

ARIZONA HIGHWAY USER REVENUE FUND
Forecasting Process & Results
FY 2013-2022



Financial Management Services
October 2012

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ARIZONA HIGHWAY USER REVENUE FUND

OFFICIAL FORECAST UPDATE

RISK ANALYSIS OF EXPECTED VALUES

Introduction

This document presents the forecast of expected values for the Arizona Highway User Revenue Fund for the period FY 2013-2022, as prepared by the Arizona Department of Transportation.

Background

The State of Arizona taxes motor fuels and collects a variety of fees relating to the registration and operation of motor vehicles in the state. These collections include gasoline and use fuel taxes, motor carrier fees, vehicle license taxes, motor vehicle registration fees, and other miscellaneous fees. These revenues are deposited in the Arizona Highway User Revenue Fund (HURF) and are then distributed to the cities, towns and counties of the State and to the State Highway Fund, which is administered by the Department. These taxes and fees represent a source of revenues available to the state for highway related expenses.

Since 1986, the Department has estimated Highway Revenues using a comprehensive regression-based econometric model. In 1989, the model was updated by Dr. Alberta Charney of the University of Arizona. The model relied on the estimates of certain “independent variables” to predict future tax revenues. Any variability between estimated and actual values could lead to variances in the tax forecast. In order to deal with this variability, the Department introduced the Risk Analysis Process (RAP) in 1992. The RAP relies upon probability analysis and the independent evaluation of the model’s variables by an expert panel of economists. This results in a series of forecasts with specified probabilities of occurrence, rather than a single or “best guess” estimate.

In 1997, Hickling Lewis Brod Inc. (HLB), working in conjunction with Dr. Dennis Hoffman of Arizona State University, developed a new forecasting model to incorporate certain economic data generated over the past ten years and evaluate the inclusion of independent variables absent from the 1989 model, to enhance the model’s forecasting accuracy. The new model also took into consideration 1997 legislation which eliminated the weight distance tax on motor carriers, increased weight and use fees for use class vehicles, and changed the point of taxation on fuel.

In September 2000 and 2003, HLB reviewed the model and updated the equations. The independent variables contained in the model in 2003 included Arizona Real Income Growth Per Capita, Population Growth, Wage & Salary Employment Growth and Fleet Fuel Efficiency.

In 2005, HDR\HLB developed a new forecasting model to incorporate additional economic data that would enhance the model’s forecasting accuracy. The Arizona Real Gross Domestic Product Growth independent variable was added to the model to incorporate the impact of the Arizona economy on the commercial registration activities.

In September 2008, HDR\HLB reviewed the forecasting model and added the Arizona Real Gas Price Growth independent variable to improve the model’s forecasting accuracy for changes in Arizona gasoline consumption. In September 2009, HDR\HLB reviewed the forecasting model and added

the West Coast No. 2 Real Diesel Price Growth independent variable to improve the model's forecasting accuracy for changes in Arizona use fuel (diesel) consumption. In September 2011, the income, gross domestic product, gas price and diesel price variables were converted to nominal dollars at the request of the panel members from the August 2010 RAP panel meeting. The September 2011 RAP panel recommended the Arizona nominal Gross Domestic Product independent variable be eliminated from the model. The current model includes:

1. Arizona nominal personal income
2. Arizona population
3. Arizona non-farm employment
4. Arizona fleet fuel efficiency (Not part of RAP Process)
5. Arizona nominal gas price
6. West Coast No. 2 nominal diesel price

Risk Analysis Panel

The Risk Analysis Process relies heavily on the judgments of an expert panel of economic and financial participants to provide information critical to the forecasting process. In August 2012, a panel of fourteen economic and finance experts representing public, private, and academic sectors submitted their individual estimates of the model's independent variables and comments on the future economic outlook. The information gathered from the panelists was input into the model to produce a series of forecasts with associated probabilities of occurrence. The panelists' inputs are reflected in the attached tables at the back of this report.

Model Results

This year's panel inputs produced a mean forecast of \$14,654.6 million for the period FY 2013-2022 with a compound growth rate of 3.8 percent.

The Department's Official Forecast for FY 2013-2022 amounts to \$14,144.6 million with a compound growth rate of 3.4 percent. The Official Forecast incorporates the 50 percent confidence interval for all revenue categories except the vehicle license tax revenue category, which applies the 55 percent confidence interval. The FY 2013 forecast of \$1,218.7 million was developed in July 2012 by ADOT staff using time-series techniques, historical and projected growth rates, and recent legislative changes.

