



# AK-CHIN RESOURCE CONSERVATION PLAN

ATEA ANNUAL MEETING

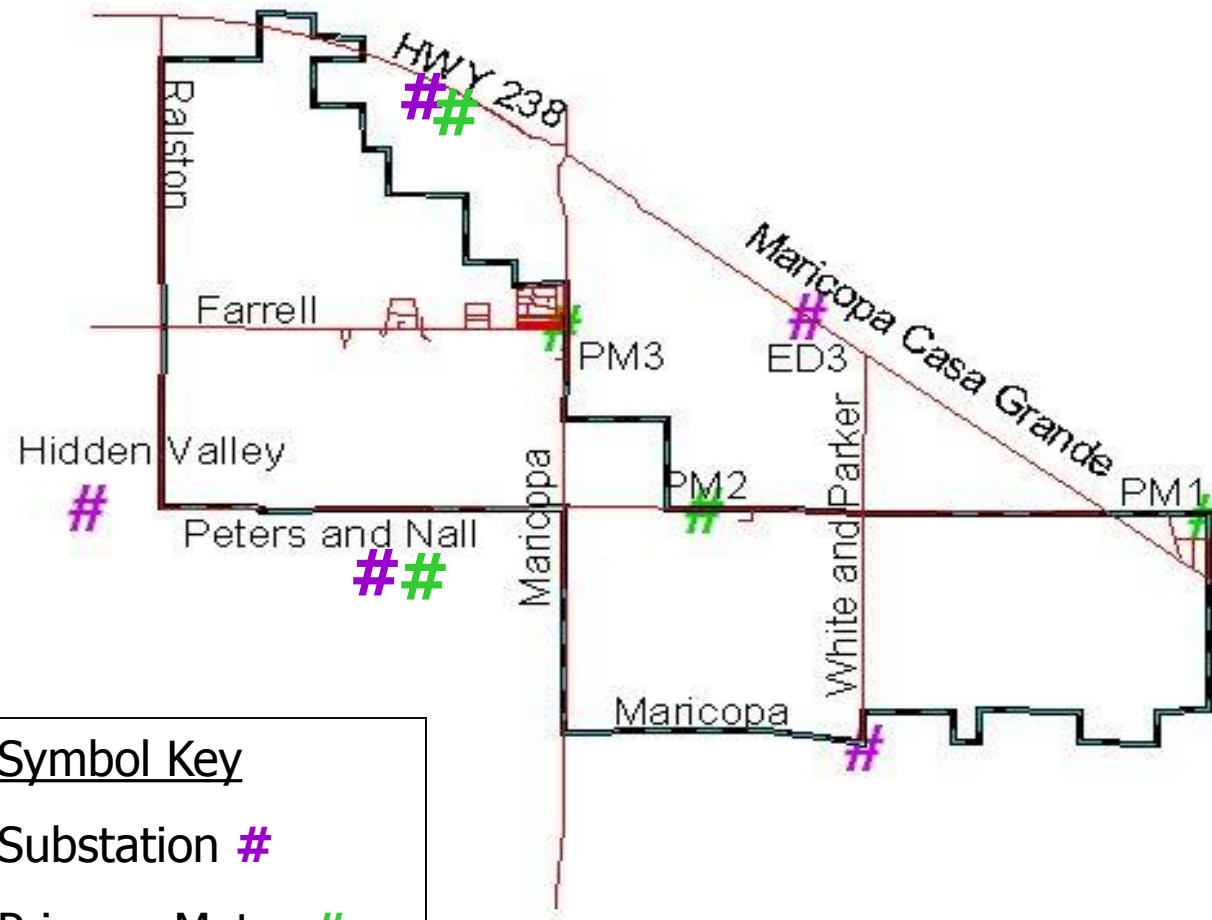
JANUARY 25, 2018

# ACES BOARD MEMBERS



- CHARLES CARLYLE – CHAIRMAN
- MARIA HERNANDEZ – VICE-CHAIR
- FRANKLIN SAM
- ADELLA ZABAWA
- CARLTON CARLYLE
  
- KATHY SHOEMAKER - ACCOUNTING
- ED GERAKE – UTILITY STRATEGIES CONSULTING GROUP

# ACES SERVICE AREA



## Symbol Key

Substation #

Primary Meter #



# PURPOSE

- PLAN, SCHEDULE, MANAGE AND EVALUATE THE COMMUNITY POWER RESOURCE PORTFOLIO
- SET, REVIEW AND MANAGE RATES & BILLING FOR POWER & WATER
- OPTIMIZE THE POWER RESOURCE TO THE BENEFIT OF THE COMMUNITY
  - RESIDENTS & ECONOMIC DEVELOPMENT
- BRING OPPORTUNITIES AND RECOMMENDATIONS TO THE COUNCIL FOR APPROVAL

