

# The Role of EE as a Resource in ...

## *ARIZONA*

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ACEEE Energy Efficiency as a Resource Conference

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# Arizona Public Service Co. (APS)

## Company

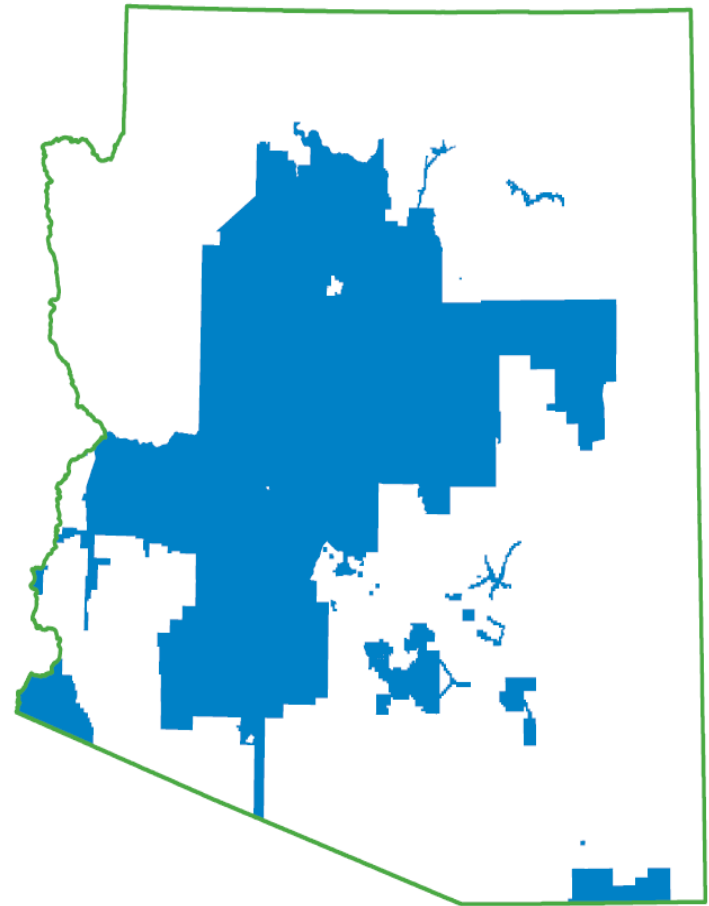
- Largest electric utility in Arizona
- 1.1 million customers
- \$3 billion in annual sales revenue

## Service Territory

- Serving portions of 11 out of 15 counties in Arizona – rural and urban
- Serves ½ of Phoenix metro area

## Growth

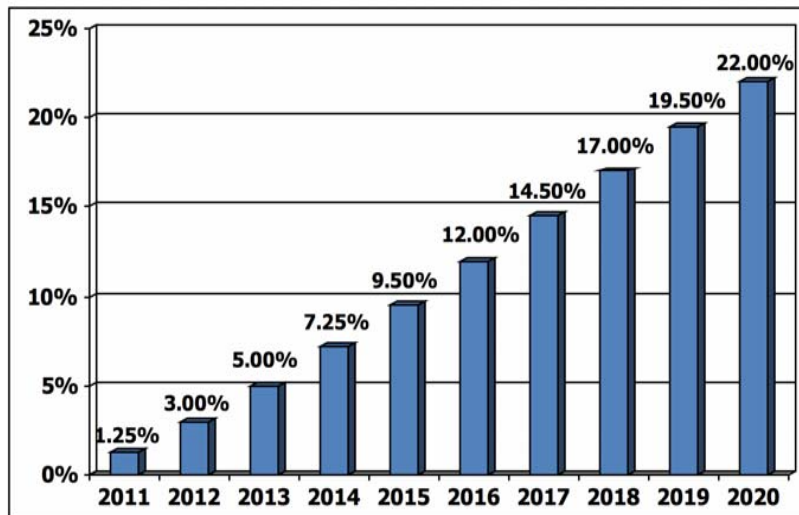
- Projected AZ pop. growth = 2% /yr.
- Annual sales growth very strong
  - Historically: 4-5% per year
  - Recently: 1-2% per year
- 7,000 MW peak demand; growing by 250 MW per year over next 10 years



