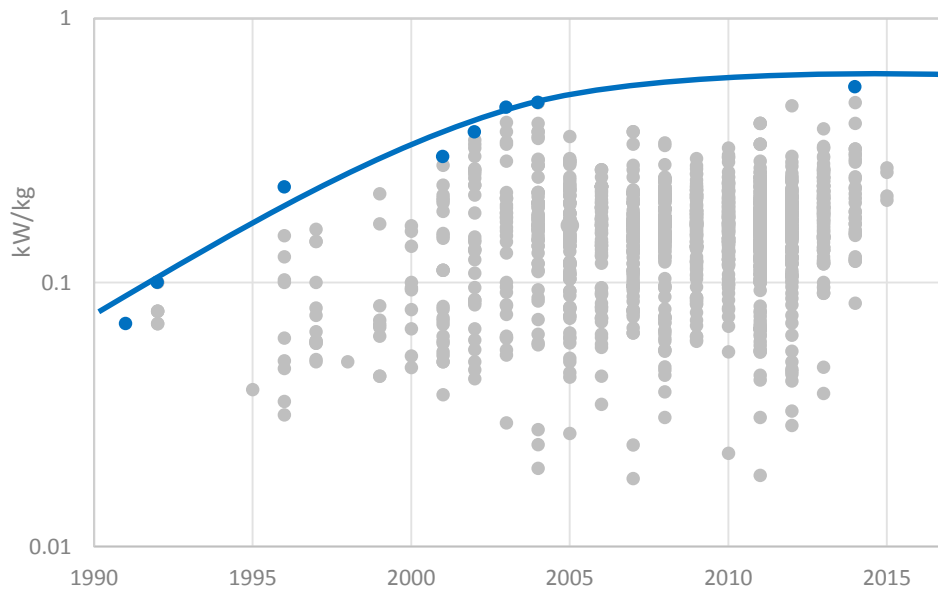


- **Now its time to do it again...**

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

Inverter kW/kg improvements over 25 Years



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

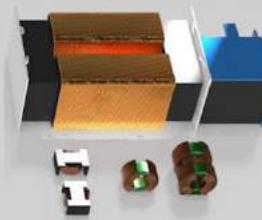
Current Inverter



Cooling Components



Magnetics

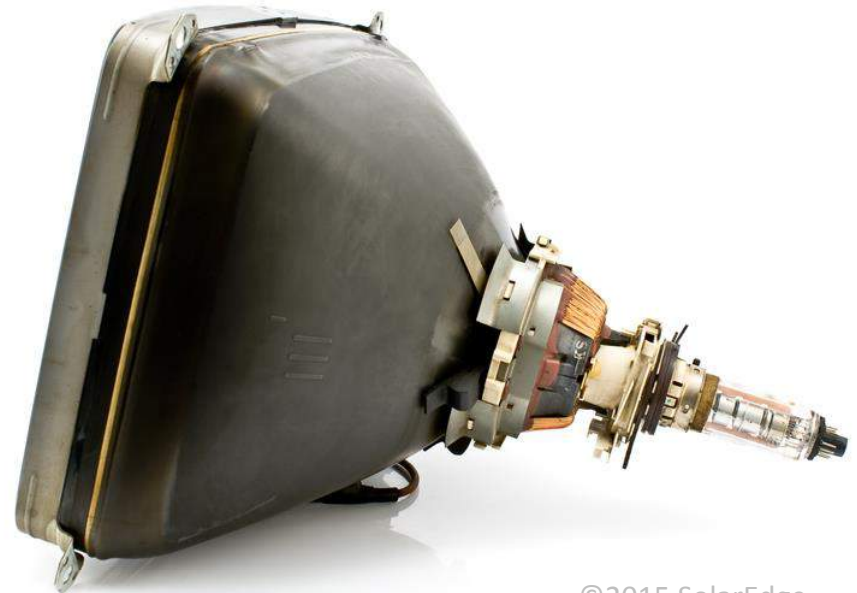


Electronics



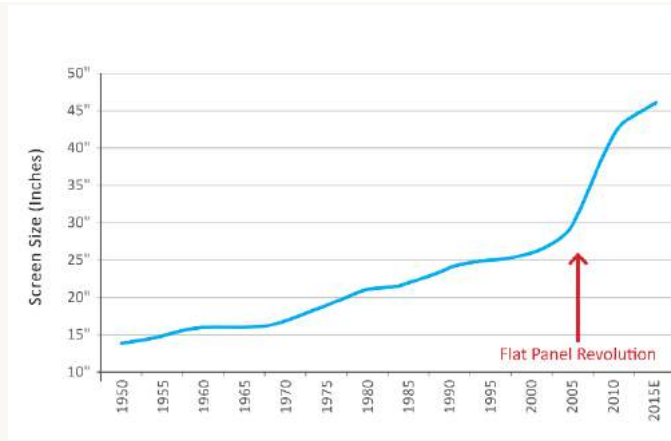
Inverters & TVs: A Comparable History **solar**edge

