Who are we?

Rapid, Web and mobile energy audit & solar assessment applications

The World as We Know It

- ## Last Year

  - White House Climate Action Plan – Big Opportunity
  - Lots of opportunity in EISA, States, Local, Utilities
  - EE Audit Tools inadequate to ID beyond the low hanging fruit

- ## This Year

  - White House Climate Action Plan – Big Opportunity
  - More opportunity in EISA, States, Local, Utilities – Big $
  - Shaheen-Portman fails to pass Senate (incentives vs. mandates)
  - Few federal mandates, limited gains
  - ESCO's still small relative to GDP (.02%)
  - EE Audit Tools inadequate to ID beyond the low hanging fruit

Best Bang for the Buck - EE

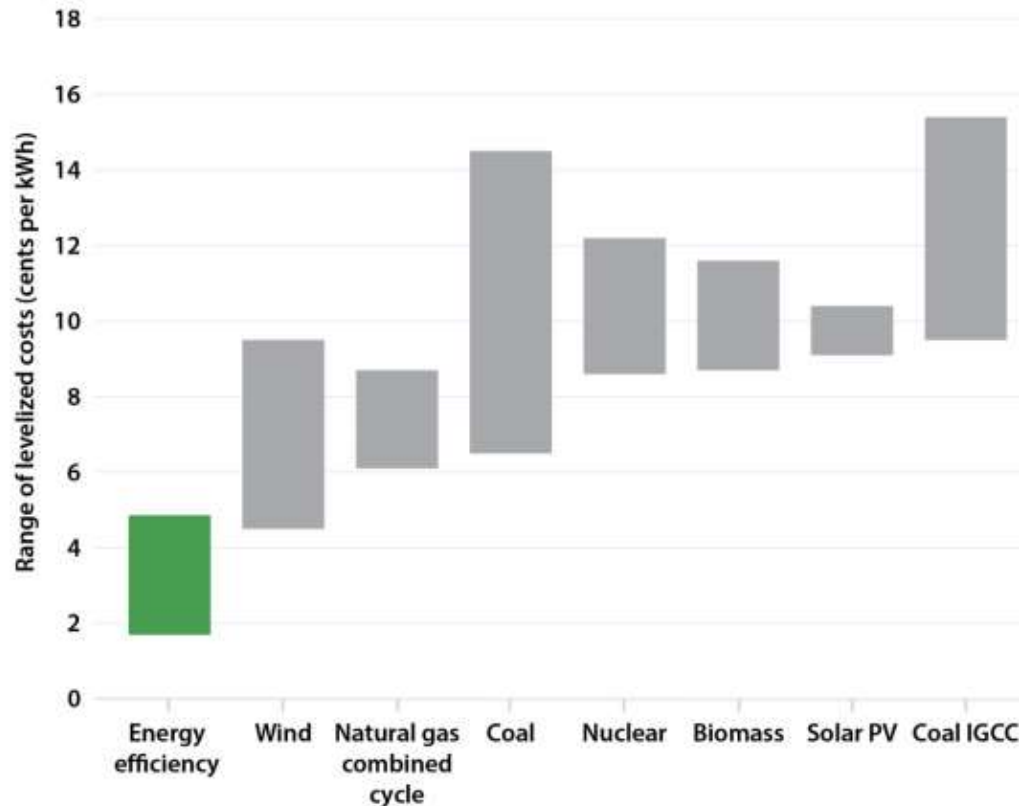- ## EE 1/3 cost of alternative new energy sources

Figure S2. Levelized costs of electricity resource options. *Source:* Energy efficiency data represent the results of this analysis for utility program costs (range of four-year averages for 2009-2012); supply costs are from Lazard 2013.

