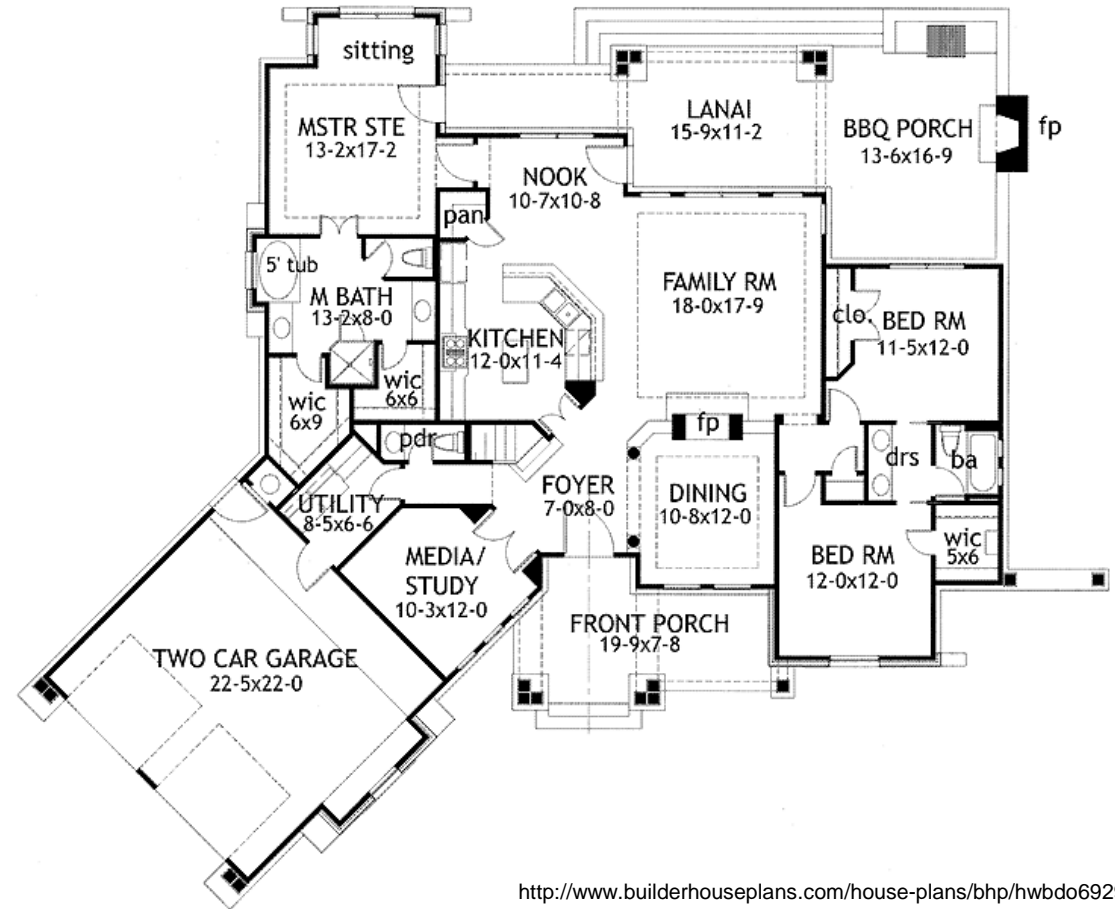


# **SENSOR:**

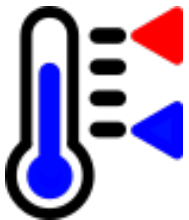
## **Saving Energy Nationwide in Structures w/Occupancy Recognition**