FY 2013 Official Forecast (Dollars in Millions)			
Fiscal Year	Mean Forecast	Official Forecast	Confidence Level
2013	\$1,232.6	\$1,218.7	N/A
2014	1,276.7	1,244.9	50%
2015	1,325.5	1,283.8	50%
2016	1,377.2	1,330.6	50%
2017	1,431.8	1,377.4	50%
2018	1,487.9	1,429.3	50%
2019	1,544.0	1,484.0	50%
2020	1,602.2	1,537.8	50%
2021	1,659.5	1,592.8	50%
2022	<u>1,717.2</u>	<u>1,645.3</u>	50%
Total	\$14,654.6	\$14,144.6	
Ave. CGR	3.8%	3.4%	

For comparison purposes, the October 2011 Official Forecast and the October 2012 Official Forecast are shown below:

FY 2013-2022 Comparative Forecast			
(Dollars in Millions)			
Fiscal Year	Oct. 11 Official Forecast	Oct. 12 Official Forecast	Difference
2013	\$1,241.9	\$1,218.7	(\$23.2)
2014	1,274.9	1,244.9	(30.0)
2015	1,314.8	1,283.8	(31.0)
2016	1,360.4	1,330.6	(29.8)
2017	1,408.7	1,377.4	(31.3)
2018	1,457.2	1,429.3	(27.9)
2019	1,502.9	1,484.0	(18.9)
2020	1,556.0	1,537.8	(18.2)
2021	1,605.2	1,592.8	(12.4)
2022	<u>1,655.3</u>	<u>1,645.3</u>	<u>(10.0)</u>
Total	\$14,377.3	\$14,144.6	(\$232.7)
Ave. CGR	3.2%	3.4%	

Summary

The Department's Official Forecast for FY 2013-2022 totals \$14,144.6 million, a decrease of \$232.7 million from the October 2011 Official Forecast. The Risk Analysis Process panel members became more optimistic over the entire forecast period compared to their inputs during the RAP session last year. However, the panel voiced concern over the future growth in population, the U.S. fiscal cliff, higher Corporate Average Fuel Economy (CAFE) standards and consumer spending habits.

Supplementary Information

The remaining pages of this report present supplementary information on the detailed results of the Risk Analysis Process, the Department's model and the values of the independent variables forecast by the expert panel. While the Official Forecast period is FY 2013-2022 panel inputs were requested for FY 2013-2017, 2022, 2027 and 2032. Data displayed for other than the requested years, has been extrapolated.

HURF OFFICIAL REVENUE FORECAST
With Category Detail and Confidence Interval By Fiscal Year
(Current Dollars in Millions)

Fiscal Year Percentile	2012 Actual	2013 N/A	2014 50%	2015 50%	2016 50%	2017 50%	2018 50%	2019 50%	2020 50%	2021 50%	2022 50%
Gasoline Tax	\$454.8	\$455.6	\$462.6	\$471.9	\$481.9	\$491.6	\$501.9	\$513.4	\$523.3	\$532.6	\$542.4
Use Fuel Tax	180.2	181.5	184.8	188.9	193.9	200.2	207.6	215.3	222.7	230.8	238.7
Motor Carrier Fee	37.3	38.1	40.8	42.1	43.7	45.4	47.5	49.3	51.2	53.2	55.1
Vehicle License Tax /1	321.0	323.5	331.5	349.3	372.3	393.6	417.9	443.6	470.4	497.8	523.1
Registration	158.1	161.3	163.7	168.0	172.7	178.0	183.8	189.4	194.8	200.6	206.0
Other	59.1	58.7	61.5	63.6	66.1	68.6	70.6	73.0	75.4	77.8	80.0
Total	\$1,210.6	\$1,218.7	\$1,244.9	\$1,283.8	\$1,330.6	\$1,377.4	\$1,429.3	\$1,484.0	\$1,537.8	\$1,592.8	\$1,645.3

Note:

1. Vehicle license tax estimates based on 55% confidence level in FY 2014-2022.

HURF TOTAL TAX REVENUE RISK ANALYSIS RESULTS
(Current Dollars in Millions)