# EE Standard in Arizona

## *Savings equivalent to 22% of Retail Sales by 2020*

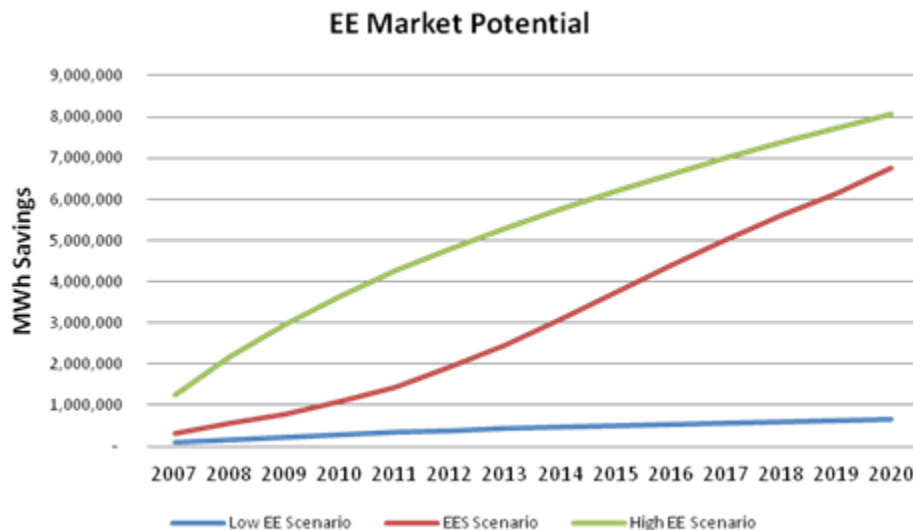
- Passed by ACC in 2010; effective 1/1/2011
- Different than Renewable Energy Standard; no overlap
  - Renewable Standard = 15% by 2025
- Cumulative savings from 2005 to 2020 counted
- One of the most aggressive EE standards in the country



Annual incremental savings from DSM programs starts at 1.25% in 2011 and grows to 2.50% by 2016

# Is 22% Achievable?

- Market potential study
  - Identified → technical potential / economic potential / achievable market potential
  - Range of achievable market potential depending on assumptions:
    - % of incremental costs utility programs can cover
    - % of customers who actually adopt measure given payback



EE Standard of 22% by 2020 appears to be achievable, but at the high end of the range of market potential (100% of incremental cost; 80% customer adoption)

# EE Benefits All ... With Some Risk

## *To Utility*

### ***Benefits:***

- Resource diversity
- Lower cost
- Fewer GHG emissions
- Lower water usage

### ***Risks:***

- Less controllable
- Less tangible than steel in the ground
- Could hurt earnings

## *To Customer*

### ***Benefits:***

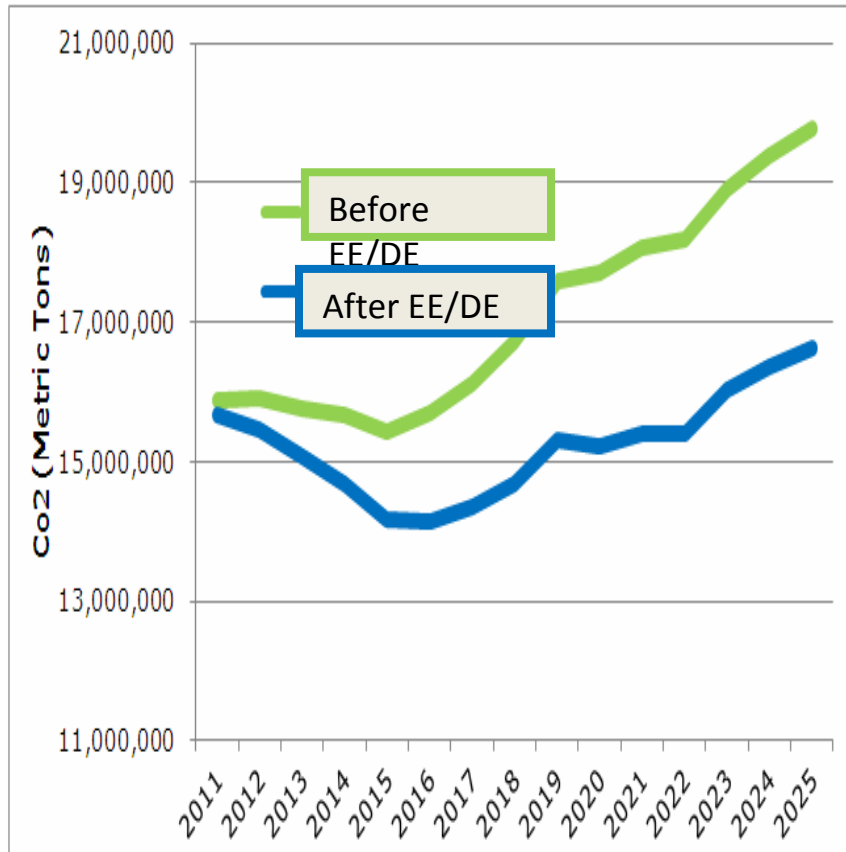
- Tool for managing electric bill
- Lower cost in long run
- Better for environment