Dr. Jennifer E. Gerbi  
Program Director, ARPA-E

# What happens when you're not home?



<http://www.builderhouseplans.com/house-plans/bhp/hwbdo69293.html>



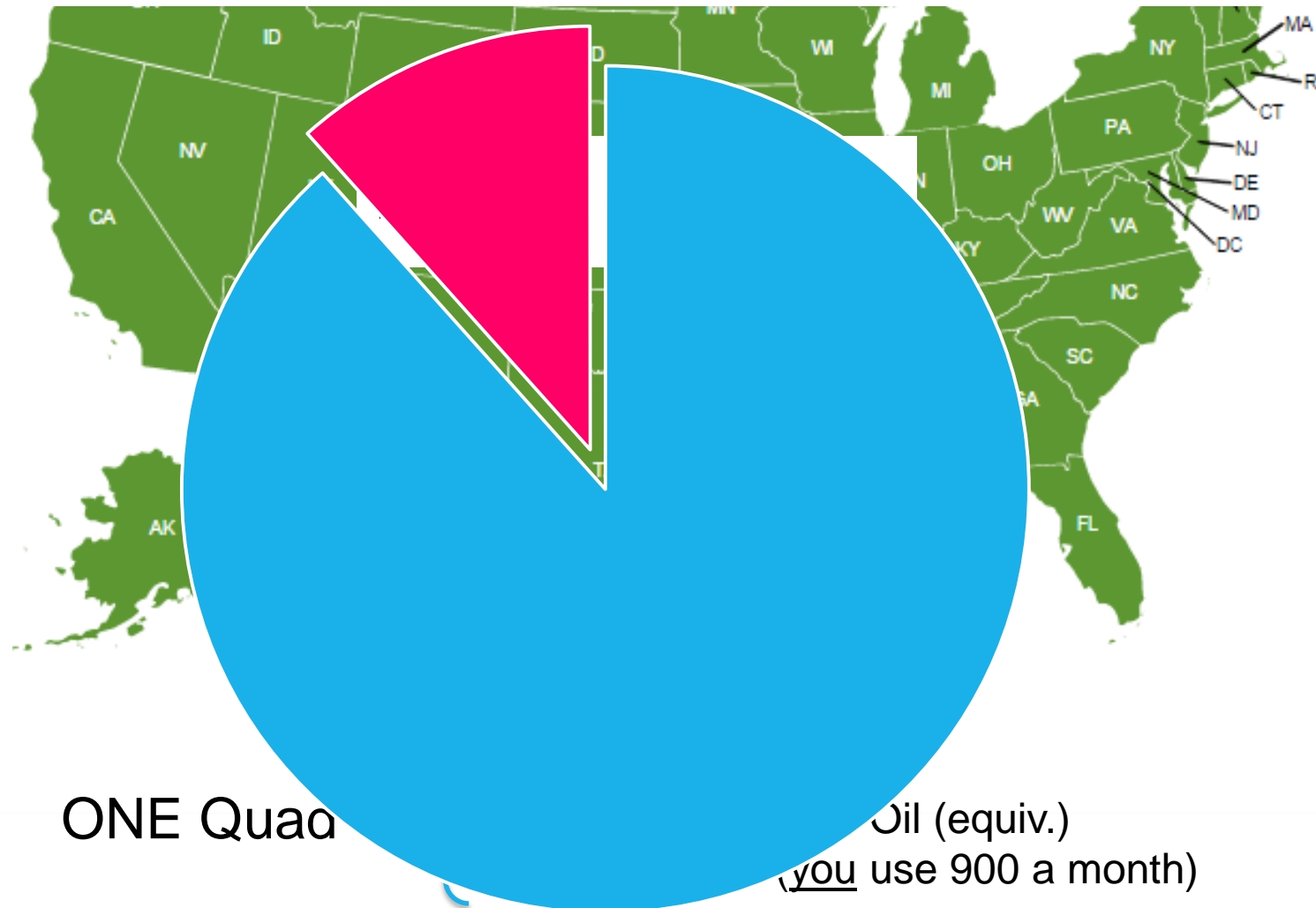
# What happens when you're not at work?





ONE Quad = {  
36 Billion kg hard coal  
180 Million Barrels of Oil (equiv.)  
293 Trillion kWh (you use 900 a month)

# Residential and Commercial HVAC = 13% of ALL Energy Used in US





*What happens when you're not home?*

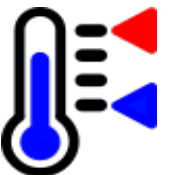


Are there humans?  That's all!