# HISTORY OF ACES



- IN 1970'S - AK-CHIN INDIAN COMMUNITY (AK-CHIN OR COMMUNITY) HAD A VISION TO OWN AND OPERATE THE ELECTRIC SYSTEM ON THE AK-CHIN INDIAN COMMUNITY RESERVATION (RESERVATION)
- IN 1970'S - AK-CHIN OBTAINED AN ALLOCATION OF FEDERAL HYDROPOWER THROUGH A CONTRACT WITH THE WESTERN AREA POWER ADMINISTRATION (WESTERN) FOR POWER FROM THE COLORADO RIVER STORAGE PROJECT (CRSP).
- IN THE EARLY 1990'S - AK-CHIN INDIAN COMMUNITY COUNCIL (COUNCIL) INITIATED EFFORTS TO EVALUATE FORMING A TRIBAL UTILITY AND PURCHASING THE EXISTING ELECTRIC FACILITIES ON-RESERVATION FROM ARIZONA PUBLIC SERVICE (APS)

# HISTORY OF ACES



- IN 1992 - COUNCIL PASSED A RESOLUTION CREATING THE AK-CHIN ELECTRIC UTILITY AUTHORITY, WHOSE NAME WAS CHANGED IN 2005 TO AK-CHIN ENERGY SERVICES (ACES).
- 1992 – 1993 - AK-CHIN DETERMINED THAT HIRING A THIRD PARTY TO PERFORM OPERATION, MAINTENANCE AND CONSTRUCTION (OM&C) OF THE ELECTRIC SYSTEM WAS THE PRUDENT APPROACH.
- FROM 1992 – 1997 - AK-CHIN AND APS NEGOTIATED FOR THE PURCHASE OF THE ELECTRIC FACILITIES AND FOR APS TO PERFORM OM&C SERVICES
- 1996 – COUNCIL APPROVED PLAN OF OPERATION APPROVED ON SEPTEMBER 18, 1996

# RESOURCE PORTFOLIO



- CRSP ALLOCATION
  - WINTER = 1.92 MW / 4,273 MWH
  - SUMMER = 4.24 MW / 9,373 MWH
- BENEFIT CREDIT WHITE MOUNTAIN APACHE TRIBE
  - AHP = 1,643 TO 2,073 MWH
- SPPA/SPPR – 5 MW (2.1 MW LAID OFF UNTIL 2019)
- HOOVER ALLOCATION (OCTOBER 2017)
  - 1 MW / 1,046 MWH
- WRP/MARKET