### ***Risks:***

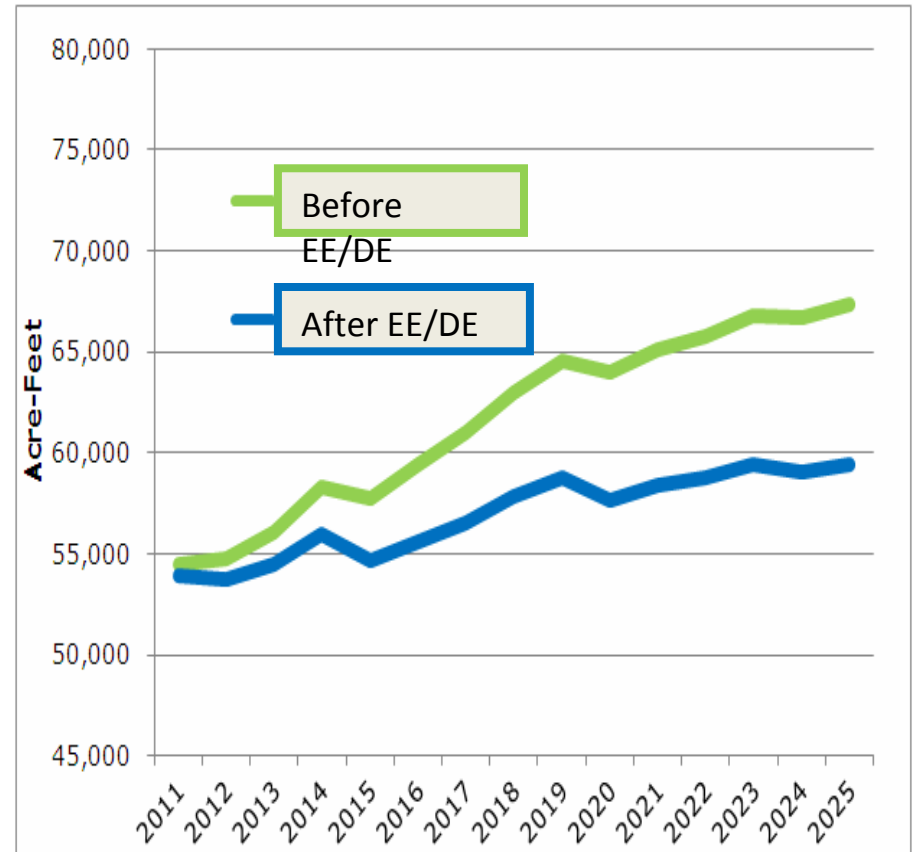
- Higher up front costs
- Requires customer investment
- Spreading costs among all customer groups

# Environmental Benefits of EE

## CO2 Emissions



## Water



# Learnings from EES Development

- Understand approximate EE market potential
  - *Be realistic about customer participation*
- Compare EE to other resources and set standard to meet long term resource needs
- Be specific about what counts toward the EES
  - *Building code improvements?*
  - *Higher appliance efficiency standards?*
  - *Energy savings from demand response?*
  - *Utility system efficiency improvements?*
- Clearly define how savings are measured
  - *Gross savings or net savings?*
  - *Annual goals or cumulative goal?*
- Work with all stakeholders to achieve realistic standard