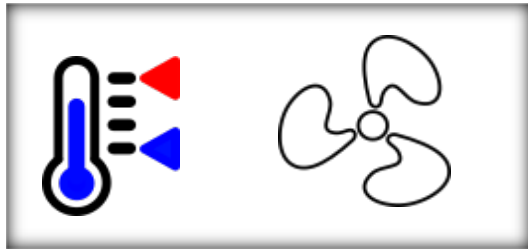
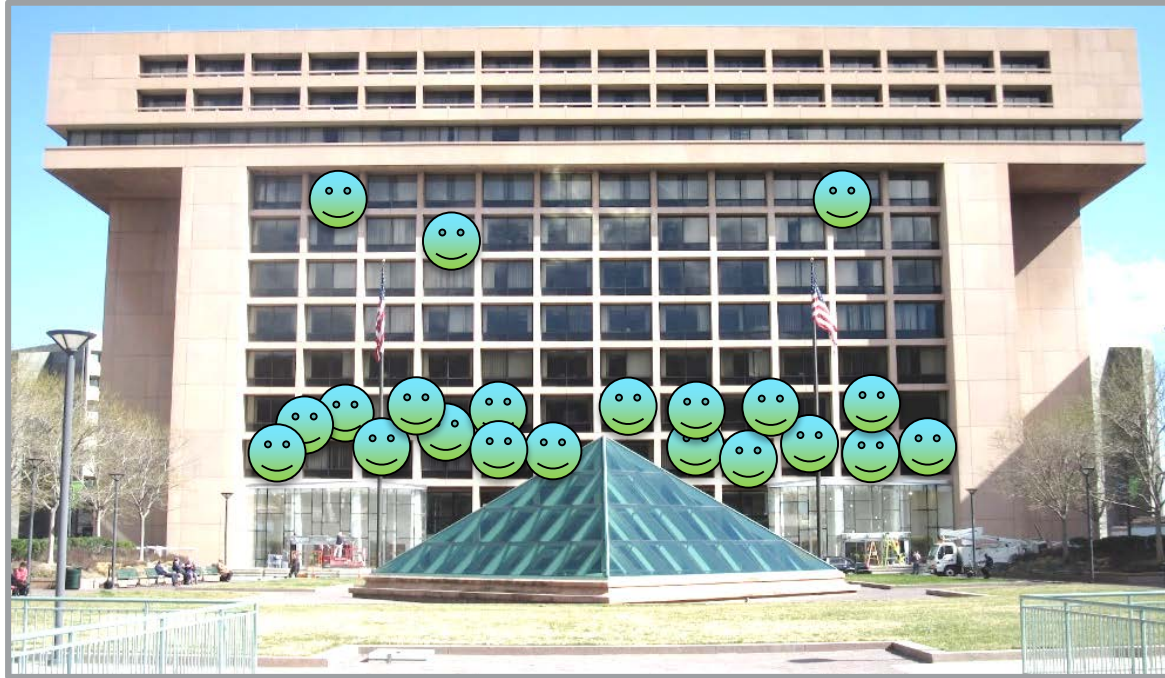
We **don't** want to know:

- who you are
- what you are doing
- where you are

If we had this, we could save 30% energy



# *What happens when you're not at work?*



Are there humans?  AND...

