Can Games Change Energy Behavior and Reduce Consumption?

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Seriosity, Inc.
A 10% reduction in energy use will lower the quantity of fossil fuels consumed by an amount roughly equal to a 25-fold increase in wind plus solar power, or a doubling of nuclear power (Sweeney, 2007).

- This opportunity involves behavior change
- The engine of behavior change is information
The Problem

- **Billions** spent **gathering** information
  - Smart sensors and infrastructure
  - Tons of information

- But **energy** information is **dull**
  - Complex UI’s
  - Problems are distant
  - Feedback separated from behavior
  - “What I get” not obvious (even $)
A new gamer generation

**Video Game Statistics**

- **65%** of US households that play video games

**Gamer Age Distribution**

- 26% under 18
- 49% 18-49
- 25% over 50

- **32 years old** the age of the average gamer

**2 out of 5 gamers are female**
A new gamer generation

- *Marvel’s The Avengers*
  - $207.4 million for opening weekend (3 days)

- *Call of Duty: Modern Warfare 3*
  - $400 million (6.5 million copies) in 24 hours
  - “biggest entertainment launch in history”

- *World of Warcraft*
  - 11 - 12 million subscribers paying $15/month
  - Over $10 billion in sales over 7 years
A new science of fun

- Previous games research has focused largely on media effects of violent and aggressive content.

- A new wave of research is focusing on how games satisfy basic psychological needs.

- How games peak arousal and attention to keep us engaged.
A new sense of work vs. play

- Increasing attention to **serious games**
  - IBM, State Farm, P&G, Microsoft, military, security, education, health

- **Games work in serious contexts**
  - Health, business productivity, learning

- Work and play are not opposites
The Idea

- Use successful *ingredients* from games:
  - Self representation; feedback; community connections, ranks and levels; teams; virtual economies; compelling narrative

- Make a **multiplayer game** that connects home smart meters with game play
  - Track energy use
  - Feedback displays in game
  - Links to social networks and mobile devices
Guiding concepts

- **Mix** real and virtual
  - House and real behavior as joystick for game play
- Build **professional** games introduced at **scale**
  - Dept. of Energy - ARPAe
  - Seriosity, Inc. & KUMA Games
- Fit current **game trends**
  - Farmville
  - Facebook
- **Stay true** to game sensibilities!
  - Even though the game goals are serious
  - Fun, multi-period, rewards, teams, feedback…
Power House
An energy-saving game that creates real results!

🌟 Play "Power House" with your friends. It's an addictive "green" Sim with action, info and trivia!

🌟 See your actual home energy use with Google Powermeter and then use real world savings to win contests and prizes!

🌟 Earn Carbon offset points by playing games & use your points in the real world to plant trees, preserve rain forest, and support sustainable living!

Click Play Now to unlock your Power House!

PLAY NOW

A social game promoting energy conserving behaviors
Welcome to the Dashboard
energytest2@test.com
View/Edit Profile Details

Score
What is this?

Play Game
Highest Game Score
How do I play?

Upgrade my House
Upgrade Bucks
What is this?

Challenge a Friend
What is this?

Launch R-LEA Challenges
R-LEA Bonus Points
What is this?

Launch Market Place
Carbon Offsets
What is this?

ACHIEVEMENTS 0/100

What's Happening in the Game

What's Happening in your Game

View: Home Energy Use Game Tachometer Table View

SMART METERING ON

Game Bonus Calculation
Saving electricity in your REAL home helps you in the Game! The more energy you save at home, the bigger your red line number in the game tachometer making the game more fun to play and easier to earn higher scores.

Real-Life Home Energy Use
Average Daily Usage: 43.179 kWh
Yesterday's Usage: 36.986 kWh
Equal Percentage Savings: 15.70%

Earnings Game Bonus
Today's Red Line Bonus: 41000 Wh

Bonus Allocation
*Start Value: 8000 Wh (8 kWh)
negative savings: 0 Wh
0 to 5% savings: 250 Wh
5% to 10% savings: 500 Wh
10% to 15% savings: 1000 Wh
15% to 20% savings: 1500 Wh
20% or better savings: 2000 Wh

Real-Life Energy Action Challenges
MarketPlace

Saving the planet, one game at a time
LEVEL 1: Real Life Energy Action Challenge

How many hours a day would you need to cut down on your heating or cooling to produce a 10% - 15% energy savings each year?

- 8 hours
- 12 hours
- 18 hours
Neighborhood

Got Friends?

Neighborhood is a visual representation of your friends. Click on a username to see additional information. Play the games and use your upgrade bucks to earn even higher scores. Invite your friends to play on the friends page and you will see them here after they sign up.
• 85% of players report they would likely continue playing

• Getting measurable change in real energy behavior
Next Steps:

- Enhance social elements of the game (Facebook Connect)
- Approach household energy behavior through family “gatekeeper”
- Compare household energy consumption of players to that of non-players
- “The medicine works”
  - Can we tease out what particular ingredients contribute the most?
  - Gameplay, informational surveys, challenges

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