Fiscal Year	Mean	10%	20%	30%	40%	50%	60%	70%	80%	90%
2013	\$1,232.6	\$1,435.8	\$1,359.2	\$1,301.2	\$1,258.9	\$1,218.7	\$1,177.9	\$1,141.2	\$1,098.4	\$1,049.3
2014	1,276.7	1,566.3	1,454.3	1,368.9	1,307.0	1,244.9	1,195.3	1,143.1	1,086.9	1,019.7
2015	1,325.5	1,661.7	1,526.1	1,431.3	1,354.4	1,283.8	1,229.7	1,172.1	1,108.4	1,030.7
2016	1,377.2	1,746.8	1,598.4	1,494.2	1,409.4	1,330.6	1,269.9	1,205.6	1,139.9	1,051.3
2017	1,431.8	1,836.1	1,667.6	1,555.6	1,465.3	1,377.4	1,314.0	1,248.0	1,174.6	1,082.2
2018	1,487.9	1,920.5	1,740.8	1,622.6	1,522.3	1,429.3	1,359.7	1,290.6	1,210.4	1,112.3
2019	1,544.0	2,007.3	1,818.5	1,688.4	1,580.8	1,484.0	1,407.2	1,331.3	1,249.0	1,146.5
2020	1,602.2	2,090.3	1,892.1	1,752.3	1,639.5	1,537.8	1,458.8	1,376.5	1,286.4	1,183.9
2021	1,659.5	2,171.9	1,961.4	1,818.1	1,693.4	1,592.8	1,505.5	1,422.9	1,324.3	1,215.5
2022	1,717.2	2,258.3	2,036.5	1,884.6	1,755.5	1,645.3	1,550.8	1,467.3	1,362.0	1,250.4
Total	\$14,654.6	\$18,695.0	\$17,054.9	\$15,917.2	\$14,986.5	\$14,144.6	\$13,468.8	\$12,798.7	\$12,040.2	\$11,141.7

HURF OFFICIAL REVENUE FORECAST DISTRIBUTION (Current Dollars in Millions)

Fiscal Year	HURF	DPS/ ESP /1	Net HURF	DPS Parity Comp. Fund /2	ADOT 50.5%/3	Cities/Towns 27.5%	Cities +300K 3%	Counties 19%
2013	\$1,218.7	\$121.6	\$1,097.1	(\$2.5)	\$548.7	\$301.7	\$32.9	\$208.5
2014	1,244.9	11.0	1,233.9	(2.5)	617.7	339.3	37.0	234.4
2015	1,283.8	11.0	1,272.8	(2.7)	637.2	350.0	38.2	241.8
2016	1,330.6	11.0	1,319.6	(2.8)	660.7	362.9	39.6	250.7
2017	1,377.4	11.0	1,366.4	(3.0)	684.1	375.8	41.0	259.6
2018	1,429.3	11.0	1,418.3	(3.2)	710.2	390.0	42.5	269.5
2019	1,484.0	11.0	1,473.0	(3.4)	737.6	405.1	44.2	279.9
2020	1,537.8	11.0	1,526.8	(3.6)	764.5	419.9	45.8	290.1
2021	1,592.8	11.0	1,581.8	(3.8)	792.1	435.0	47.5	300.5
2022	1,645.3	11.0	1,634.3	(4.0)	818.4	449.4	49.0	310.5
Total	\$14,144.6	\$220.6	\$13,924.0	(\$31.4)	\$6,971.2	\$3,829.1	\$417.7	\$2,645.6

NOTES:

FY 2013 HURF estimate based on July 2012 Forecast.

FY 2014-2022 HURF estimate based on October 2012 Official Forecast.

/1. The DPS/ESP includes \$1 million for Economic Strength Project (ESP) each year.

The DPS transfer in FY 2013 is \$120.0 million per Laws 2012, 2nd Regular Session, Chapter 294, (SB 1523) and \$10 million each year thereafter, which is subject to change.

FY 2013 also includes a \$624,800 appropriation to MVD for the registration compliance program per Laws 2012, 2nd Regular Session, Chapter 294 (SB 1523).

/2. Per Laws 2005, Chapter 306 (SB 1119), 1.51 percent of the state highway fund share of HURF VLT is transferred to the DPS Parity Compensation Fund.

