

# FLUIDICENERGY™

Breakthrough. Intelligent. Clean.



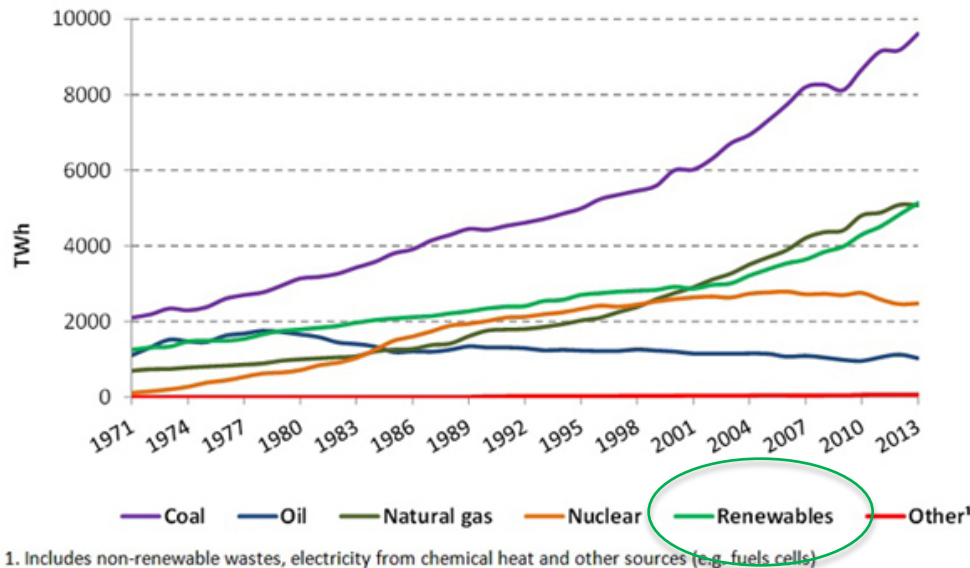
UT Energy Week 2016

Ramkumar Krishnan  
Chief Technology Officer

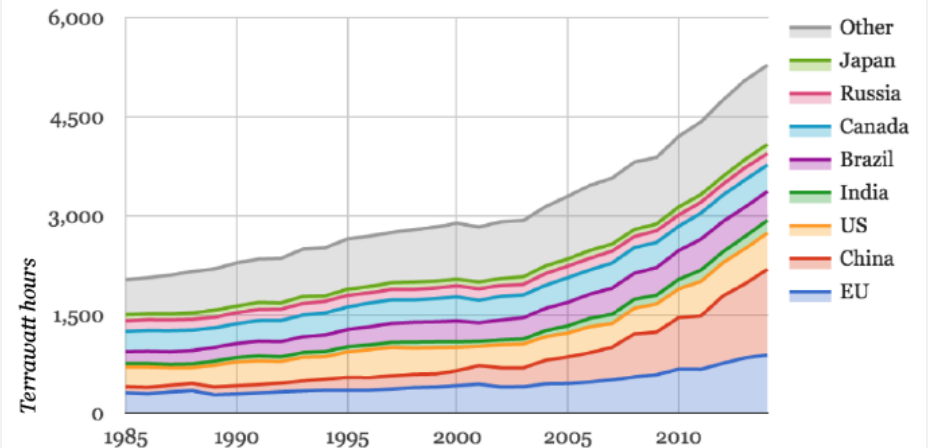
# GLOBAL ELECTRICITY PRODUCTION AND RENEWABLE ELECTRICITY GENERATION

*>25,000 Terra Watt hours of energy produced annually!*

World electricity production by source from 1973 to 2013

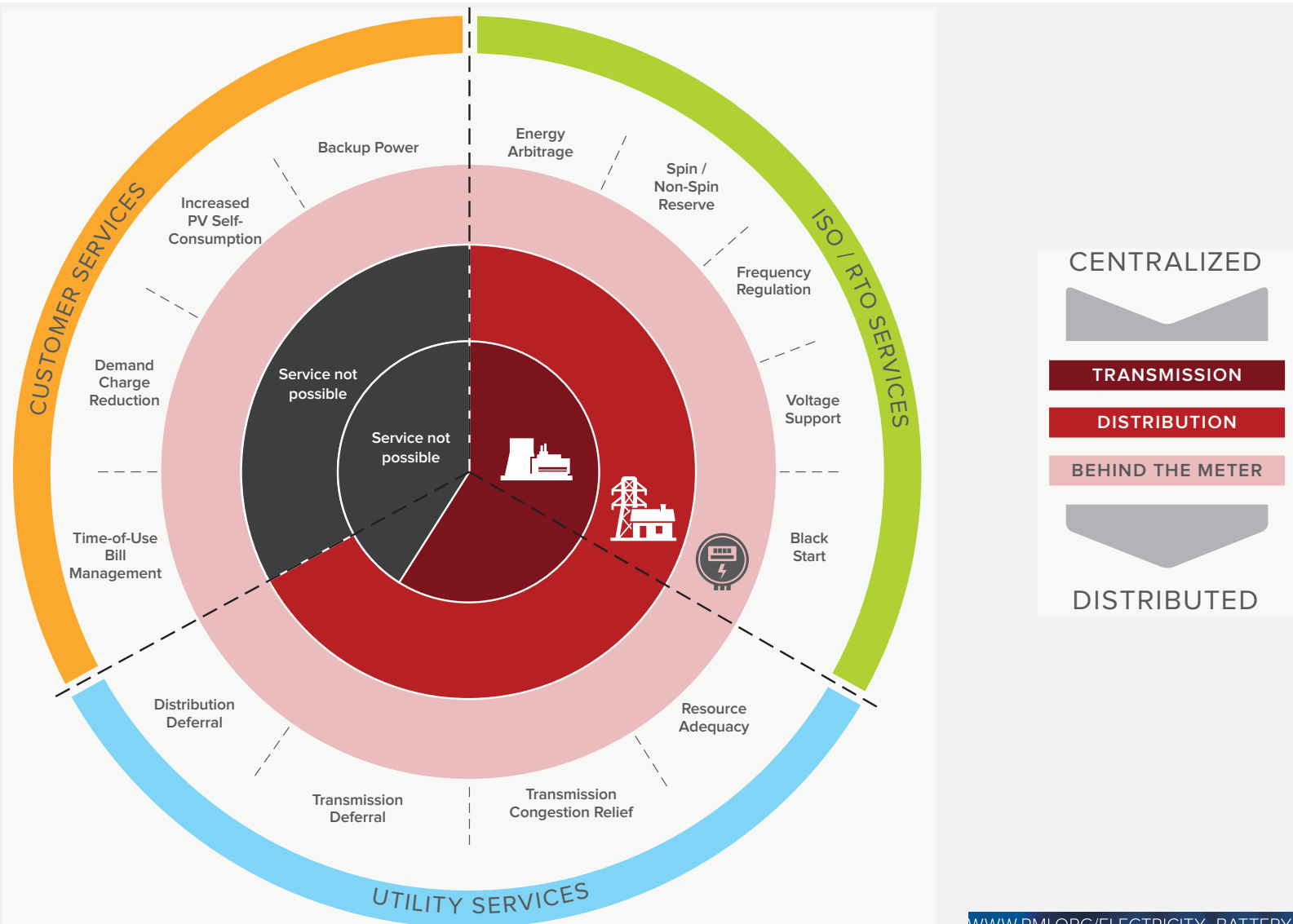


Global renewable electricity generation



Renewable electricity - a rapidly growing sector

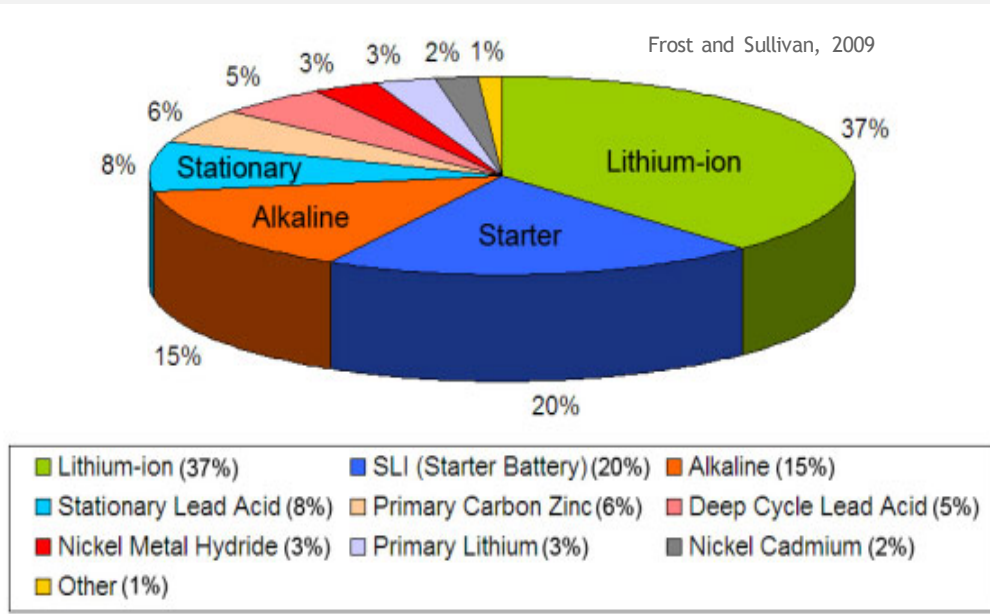
# BATTERY ENERGY STORAGE - APPLICATIONS



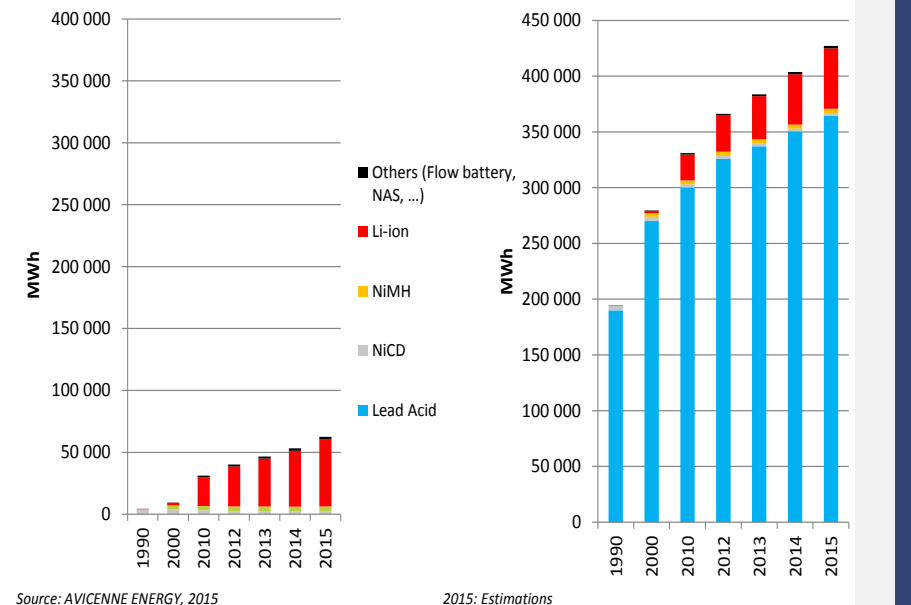
[WWW.RMI.ORG/ELECTRICITY\\_BATTERY\\_VALUE](http://WWW.RMI.ORG/ELECTRICITY_BATTERY_VALUE)

# Clean, Cost-effective, Sustainable Energy Storage technologies are necessary to support renewable growth!

Global Market for different battery chemistries (by revenue)



Global Battery Production in MWh



> 400GWh of rechargeable battery produced in 2015