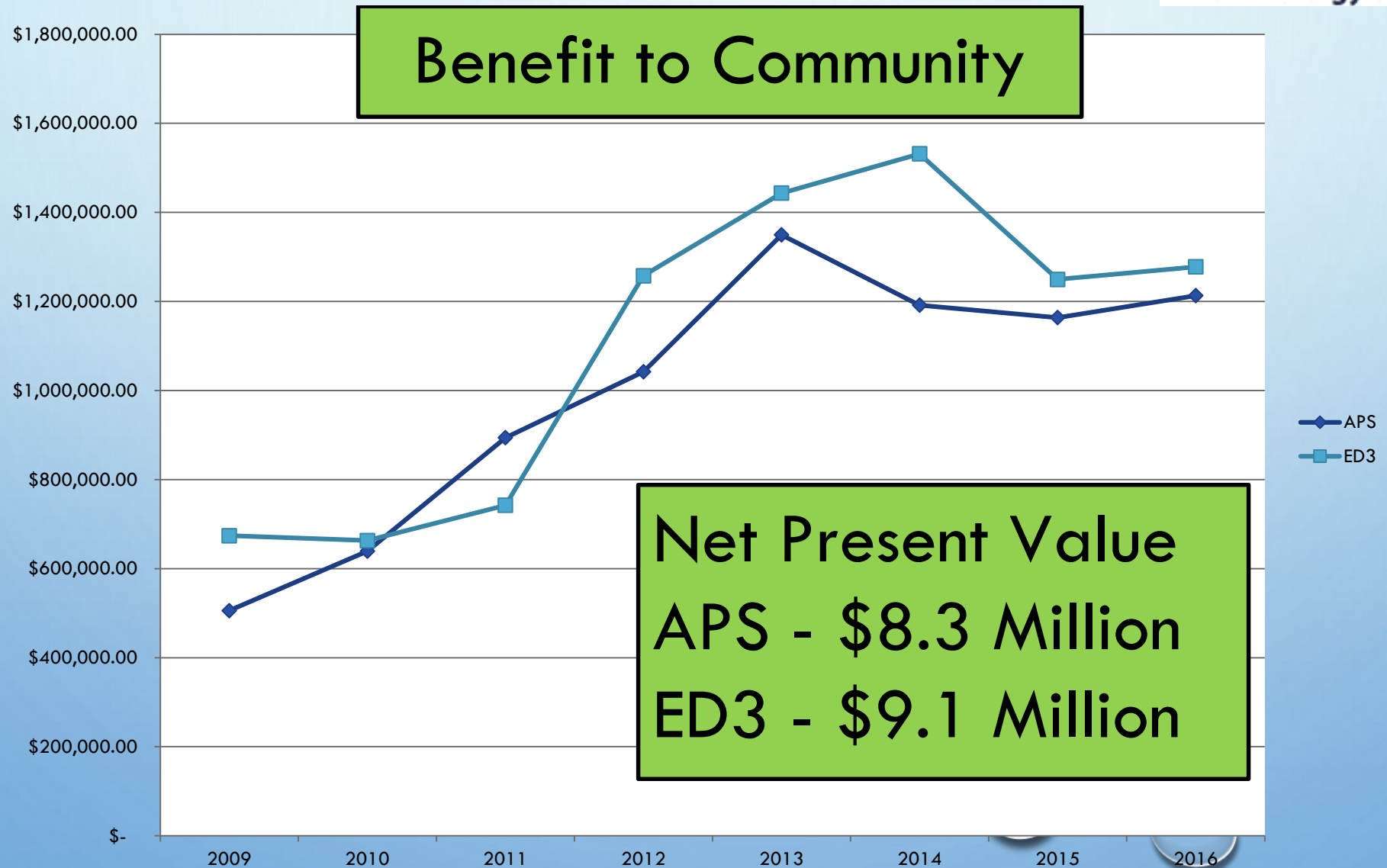
# LOAD GROWTH



## 1998-2016 Load Growth Chart



# ACES BENEFITS



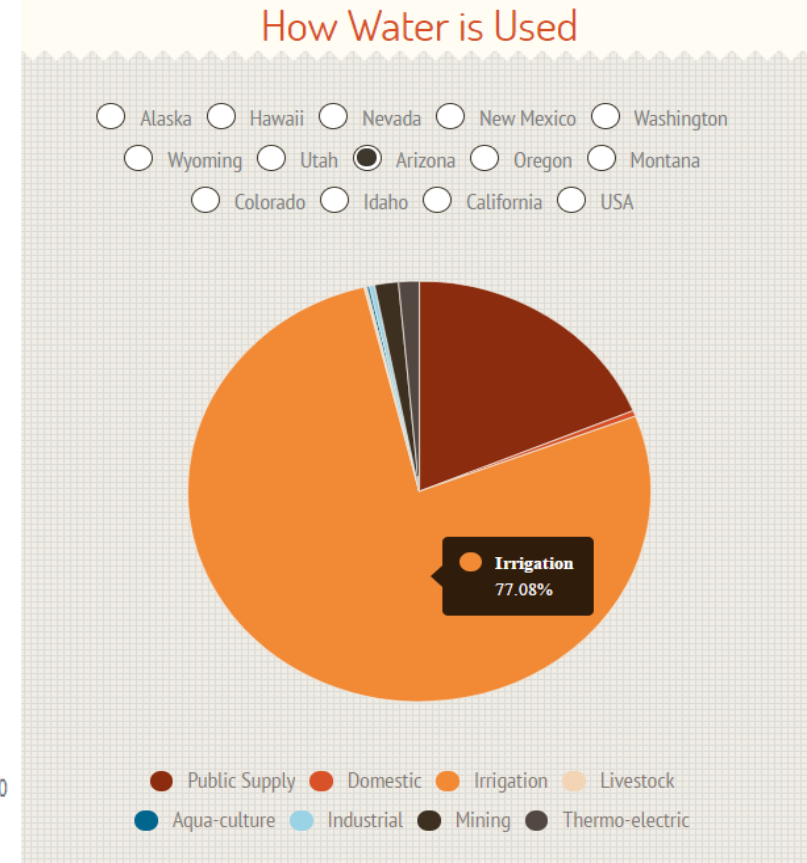
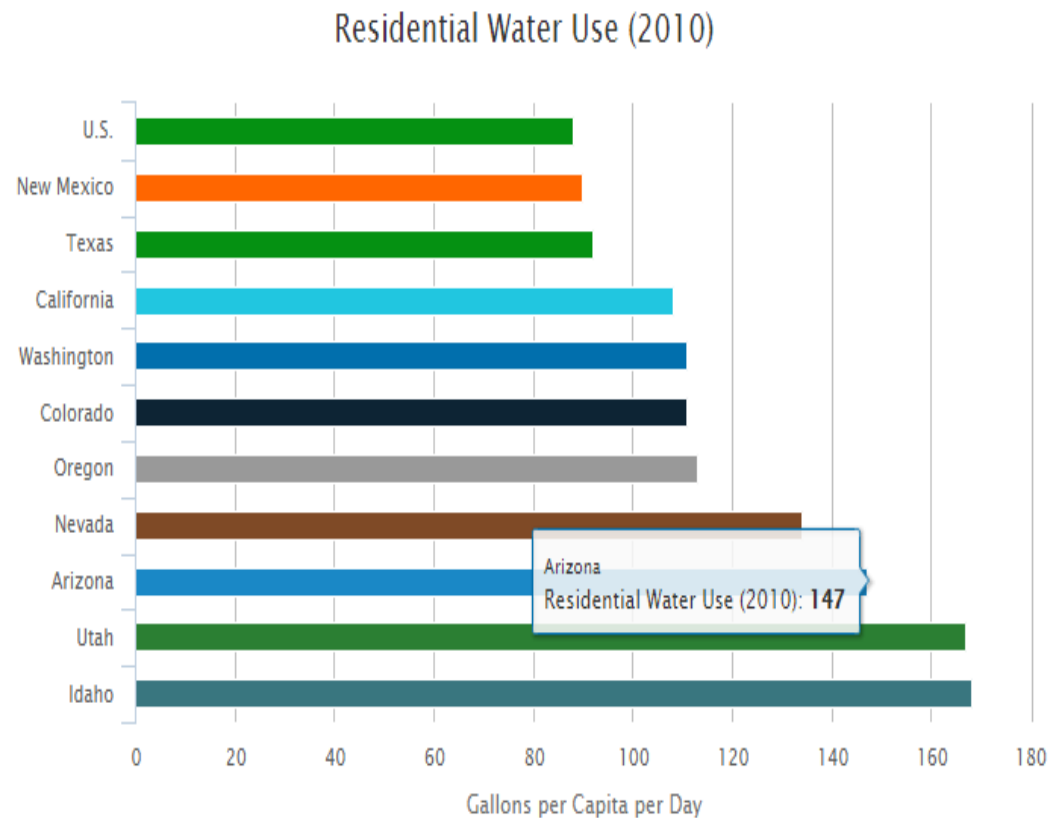
# TOP 2015 ELECTRICITY USERS