The Best Value for America's Energy Dollar: A National Review of the Cost of Utility Energy Efficiency Programs, Maggie Molina ACEEE March 2014

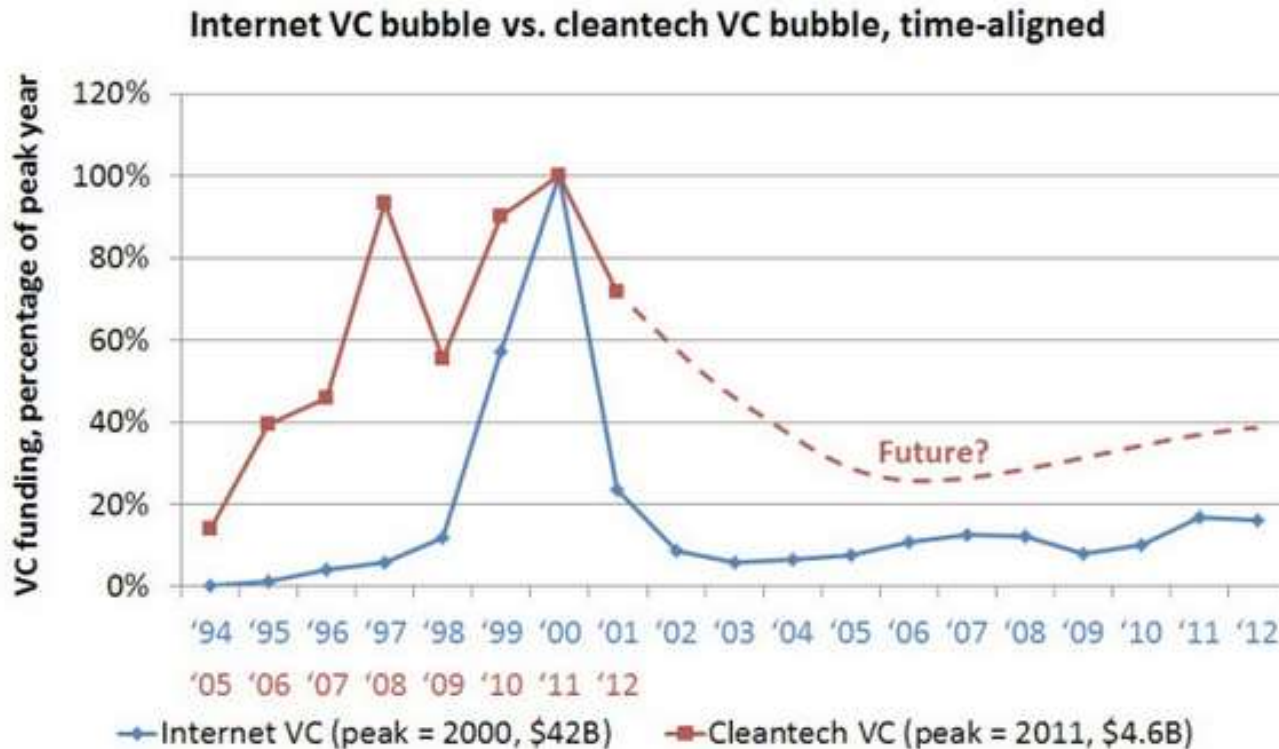**simuwatt**

2014 International Energy Efficiency Scorecard

THE US RANKS #13 OUT OF 16 — The United States – long considered an innovative and competitive world leader – has allowed other nations to surpass it.

What can the U.S. do to improve?

NATIONAL EFFORTS
The U.S. Congress should pass a national energy savings target.

A national energy savings target such as HR 5072 would push a unified effort for efficiency and spur greater investment in energy efficiency.

INDUSTRY
The federal government should support education and training in the manufacturing and industrial sectors.

Government should support the manufacturing and industrial sector to reduce the energy intensity of facilities by providing education, outreach and training that will facilitate greater investment in energy efficiency and quicker adoption of systematic energy management practices.

BUILDINGS
The federal government should strengthen national model building codes.

National model codes should be updated and the federal government should provide technical assistance to states implementing and adopting energy efficiency building codes.

TRANSPORTATION
The U.S. Congress should prioritize energy efficiency in transportation spending.