Primary Alkaline Zn based battery - Global annual production exceed 10B units.

*“All the batteries we make now could store less than 10 minutes of all the energy [in the world]. So, in fact, we need a big breakthrough here. Something that's going to be of a factor of 100 better than what we have now.” – Bill Gates*

**Zinc - One of the lowest cost energy storage media...  
with base metals abundantly available in secure locations**

Battery Technology	Electrode Raw Material Cost (\$/KWh)	Global reserves of raw material (MT)	Annual Mining production (MT)	Top countries producing raw material
Nickel MH	34	62	1.5	Philippines, Russia, Indonesia
Lithium Ion	20	6-30	0.03	Chile, Argentina, Australia
Lead Acid	6.5	89	5	China, Australia, <b>USA</b> , Peru
Primary Zinc	3	220	13	China, Australia, Peru, <b>USA</b>
Zinc-Air	1.2	220	13	China, Australia, Peru, <b>USA</b>

Primary Zinc based alkaline batteries available commercially at \$25-30/KWh.

Zinc rechargeability has been a barrier until 2006!

# FLUIDIC Metal-Air Technology - Quietly Establishing New Benchmarks in the Energy Storage Market



- + **Lowest Cost.** Proprietary Rechargeable Zn-Air Technology, ultimately below \$100/KWh. Uses one of the lowest material cost known. Only air-breathing rechargeable battery commercially available - delivers lower cost with longer discharges.
- + **Built-In Intelligence.** Only vertically Integrated Energy Storage Company (software, power conversion electronics and battery chemistry) delivers world's only Intelligent Battery cells and unrivalled Customer Benefits.
- + **Proven.** Amongst the few Energy Storage Technology Companies to Successfully Reach Production scale in past 15+ years. > 1000 installations worldwide.
- + **Highest ROIC & Scalable.** Industry leading ROIC enables Rapid Low Cost Scaling of Manufacturing and Significant Localization Competitive Advantages. Unparalleled global CAT™ distribution.



Fluidic customer sites have accumulated over 750,000 cycles  
(Southeast Asia since 2011, Central America sites not shown)