- 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



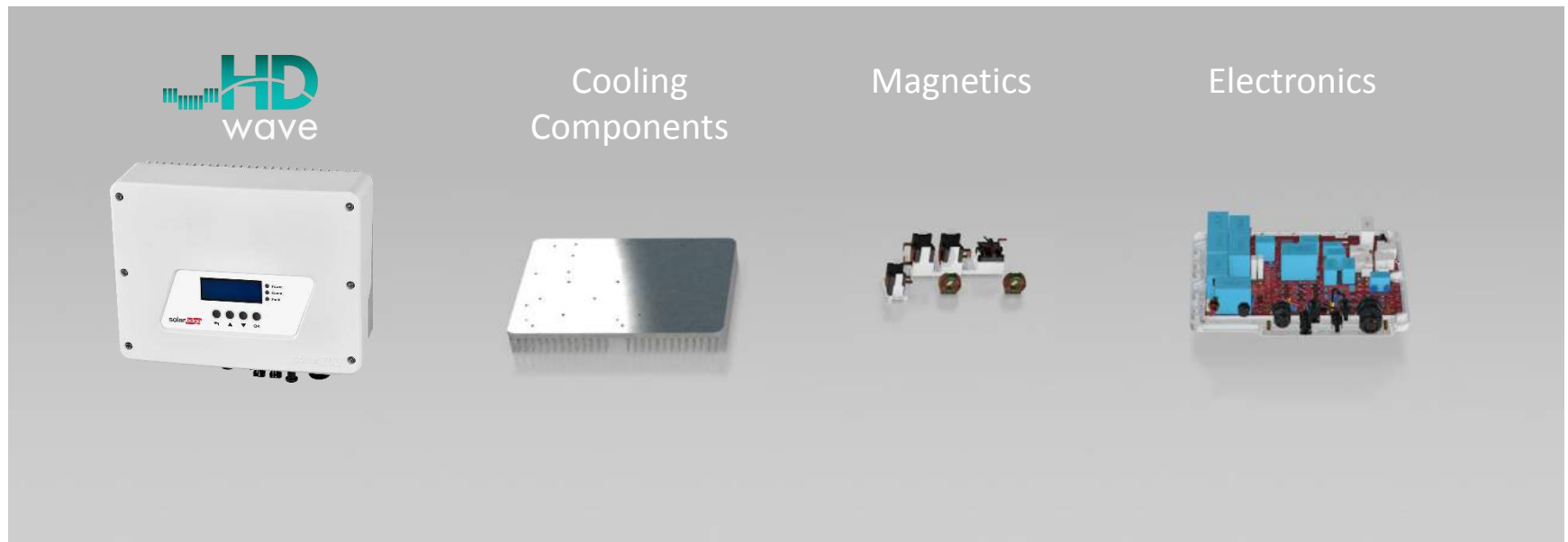
- In the 2000s, flat screen TVs unlocked the industry by replacing CRT and magnetics with electronic components allowing:
 - Slimmer and lighter TV sets, for wall-mounting
 - Higher resolution using digital processing
 - Scalable manufacturing
 - Lower cost