Government budgets should apply energy efficiency performance metrics in prioritizing federal transportation investments and increase funding levels for energy-efficient modes of passenger and freight transport.

Need:
- National Energy Savings Target
- Updated Efficiency Codes
- Transportation spending and EE
- Building scoring a la MPG
- Mandated energy audits

- The bubble and direction of cleantech investment

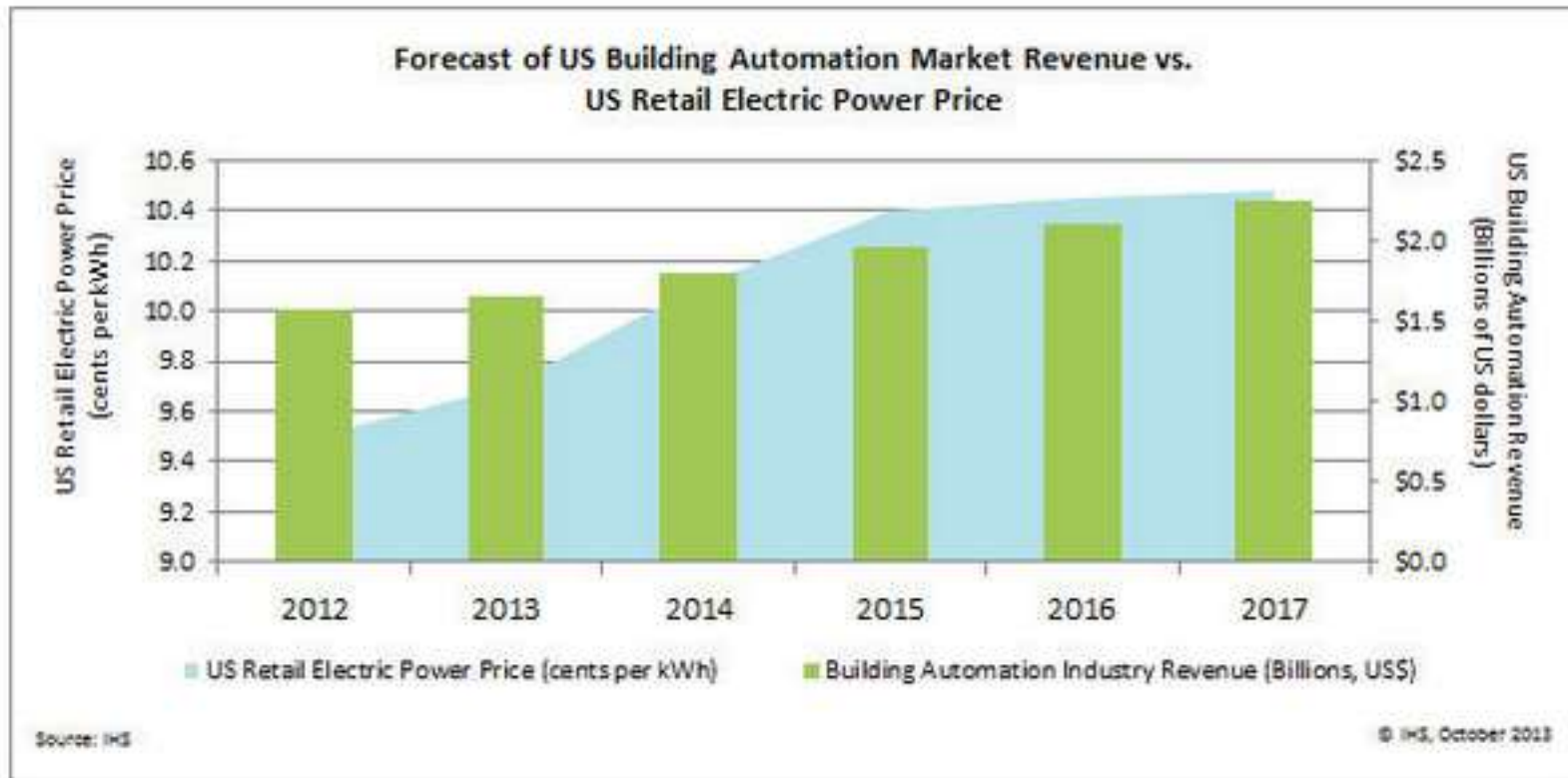Internet VC bubble vs. cleantech VC bubble, time-aligned

mnordan.com | Source: PWC/NVCA/Thomson Reuters Moneytree report.