## AVERAGE ARIZONA USAGE = 12,333 KWH/YEAR

Account #:	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Total	%>Avg.		
1169070001	1668	1735	1,977	1,971	2,322	3,132	3,404	3,553	3,027	2,482	1,748	1675	28,694	70%	Average	16851
18690210001	1087	902	1,533	2,046	2,525	3,806	4,290	4,461	2,528	1,890	1,091	1225	27,384	63%	Full Year	244
6326990074	1292	1230	1,700	1,845	2,244	2,985	3,553	3,706	3,517	1,946	1,403	1584	27,005	60%	Over Avg	118
5983410079	1241	1084	1,485	1,669	1,936	3,062	3,815	3,717	3,222	2,490	1,321	1201	26,243	56%		
6326980078	1028	1289	1,692	1,965	2,296	3,616	4,625	4,894	2,244	1,588	301	407	25,945	54%		
18691060001	1259	612	1,208	1,900	2,264	2,949	3,854	2,739	3,119	2,507	1,691	1616	25,718	53%		
18690620001	1912	1009	715	1,442	1,731	2,558	3,278	3,586	2,909	2,495	1,748	1899	25,282	50%		
6324930077	1307	1322	1,821	1,654	1,783	2,656	3,449	3,427	2,774	2,213	1,161	1030	24,597	46%		
18690470001	993	1087	835	2,354	2,755	3,370	3,843	3,760	2,017	1,646	941	940	24,541	46%		
6325510077	1195	1339	1,638	1,876	2,142	2,897	3,642	3,645	1,896	1,652	1,234	1377	24,533	46%		
6324760075	1315	1234	1,621	1,770	2,063	2,636	3,102	2,974	2,539	2,111	1,342	1309	24,016	43%		
18690330001	1097	698	645	1,168	1,572	2,819	3,148	2,957	3,617	2,671	1,514	1808	23,714	41%		
18691500001	710	1144	1,338	1,592	2,631	4,473	4,823	2,686	1,610	1,213	662	736	23,618	40%		
18691430001	1321	508	1,186	1,426	1,685	3,009	3,473	4,224	2,468	1,929	1,233	1112	23,574	40%		
18690390001	945	804	379	1,923	2,524	3,445	3,668	3,897	2,275	1,675	876	903	23,314	38%		
18691280001	343	364	351	2,136	2,556	8,528	3,906	2,328	1,159	782	403	435	23,291	38%		
18691420001	1326	1070	1,199	1,395	2,183	2,748	3,813	2,244	2,448	1,948	1,404	1486	23,264	38%		