# EE as a Resource

***For utilities to embrace EE as a resource ...  
the following conditions should be met:***

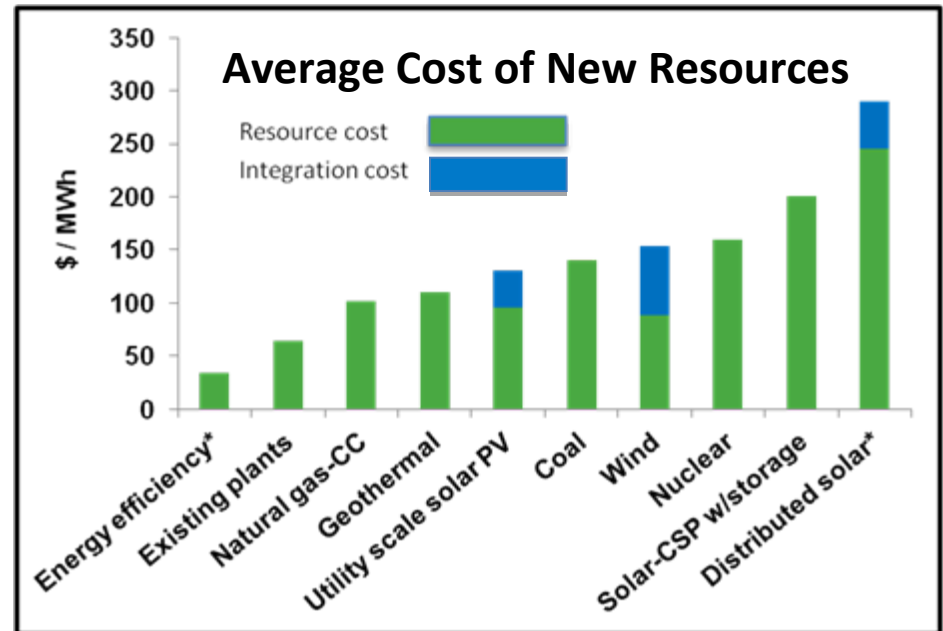
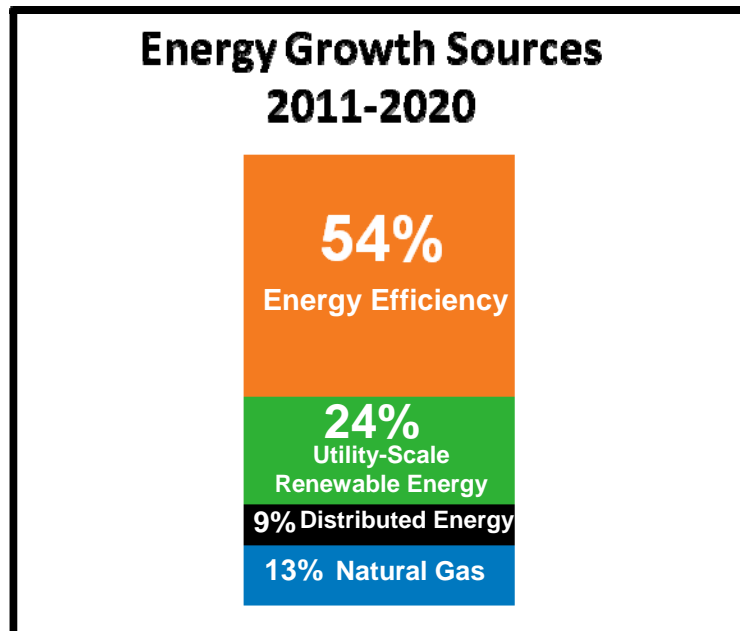
- EE should remain a cost competitive resource
- EE should not hurt financial condition of company
  - *Recovery of program costs*
  - *Made whole from fixed costs not recovered because of lower sales volumes*
- EE should have earnings opportunity similar to rate base earnings from generation resources
  - *Performance incentive or capitalizing program costs*
- EE should produce real reductions to system load
  - *Reliable and visible to system operators and planners*



# Current Treatment of EE at APS

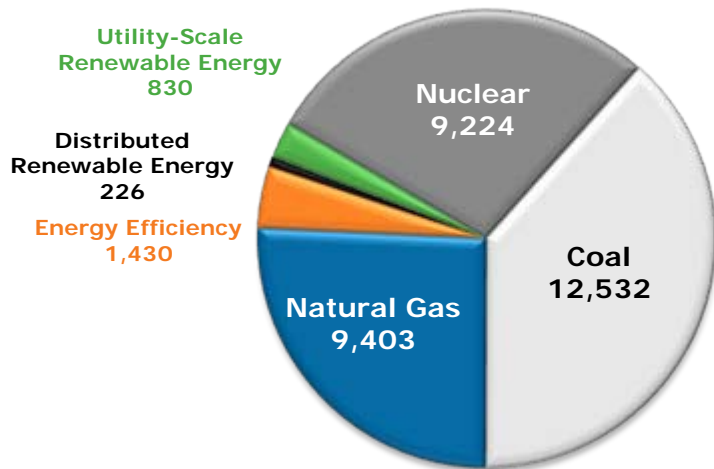
## *EE is a critical resource in the APS Resource Plan*