Average Living Room Television Size by Year



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

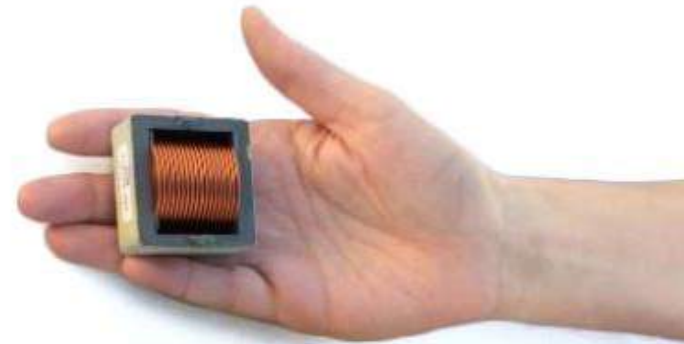
Current Technology



16 x less magnetics



HD-Wave Technology



Breaking the Mold

Magnetics and cooling elements are no longer the barriers to progress

Current Technology



HD-Wave Technology

2.5 x less cooling

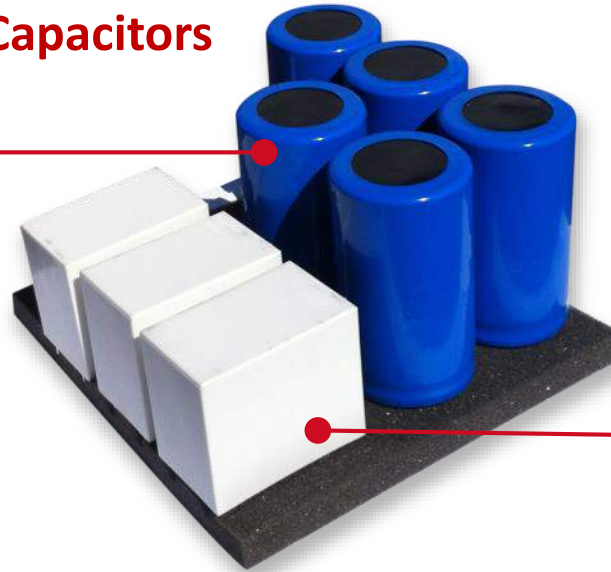


More Reliable Internal Components

Capacitors

Current Technology

Utilizes electrolytic capacitors as industry standard



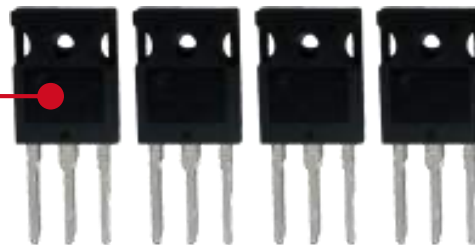
HD-Wave Technology

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





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

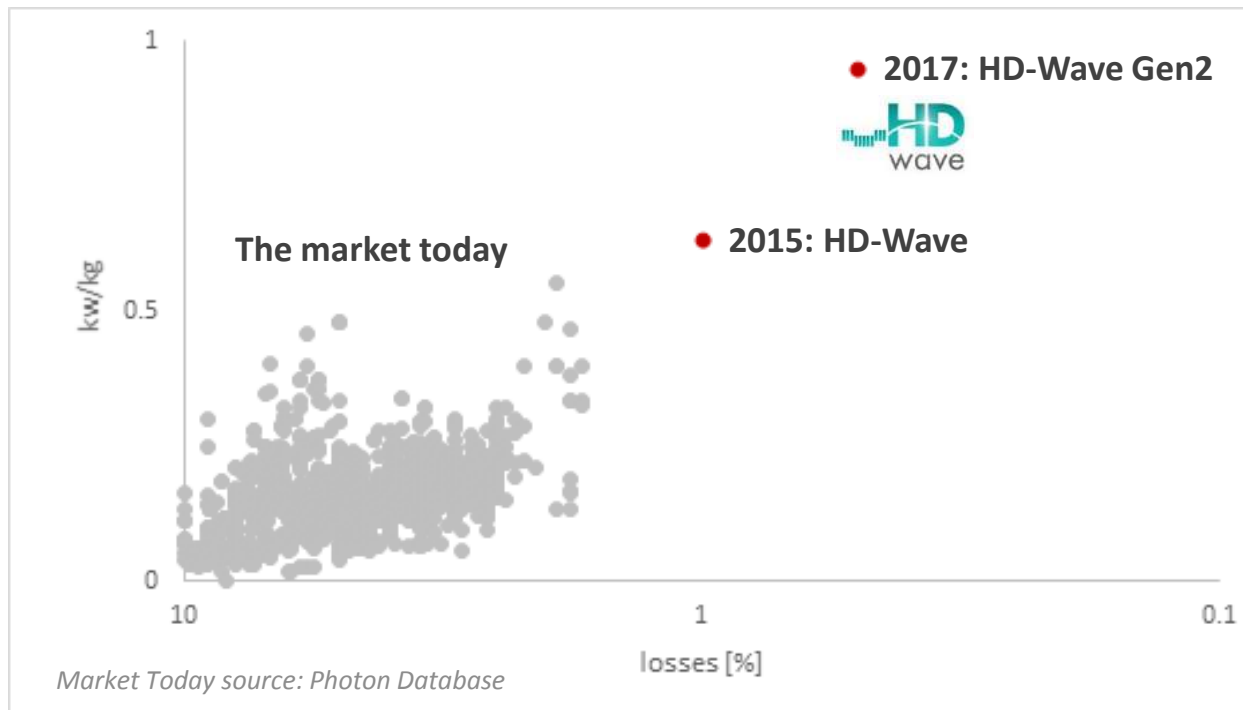
Volume: 14.5 liters / 3.8 gallons

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



Thank you

Email info@solaredge.com
Twitter www.twitter.com/SolarEdgePV
Blog www.solaredge.com/blog

Websites www.solaredge.com
www.solaredge.us
www.solaredge.de
www.solaredge.jp
www.solaredge.fr
www.solaredge.it