Where's the Money Going

- Same places, big $ in automation.
- Why? Simple math…

Forecast of US Building Automation Market Revenue vs. US Retail Electric Power Price

Legend: US Retail Electric Power Price (cents per kWh); Building Automation Industry Revenue (Billions, US$)

Source: IHS

© IHS, October 2013

How About Technology?

- Google Glass…

How About Technology?

- ## Some Really Cool Stuff (Oculus Rift)

"*Rift fixes that (Scale and distortion) problem entirely, and the sense of scale is absolutely amazing. There is no other way to fully experience an architectural design the way you can with virtual reality in a Rift. I've done quite a few demos now, and it's clearly unanimous with anyone who tries it on that it has a future in architectural visualization.*"
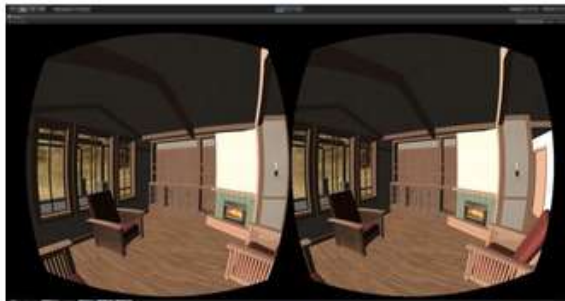
Architect Jon Brouchoud

- ## Some Really Cool Stuff (Tango)
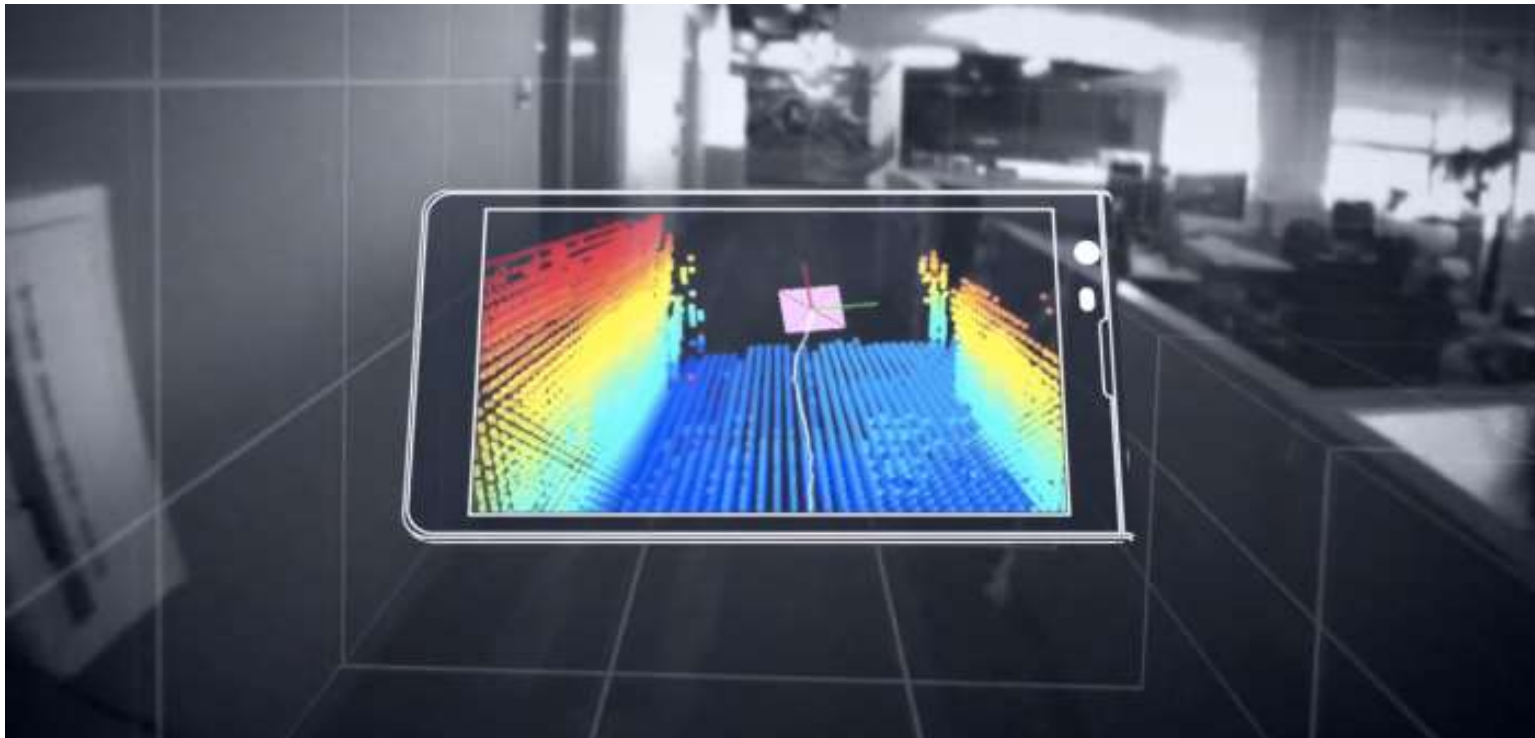
"a quarter million 3D measurements every second" to create a 3D map of the indoor environment on the phone. Using new technology customized for the prototype, the phone **can capture an environment in real time** as the user holds and moves the phone. - See more at: http://www.thegetsmartblog.com/project-tango-googles-newest-smartphone-experiment/#sthash.dMZdGEvI.dpuf