- Meets 20% of retail sales requirement by 2020
- Accounts for 54% of energy growth from 2011 to 2020
- Displaces 1300 MW of generation capacity by 2025
- Currently delivered at \$19 / lifetime MWh

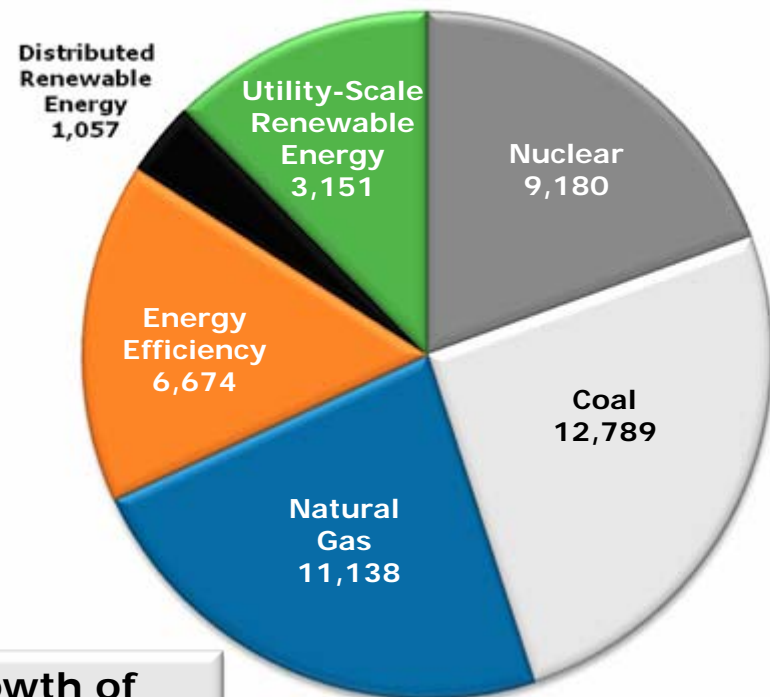


# EE is Fastest Growing Resource

**2011**  
Total Energy  
32,606 GWh



**2020**  
Total Energy  
42,253 GWh



Customer energy growth of  
~9,650 GWh, nearly 30% above  
current levels

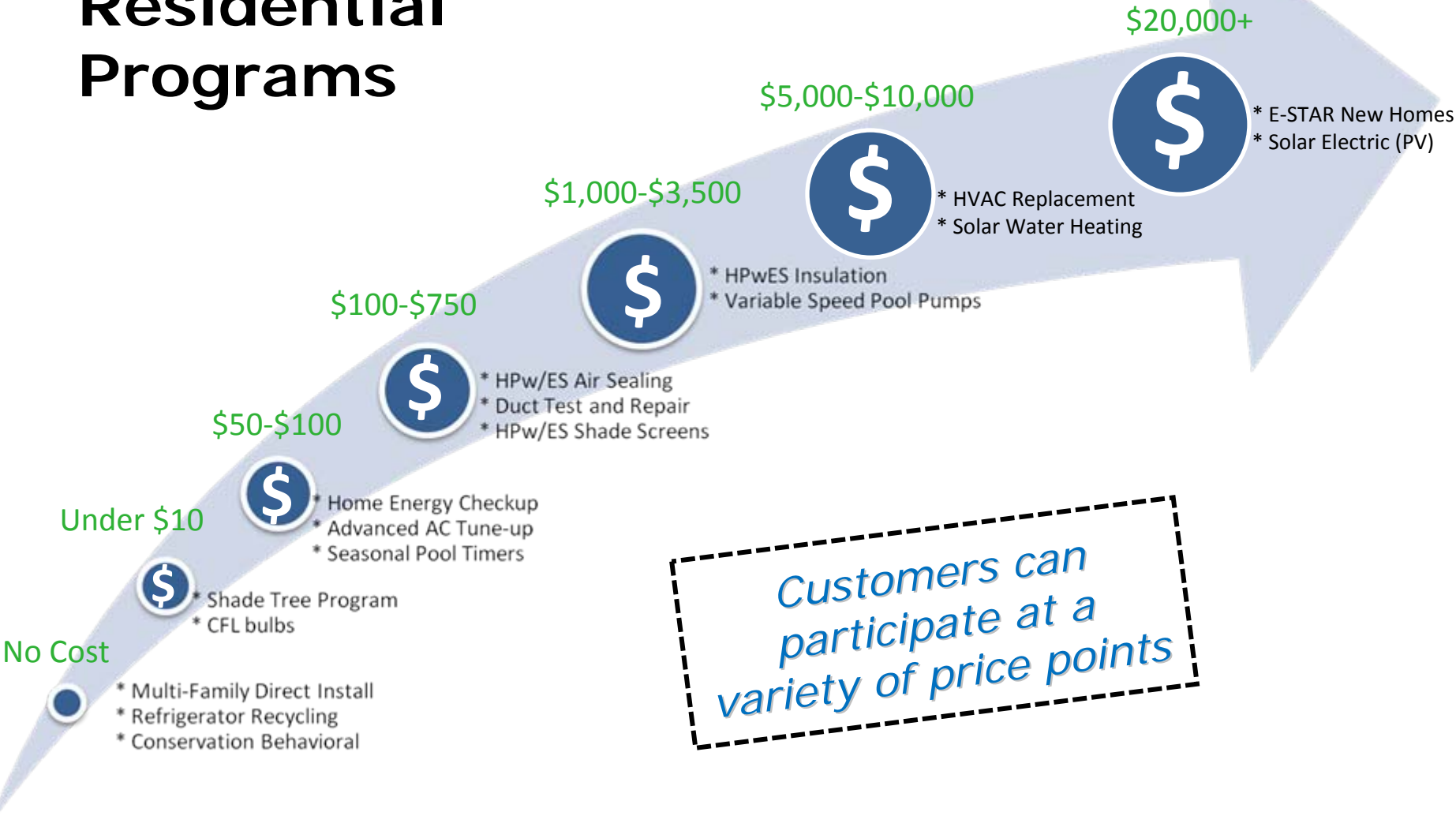
# Tips to Achieving Market Potential

Have diverse portfolio of programs	<i>All end uses; not just lighting; whole house/building</i>
Cover broad spectrum of price points	<i>No/low cost → modest cost → major investment</i>
Give all customers opportunity to participate	<i>Residential/business; all segments; all income levels</i>
Make it easy to participate	<i>Instant rebates; discounted prices; easy applications</i>
Educate customers on value to them	<i>Emphasize bill savings; payback of investment</i>
Look for opportunities to overcome barriers	<i>Financing; technical assistance; bundling of services; qualified contractors</i>

# APS Energy Efficiency Programs

RESIDENTIAL	
Consumer Products	CFL lighting, Pool pumps/timers
Existing Homes	AC rebates, Duct repair, Energy audits
New Homes	High performance new homes
Appliance Recycling	Refrigerators, freezers
Low Income	Weatherization, bill assistance
Conservation Behavior (pilot)	Custom home energy reports (O Power)
Multi-Family	Rental property efficiency upgrades