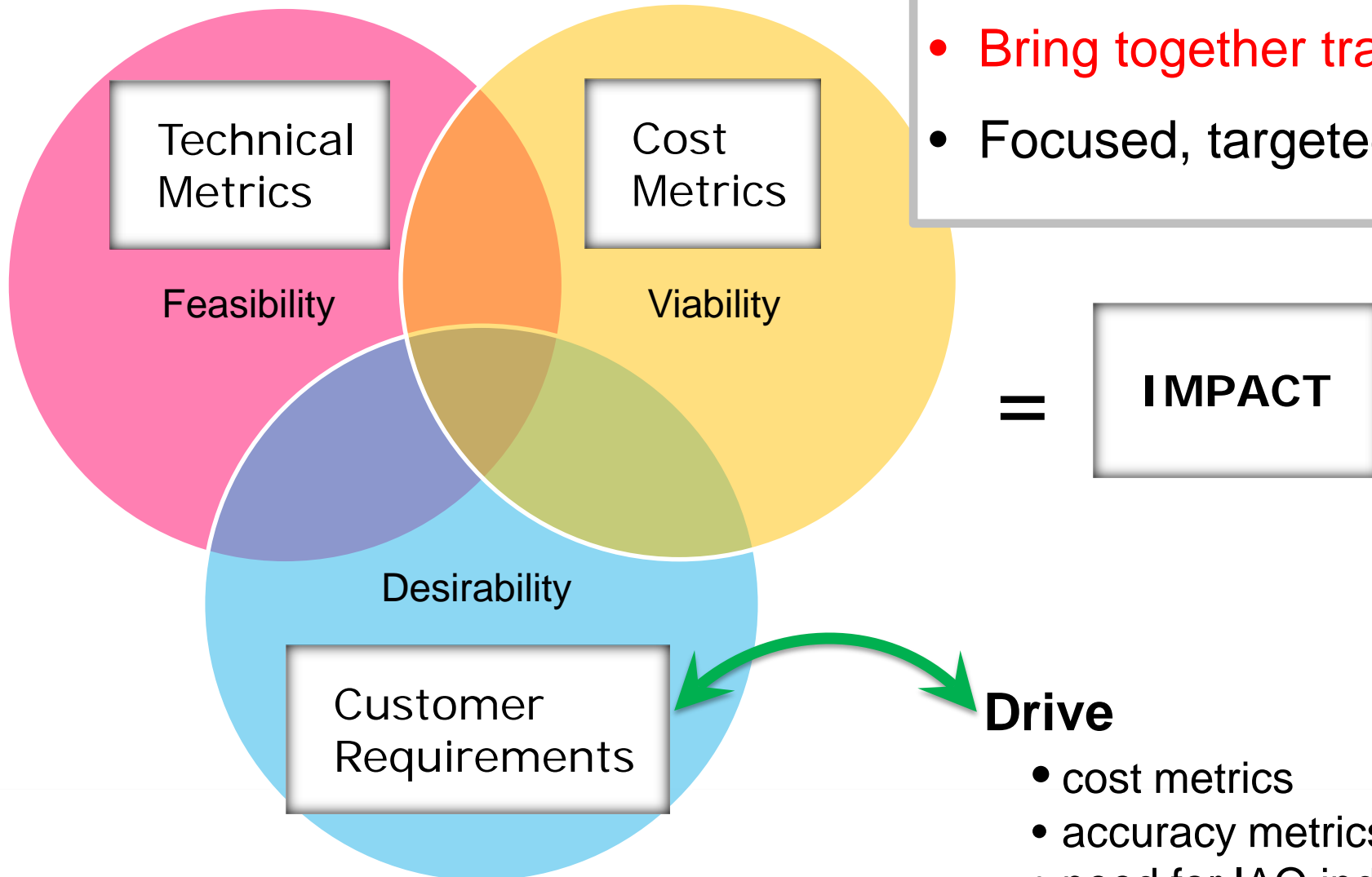
**We need to know:**

- Which HVAC zone you're in
- How many in that zone

**We don't want to know:**

- who you are
- what you are doing

If we had this, we could save 30% energy



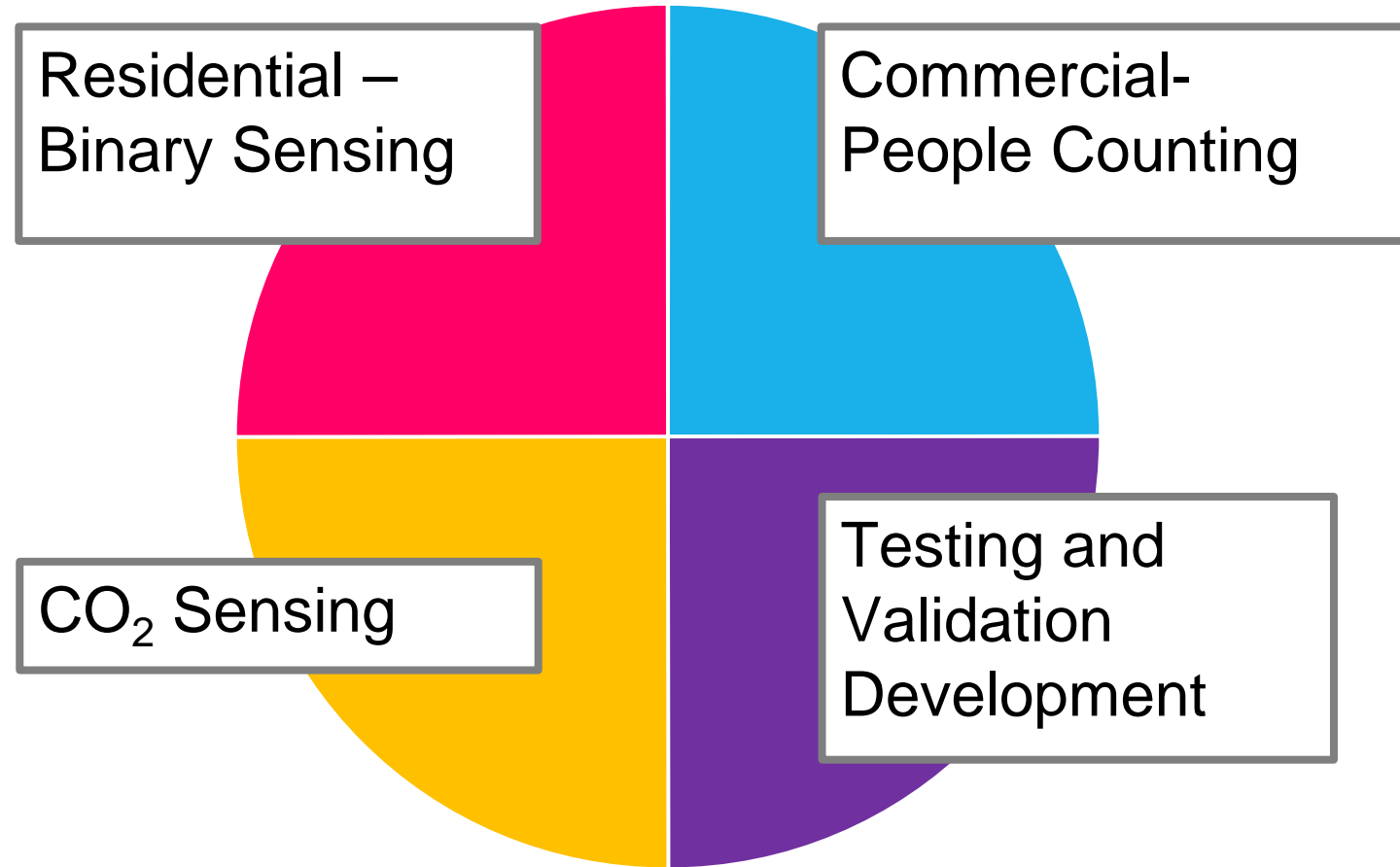
- Break out of current technology paths
- Include T2M as key....***start to finish***
- **Bring together traditionally disparate teams**
- Focused, targeted, critical path

**Drive**

- cost metrics
- accuracy metrics (i.e. NOT movement sensing!)
- need for IAQ indicator!



# SENSOR FOA Structure



FOA = funding announcement

**WE ARE HERE** → Concept Paper = ~ few pages (dictated in FOA)  
Full Proposal (invited CPs) ~30 days

# THERE IS A CURENT FOA for concept papers!

Concept Papers  
Due by **Mar 17**

**“SENSOR”**

<https://arpa-e-foa.energy.gov/>

<https://arpa-e.energy.gov/?q=workshop/advanced-occupancy-sensors-better-buildings-workshop>