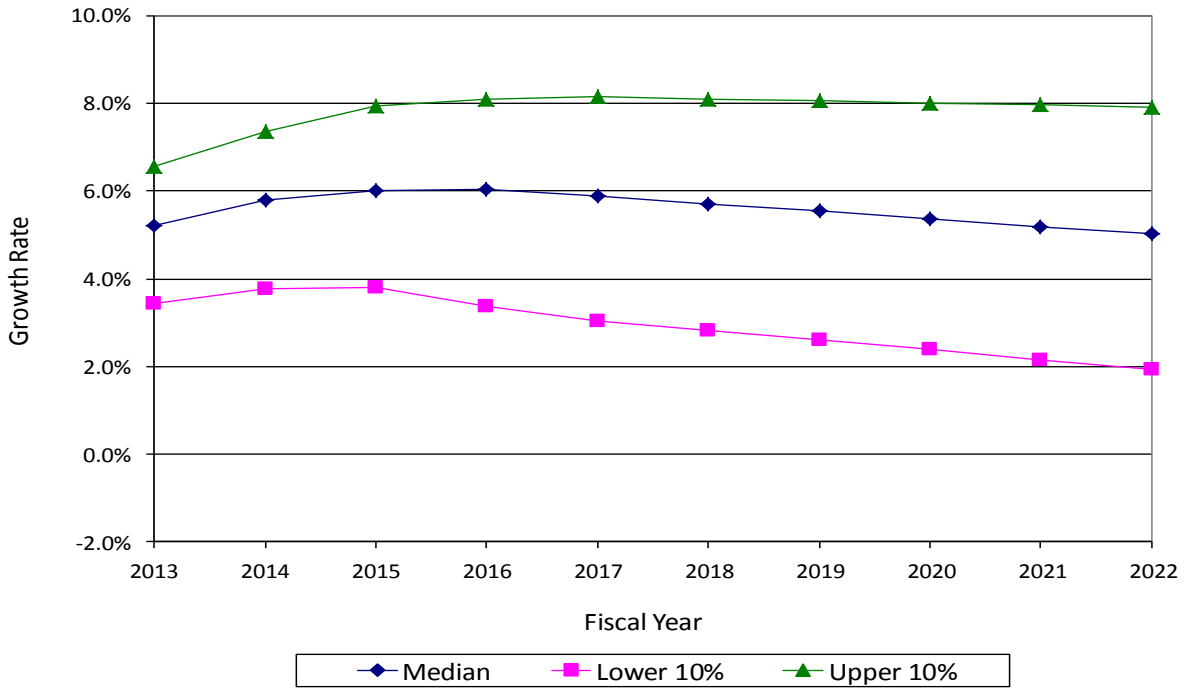
/3 Net of the DPS Parity Compensation Fund transfer and includes transfers per Laws 2011. 1st Regular Session, Chapter 28 (SB 1616) which transfers the state highway fund share of HURF VLT difference between the two-year registration and the five-year registration to the state general fund. Laws 2010, 7th Special Session, Chapter 12, (HB 2012) an amount equal to 90 percent of the fees collected under 28-4802 (A) and 60 percent of the fees collected under 28-4802 (B) shall be transferred from the state highway fund share of HURF VLT to the state general fund.

PANELIST DATA VALUES

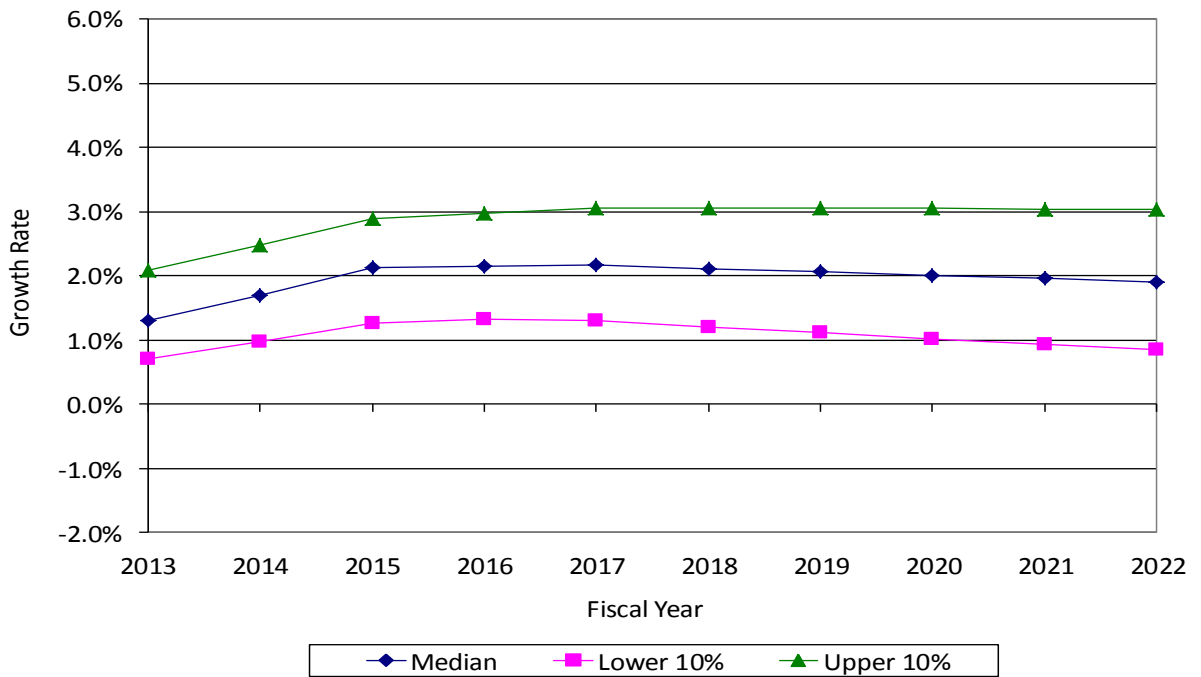
	AZ Nominal Income Growth	Arizona Population Growth	Arizona Non-Farm Employ. Growth	AZ Nominal Gas Price Growth	West Coast Nominal Diesel Price Growth
FY 2013					
Upper 10%	6.58%	2.09%	3.52%	14.36%	14.05%
Lower 10%	3.43%	0.70%	0.79%	-7.97%	-9.16%
Median	5.22%	1.30%	2.34%	1.88%	1.16%
FY 2014					
Upper 10%	7.37%	2.48%	3.87%	14.34%	13.25%
Lower 10%	3.76%	0.97%	0.88%	-9.19%	-10.58%
Median	5.79%	1.69%	2.70%	3.05%	1.93%
FY 2015					
Upper 10%	7.94%	2.90%	4.40%	14.08%	13.07%
Lower 10%	3.81%	1.26%	1.06%	-8.13%	-9.60%
Median	6.02%	2.13%	3.05%	3.86%	2.78%
FY 2016					
Upper 10%	8.10%	2.98%	4.62%	14.94%	14.59%
Lower 10%	3.38%	1.32%	1.31%	-8.32%	-9.37%
Median	6.05%	2.14%	3.18%	4.22%	3.36%
FY 2017					
Upper 10%	8.15%	3.06%	4.71%	14.71%	15.02%
Lower 10%	3.05%	1.30%	1.07%	-11.06%	-12.12%
Median	5.89%	2.16%	3.10%	2.21%	1.38%
FY 2022					
Upper 10%	7.93%	3.04%	4.40%	20.43%	18.76%
Lower 10%	1.93%	0.84%	0.68%	-11.63%	-11.54%
Median	5.02%	1.91%	2.70%	4.48%	4.83%
FY 2027					
Upper 10%	7.54%	2.92%	4.72%	22.42%	19.09%
Lower 10%	1.60%	0.67%	-0.24%	-13.89%	-14.89%
Median	4.64%	1.74%	2.50%	2.32%	2.13%
FY 2032					
Upper 10%	7.55%	2.86%	4.80%	24.38%	21.17%
Lower 10%	1.38%	0.56%	-0.68%	-13.73%	-14.60%
Median	4.52%	1.63%	2.36%	3.82%	3.78%