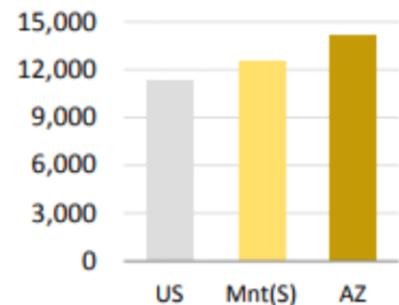
# 2016/2017 COMMUNITY WATER USERS

Month	GPD
May 2016	234.3
June 2016	346.4
July 2016	272.3
August 2016	239.8
September 2016	231.9
October 2016	222.5
November 2016	265.9
December 2016	159
January 2017	173
February 2017	163.6
March 2017	228.2
April 2017	229.5
Annual Average	230.5

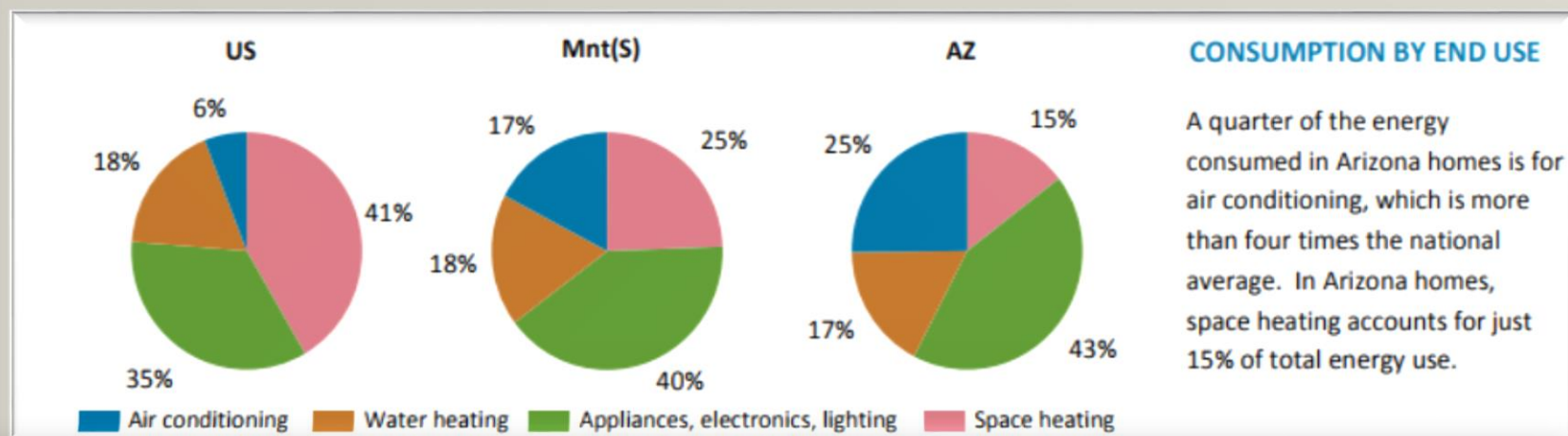
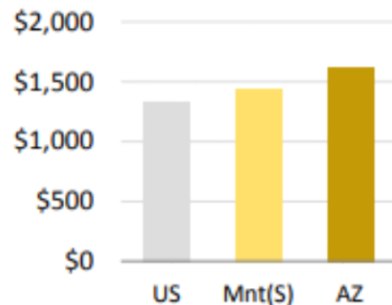