- ## Indicators... (Trimble and Google Tango)

Trimble Through The Wall leverages the tracking capabilities of Tango devices to reveal what is** located inside walls and other structures. Using data from Computer-Aided Design (CAD) or 3D Building Information Modeling **(BIM)** software, ….**heating, ventilation and air conditioning (HVAC) infrastructure on top of walls, at their correct location.

*"**Since Tango devices are designed to be aware of their environment and location, they provide an excellent complement to our strategy of making construction more efficient and transparent.**"*

Trimble PR, June 25, 2014

The Govt Picks Up Slack to Drive EE

**Building Component Library (BCL)**

Developed by NREL and simuwatt,
simuwatt owns copyright,
will host library

Proof of Concept

Joint R&D for geometric capture and photography, simuwatt owns IP

simuwatt Energy Auditor

DOD award to NREL and simuwatt to develop mobile energy auditing app

simuwatt Solar
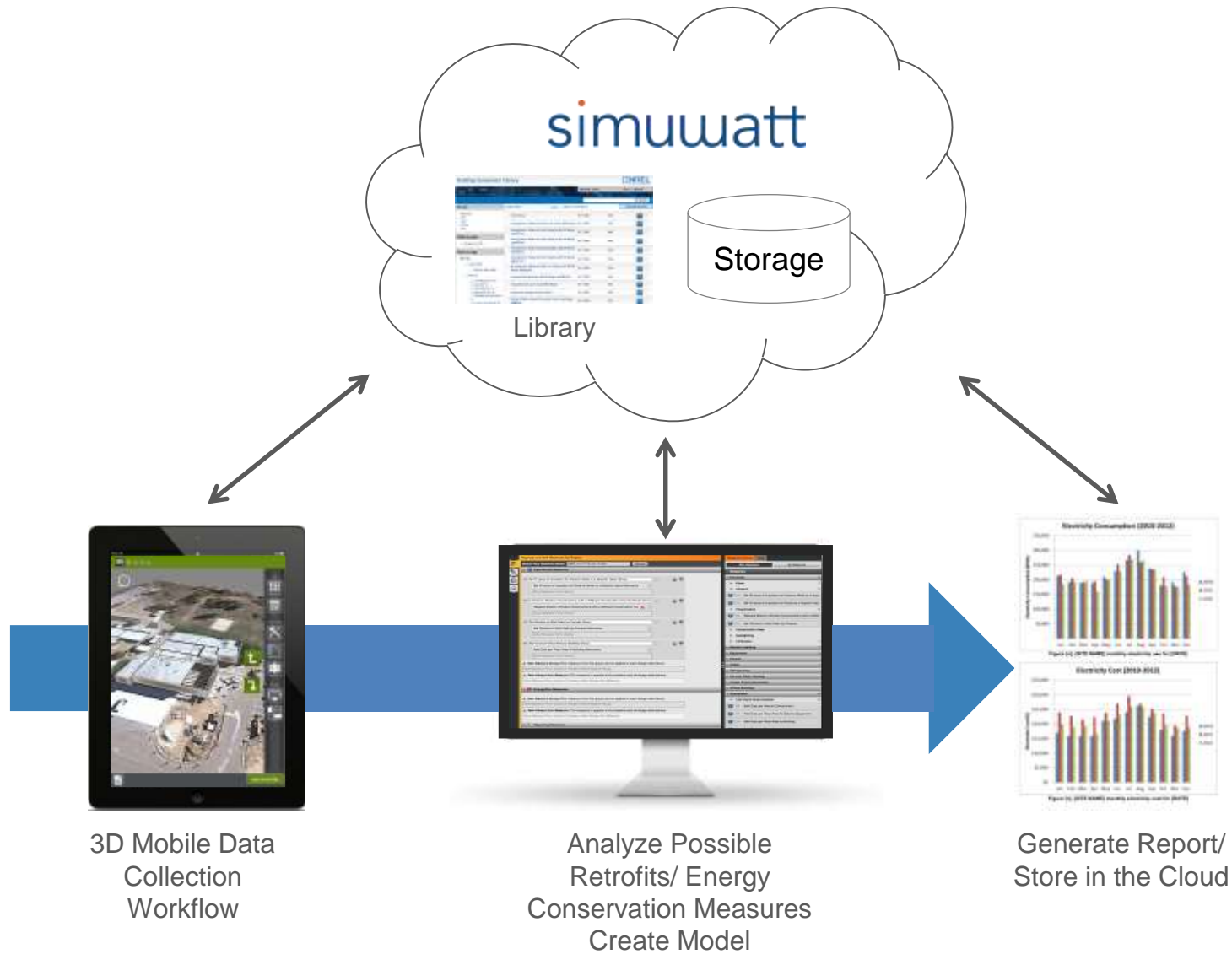
DOE award to simuwatt and NREL to develop mobile solar design app
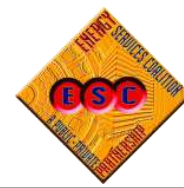
- Streamlined, high quality commercial energy audits (Levels I, II, III)