All data in the above table are percentage growth rates.

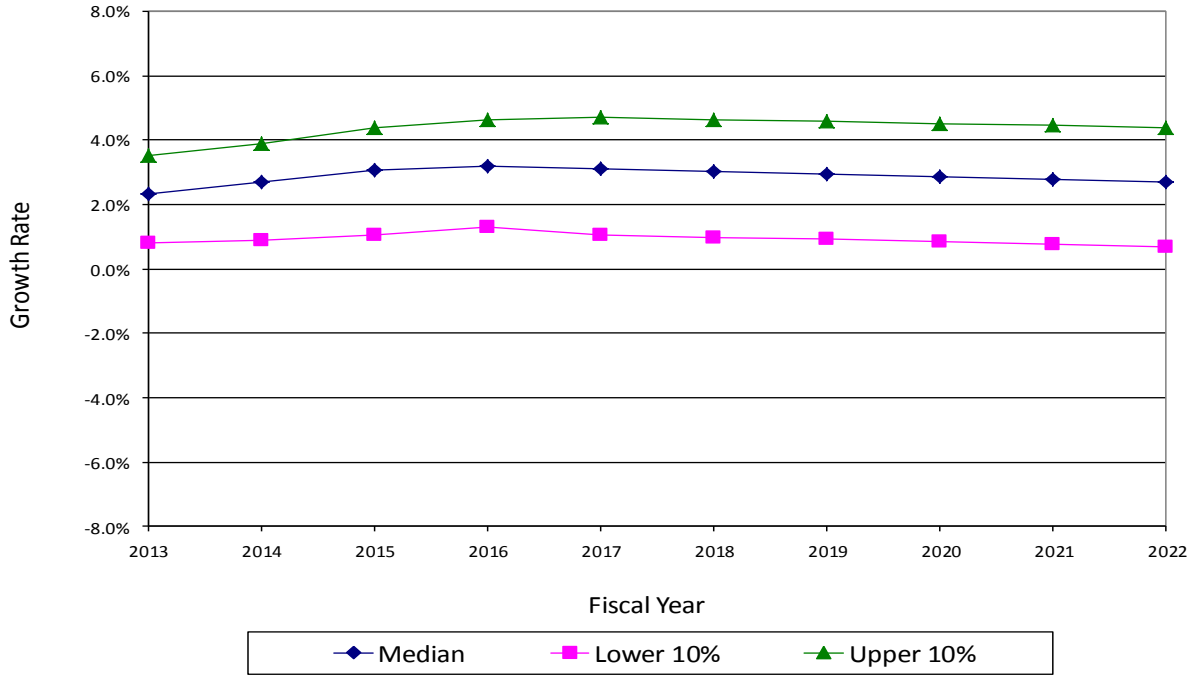
Arizona Nominal Personal Income Growth



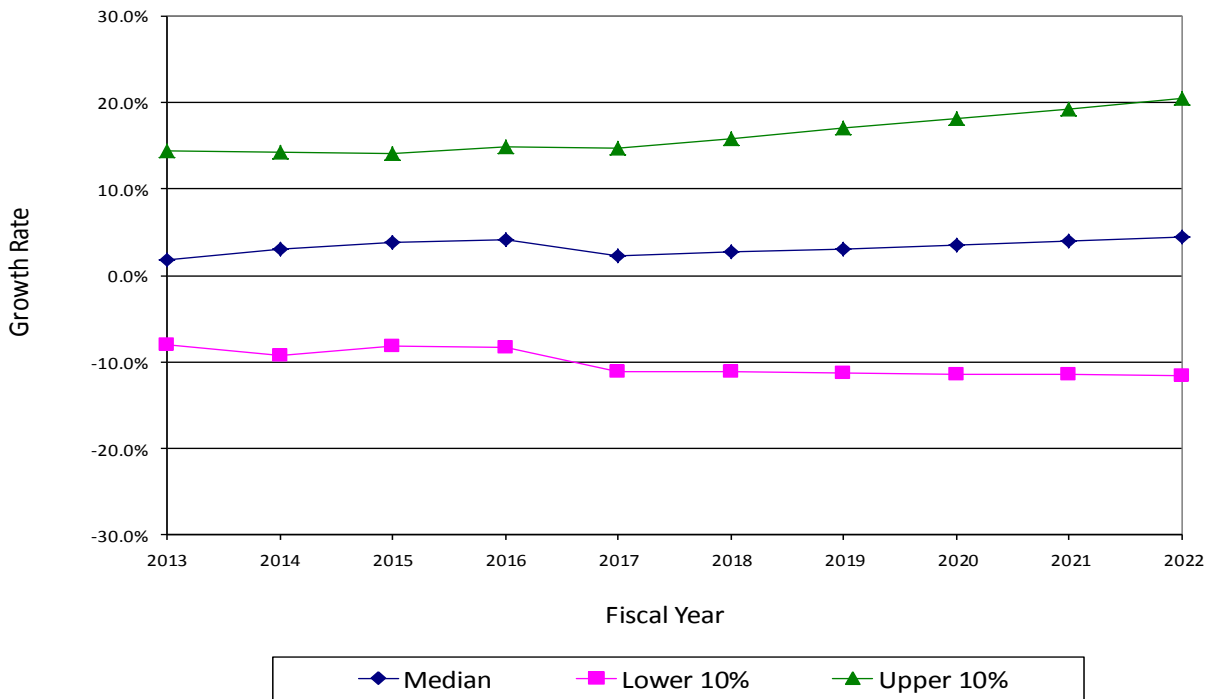
Arizona Population Growth



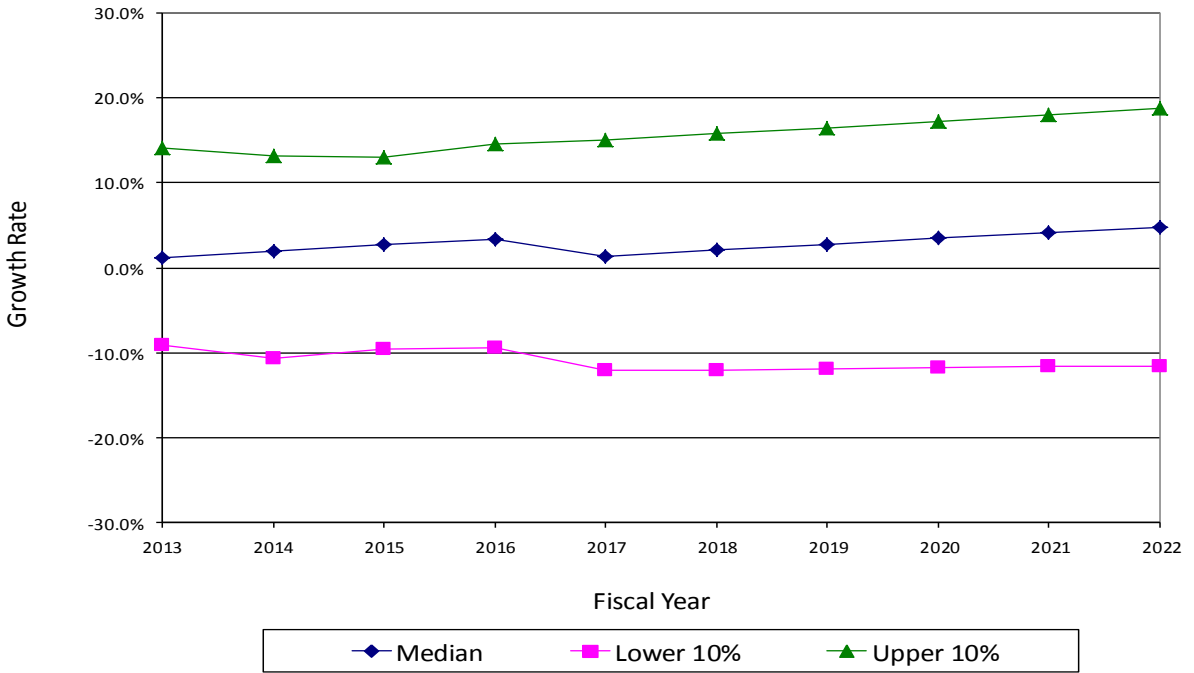
Arizona Non-Farm Employment Growth



Arizona Nominal Gas Price Growth



West Coast No. 2 Nominal Diesel Price Growth



Arizona Nominal Personal Income Growth

	2013	2014	2015	2016	2017	2022	2027	2032
Panelist 1								
Upper 10%	5.46%	7.16%	8.09%	7.94%	7.92%	8.48%	8.27%	8.13%
Lower 10%	3.54%	4.84%	4.91%	4.86%	4.68%	1.12%	0.93%	0.87%
Median	4.50%	6.00%	6.50%	6.40%	6.30%	4.80%	4.60%	4.50%
Panelist 2								
Upper 10%	6.60%	7.00%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%
Lower 10%	4.50%	4.80%	5.00%	4.80%	4.60%	2.00%	2.00%	2.00%
Median	5.50%	5.80%	6.00%	6.00%	6.00%	5.00%	4.70%	4.50%
Panelist 3								
Upper 10%	5.40%	6.10%	7.00%	7.30%	7.60%	8.10%	8.20%	8.40%
Lower 10%	1.50%	1.70%	1.60%	1.50%	0.90%	0.80%	0.50%	0.00%
Median	4.10%	4.40%	4.60%	4.80%	4.50%	4.70%	4.50%	4.50%