## ELECTRICITY ONLY *average per household*

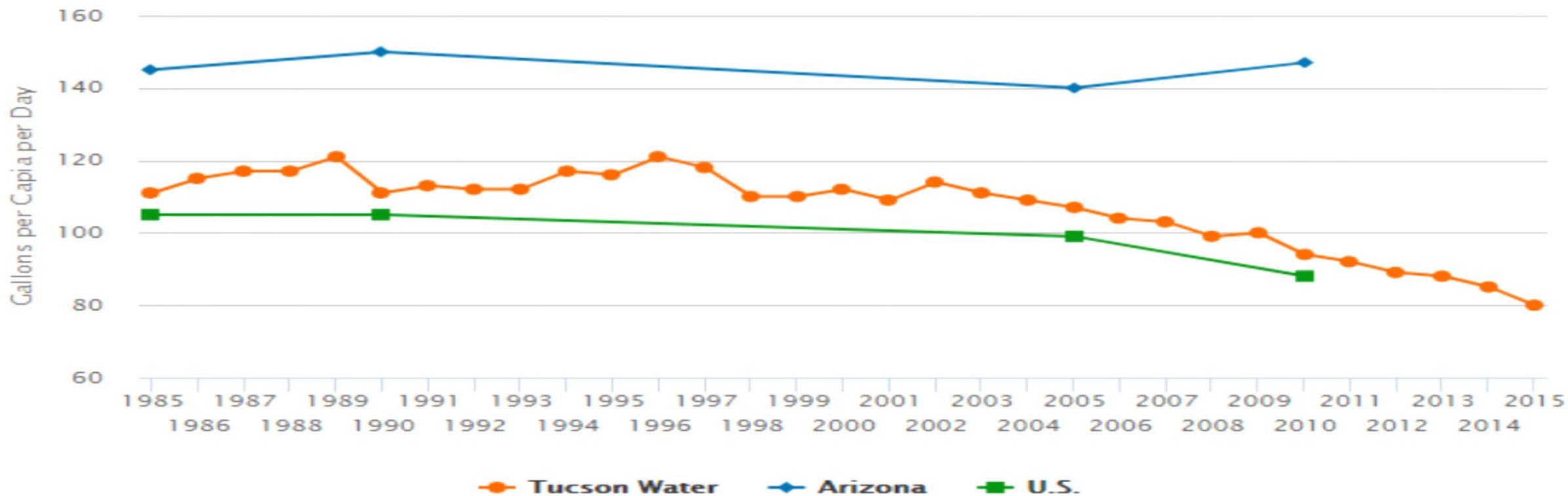
Site Consumption  
kilowatthours



Expenditures  
dollars



## Residential Water Use



# GOALS

- EDUCATION
- AWARENESS
- INSPECTIONS
- ENERGY/WATER USE REDUCTION
- COMMUNITY SAVINGS



# PROGRAM

- MONTHLY RUNNER NEWSLETTER ARTICLES
  - NEW YEAR'S RESOLUTION
  - SPRING CLEANING
  - WATER WISE
  - HOLIDAY TIME (VAMPIRE LOADS/KITCHEN CONSERVATION)
- INSPECTIONS
  - JUDICIAL COMPLEX
  - RESIDENTIAL REVIEWS (5 NEW, 5 REGULAR, 5 OLD)