Shade Trees (pilot)	Free shade trees, planting workshops
NON-RESIDENTIAL	
Large Existing Facilities	Comprehensive EE upgrades for all commercial, industrial and institutional customers. Addresses all segments and end uses with custom and prescriptive measures. Marketed as “Solutions for Business”
New Construction	
Small Business	
Schools	
Energy Information Services	

# Residential Programs



*Customers can participate at a variety of price points*

# Challenges Going Forward

- Incremental savings needed each year higher than previous year
  - Dependent on customers taking action
  - Federal stimulus (ARRA) money going away
  - Cost of EE will be going up per unit
  - New technologies needed to create new savings opportunities
- *1.25% of sales now; reaching 2.5% by 2016*
  - *Economic slowdown making investment difficult*
  - *Additional incentives gone by 2013*
  - *New programs/measures more expensive per unit saved*
  - *LED lighting; heat pump water heaters; next generation appliances, etc.*

# Summary

- Arizona has a VERY aggressive EE Standard
  - *22% of sales by 2020*
- APS treats EE as a resource; independent of the EE Standard in Arizona
  - *Currently modeling compliance with EE Standard in resource plan*
- EE portfolio has diverse set of programs to meet savings goals
  - *Many programs to achieve broader and deeper customer savings*
- Significant challenges ahead for EE
  - *Increasing goals and budgets produce customer bill increase pressure*
  - *Meeting goals dependent on customer actions*