Panelist 4								
Upper 10%	6.00%	6.80%	8.60%	8.60%	8.40%	8.50%	8.60%	8.60%
Lower 10%	4.00%	4.60%	4.70%	4.90%	4.60%	3.40%	3.00%	2.00%
Median	5.00%	5.70%	6.30%	6.50%	6.30%	5.00%	4.80%	4.70%
Panelist 5								
Upper 10%	7.00%	9.00%	10.00%	10.00%	10.00%	9.00%	8.00%	8.00%
Lower 10%	1.00%	1.50%	2.00%	1.00%	-1.00%	-2.00%	-2.00%	-2.00%
Median	5.40%	6.00%	6.50%	6.60%	6.10%	5.00%	4.80%	4.70%
Panelist 6								
Upper 10%	6.20%	6.60%	7.00%	8.00%	8.50%	8.50%	8.00%	8.00%
Lower 10%	4.40%	4.00%	3.80%	3.30%	2.80%	1.50%	1.00%	1.00%
Median	5.50%	6.00%	6.50%	6.50%	6.50%	5.50%	5.00%	4.50%
Panelist 7								
Upper 10%	8.55%	8.15%	7.56%	7.37%	7.30%	7.51%	7.13%	6.20%
Lower 10%	2.55%	2.15%	1.56%	1.37%	1.30%	1.51%	1.13%	0.20%
Median	5.50%	5.15%	4.56%	4.37%	4.30%	4.51%	4.13%	3.20%
Panelist 8								
Upper 10%	6.30%	6.70%	7.40%	7.60%	7.60%	9.30%	8.80%	8.80%
Lower 10%	4.10%	4.30%	4.20%	4.40%	4.60%	1.70%	1.20%	1.20%
Median	5.20%	5.50%	5.80%	6.00%	6.10%	5.50%	5.00%	5.00%
Panelist 9								
Upper 10%								