# NEWSLETTER ARTICLE EXAMPLE

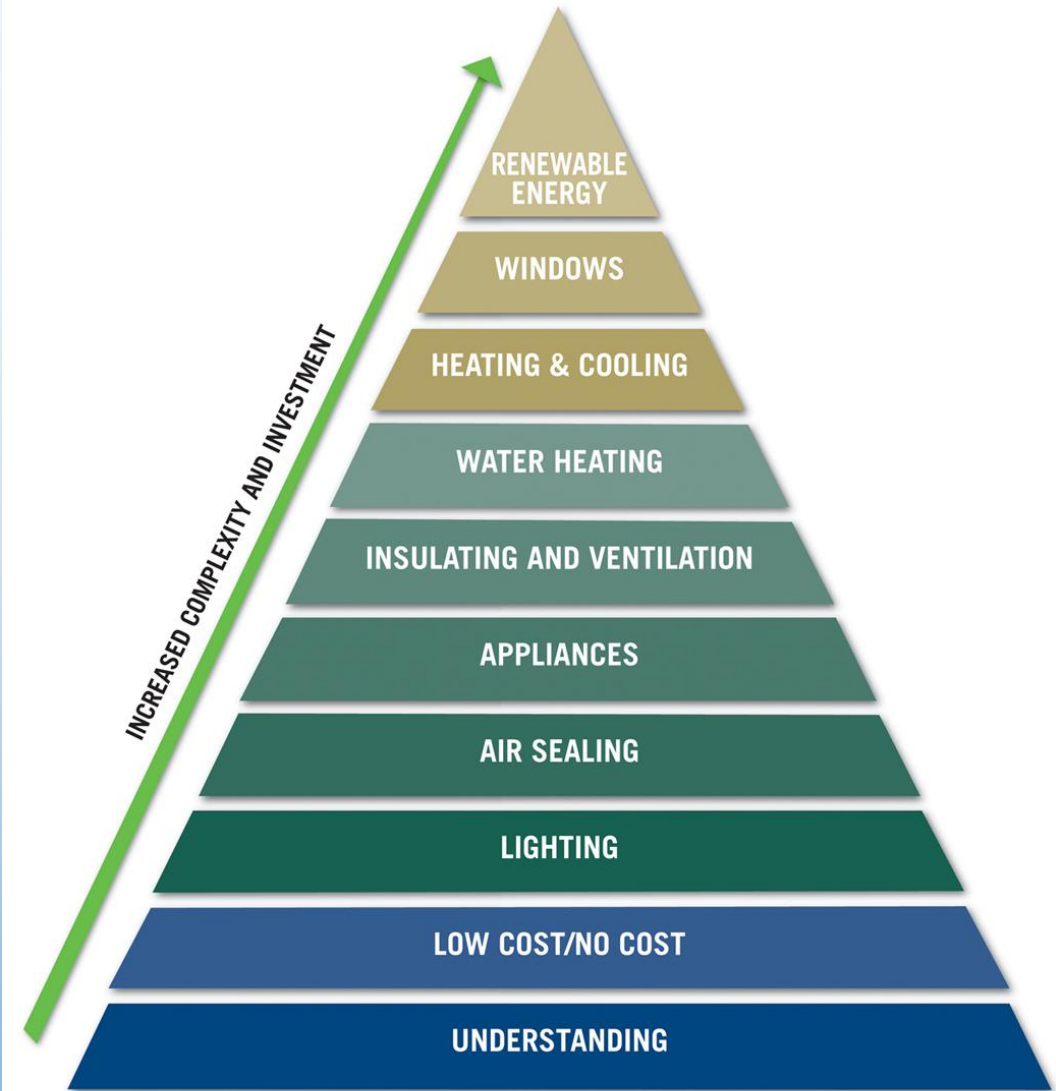
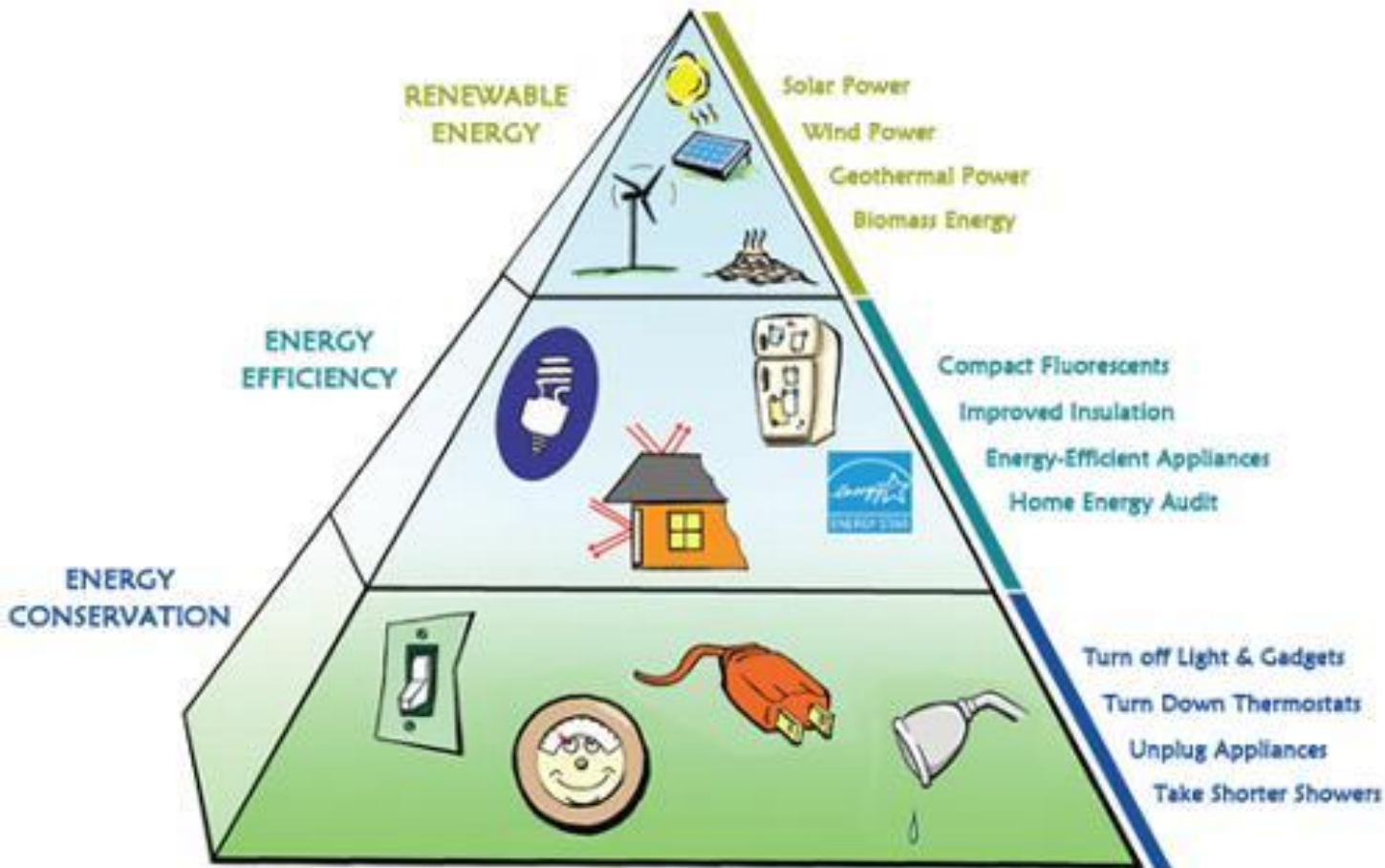
- IN 2016, THE AVERAGE ARIZONA HOUSEHOLD SPENT NEARLY \$1,500 AND USED 12,333KWH FOR THE YEAR. COMMUNITY HOUSEHOLDS SPENT \$0 AND USED 27% MORE ENERGY (15,645 KWH).
- THE AVERAGE HOUSEHOLD USES APPROXIMATELY 30% OF THEIR ANNUAL ENERGY ON AIR CONDITIONING. IF EVERY HOUSEHOLD TURNED THEIR AIR UP 1 DEGREE, THIS WOULD SAVE \$4,250/COMMUNITY PER YEAR .
- HEATING ACCOUNTS FOR ROUGHLY 17%. BY CHANGING THE THERMOSTAT, WE COULD SAVE \$8K COMMUNITY WIDE. IF YOU CHANGE YOUR HABITS, YOU COULD SAVE MONEY AND NOT NOTICE ANY REAL EFFECTS.