- Lower the cost of energy audits by 35-75%

- Consistent, standardized and reusable data format

- Community driven library of reusable components and measures

- Access data from the cloud and share projects

- Custom reporting and output

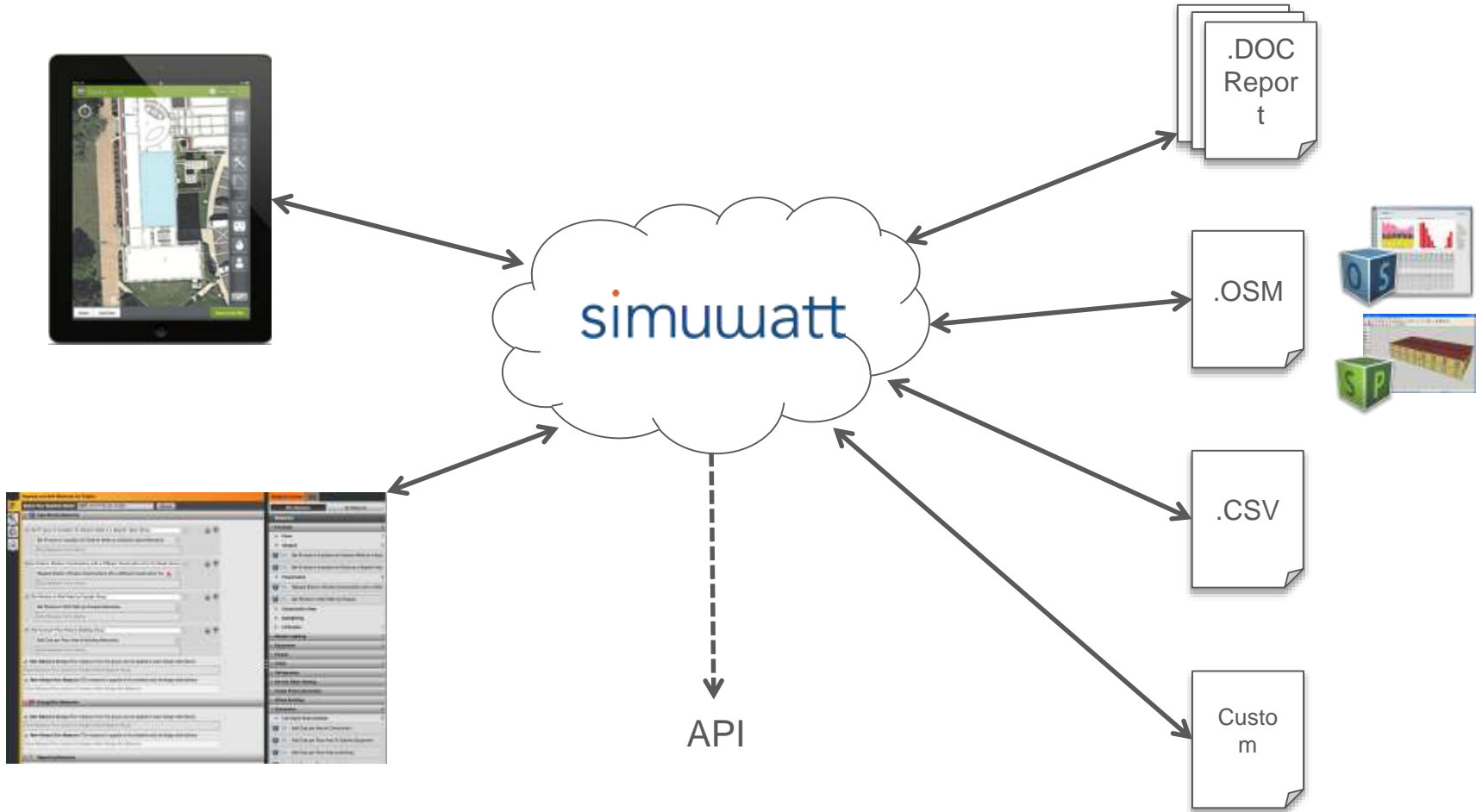- Opportunity for benchmarking and portfolio tracking

'Simple'