Lower 10%								
Median	5.50%	6.00%	6.00%	6.00%	6.00%	4.50%	4.00%	4.00%
Panelist 10								
Upper 10%	6.90%	7.75%	8.10%	8.54%	8.40%	8.70%	6.20%	6.50%
Lower 10%	3.00%	3.48%	4.10%	4.28%	4.31%	3.50%	3.50%	3.50%
Median	4.80%	5.70%	6.10%	6.30%	5.50%	5.84%	4.64%	5.70%
Panelist 11								
Upper 10%	6.60%	7.10%	8.00%	8.20%	7.70%	6.00%	5.80%	5.50%
Lower 10%	4.00%	4.80%	4.90%	5.00%	4.60%	4.00%	3.50%	3.50%
Median	5.50%	6.00%	6.50%	6.60%	6.10%	5.00%	4.80%	4.50%
Panelist 12								
Upper 10%	6.50%	8.50%	8.50%	8.00%	8.00%	6.00%	6.00%	6.00%
Lower 10%	5.00%	5.50%	5.50%	2.00%	2.00%	4.00%	3.00%	3.00%
Median	6.00%	7.50%	7.50%	7.00%	7.00%	5.00%	5.00%	5.00%
Panelist 13								
Upper 10%	6.00%	6.50%	6.50%	7.00%	7.50%	7.50%	7.50%	7.50%
Lower 10%	4.00%	4.00%	4.00%	3.00%	2.50%	1.50%	1.50%	1.50%
Median	5.10%	5.50%	5.20%	5.00%	5.00%	5.00%	4.00%	3.50%
Panelist 14								
Upper 10%	8.00%	8.50%	9.00%	9.20%	9.50%	8.00%	8.00%	9.00%
Lower 10%	3.00%	3.20%	3.30%	3.50%	3.80%	2.00%	1.50%	1.20%
Median	5.50%	5.80%	6.20%	6.60%	6.80%	5.00%	5.00%	5.00%