# CONSERVATION PYRAMID

WHERE DO I BEGIN?

## HOME INSPECTION

The Smart Energy Living® Pyramid



# HOME INSPECTION

- DIY LEAK TEST
- THERMOGRAPHY CAMERA
- INSULATION INSPECTION
- LIGHTING
- APPLIANCES
- FAUCETS



# PSYCHOLOGY OF FREE

- EVERYONE LOVES FREE
- UNDERESTIMATION OF VALUE -“NO PAIN, NO GAIN”
- NORMALIZATION – PEER PRESSURE
- INJUNCTIVE NORMS – SMILEY FACES

# OTHER IDEAS

- ENERGY CONSERVATION BOOTH AT EVENTS
- OLD APPLIANCE REPLACEMENT
- SHADE TREE PROGRAM
- HOT WATER HEATER WRAP
- SYSTEMATIC MAINTENANCE PROGRAM
  - HVAC INSPECTION/ CLEAN FILTERS
- SMART THERMOSTATS

# RATIONAL ENERGY GOALS

		KwH	Est. Cost	Savings	Community Wide
Air Conditioning	30.0%	4693.5	\$ 469.54	\$ 28.17	\$ 8,508.02
Hot Water Heater	0.0%	0	\$ -	\$ -	\$ -
Heating	17.0%	2659.65	\$ 266.07	\$ 26.61	\$ 8,035.36
Lighting	11.5%	1799.175	\$ 179.99	\$ 18.00	\$ 5,435.68
Refrigerators	7.0%	1095.15	\$ 109.56	\$ 10.96	\$ 3,308.68
Televisions, Etc.	6.5%	1016.925	\$ 101.73	\$ 15.26	\$ 4,608.51
Dryers	5.5%	860.475	\$ 86.08	\$ 8.61	\$ 2,599.67
Others	3.5%	547.575	\$ 54.78	\$ 5.48	\$ 1,654.34
Computers	2.0%	312.9	\$ 31.30	\$ 3.13	\$ 945.34
Cooking	5.0%	782.25	\$ 78.26	\$ 7.83	\$ 2,363.34
Dishwashers	2.5%	391.125	\$ 39.13	\$ 3.91	\$ 1,181.67
Freezers	2.5%	391.125	\$ 39.13	\$ 1.96	\$ 590.83
Furnace Fans	2.5%	391.125	\$ 39.13	\$ 1.96	\$ 590.83
Clothes Washers	4.5%	704.025	\$ 70.43	\$ 7.04	\$ 2,127.01
Total	100.0%	15,645.00	1,565.13	138.90	41,949.28

## LONG-TERM GOAL

- ENERGY SAVINGS - \$100K/YEAR
- WATER SAVINGS - \$50K/YEAR
- **TOTAL SAVINGS - \$150K/YEAR**