3D Mobile Data
Collection
Workflow
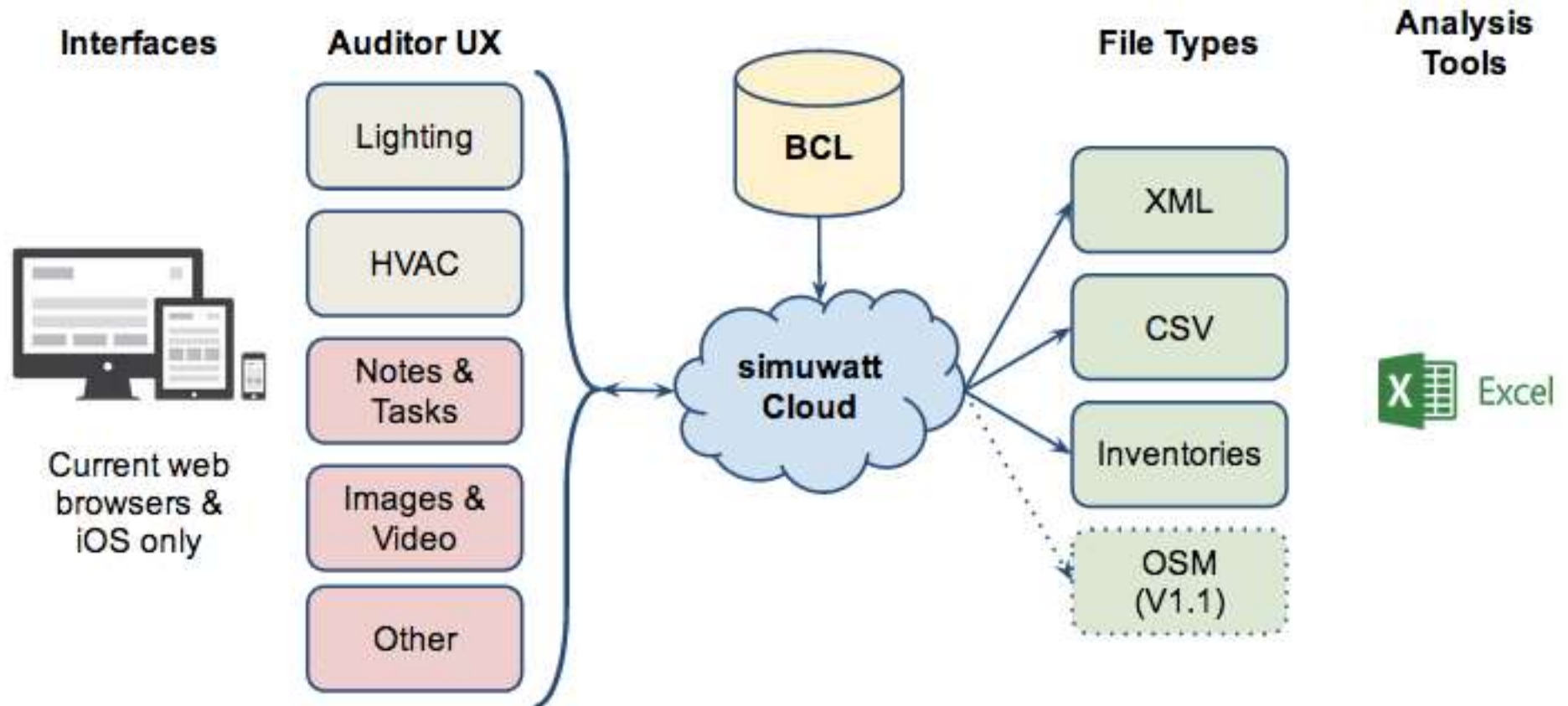
Analyze Possible
Retrofits/ Energy
Conservation Measures
Create Model

Generate Report/
Store in the Cloud

CONFIDENTIAL

'Simple'

API

But…Needs Flexibility/Modularity

Our View
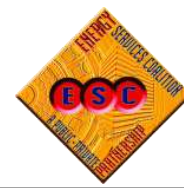
- Audit field trials, pushing for commercialization, but…
    - No such thing as a hard cut in EE
    - What is funded by Fed not necessarily what the market needs today
    - Old habits die hard

- Small Steps Are Okay, Delayed Product Launch
  - Our experience
    - Federal design not necessarily commercial wants
    - No single platform (no facebook or google)
      - Too many competing interests, platforms
    - Need to make simple…and even simpler.
    - Needs to be bankable…

Won't Happen Overnight

- Federal, State, Local, Utilities will continue to push EE with dollars, but still does has NOT driven behavior change (need an MPG for Efficiency)

- Technology key part of the solution and requires
    - Small successes
    - Simple processes
    - Trust
    - Flexibility
    - Concrete, measurable results
    - Action by the market

Who are we?

simuwatt

Rapid, Web and mobile energy audit & solar assessment applications