All data in the above table are percentage growth rates.

Arizona Population Growth

	2013	2014	2015	2016	2017	2022	2027	2032
Panelist 1								
Upper 10%	1.76%	2.45%	2.59%	2.58%	2.47%	3.01%	2.67%	2.66%
Lower 10%	0.64%	1.15%	1.41%	1.42%	1.33%	0.59%	0.33%	0.14%
Median	1.20%	1.80%	2.00%	2.00%	1.90%	1.80%	1.50%	1.40%
Panelist 2								
Upper 10%	2.00%	2.30%	2.50%	2.50%	2.50%	2.30%	2.30%	2.30%
Lower 10%	1.00%	1.10%	1.50%	1.50%	1.50%	1.00%	0.50%	0.50%
Median	1.20%	1.40%	2.00%	2.00%	2.00%	1.80%	1.60%	1.40%
Panelist 3								
Upper 10%	2.10%	2.30%	2.70%	2.90%	2.90%	3.00%	3.10%	3.20%
Lower 10%	0.70%	0.80%	1.10%	1.20%	1.20%	0.60%	0.50%	0.40%
Median	1.30%	1.40%	1.90%	2.00%	1.90%	1.70%	1.50%	1.30%
Panelist 4								
Upper 10%	1.90%	2.20%	2.40%	2.70%	2.80%	2.70%	2.70%	2.70%
Lower 10%	0.50%	0.90%	1.10%	1.50%	1.50%	0.60%	0.30%	0.10%
Median	1.20%	1.60%	1.90%	2.00%	2.10%	1.80%	1.60%	1.40%
Panelist 5								
Upper 10%	2.50%	2.70%	2.90%	3.10%	3.30%	2.50%	2.00%	2.00%
Lower 10%	1.00%	1.10%	1.20%	1.20%	1.20%	1.10%	0.70%	0.30%
Median	1.40%	1.80%	2.20%	2.20%	2.20%	1.80%	1.60%	1.40%
Panelist 6								
Upper 10%	1.80%	2.40%	2.80%	3.00%	3.00%	2.80%	2.60%	2.50%
Lower 10%	0.90%	1.20%	1.50%	1.60%	1.40%	0.50%	0.40%	0.30%
Median	1.40%	1.80%	2.20%	2.30%	2.40%	2.00%	1.60%	1.50%
Panelist 7								
Upper 10%	2.29%	2.92%	3.46%	3.45%	3.43%	3.46%	3.47%	3.44%
Lower 10%	-0.31%	0.32%	0.86%	0.85%	0.83%	0.86%	0.87%	0.84%
Median	0.99%	1.62%	2.16%	2.15%	2.13%	2.16%	2.17%	2.14%
Panelist 8								
Upper 10%	1.90%	2.30%	2.60%	2.70%	2.80%	3.00%	2.80%	2.70%
Lower 10%	0.50%	0.90%	1.20%	1.30%	1.40%	0.60%	0.40%	0.30%
Median	1.20%	1.60%	1.90%	2.00%	2.10%	1.80%	1.60%	1.50%
Panelist 9								
Upper 10%								
Lower 10%								
Median	1.50%	2.00%	2.50%	2.00%	2.00%	1.80%	1.40%	1.40%
Panelist 10								
Upper 10%	2.05%	2.57%	3.00%	3.10%	3.40%	3.75%	3.90%	3.80%
Lower 10%	0.45%	0.60%	0.90%	0.80%	0.90%	1.10%	1.20%	1.10%
Median	1.30%	1.70%	2.10%	2.05%	2.15%	2.35%	2.40%	2.20%
Panelist 11								
Upper 10%	2.30%	2.50%	2.90%	3.00%	2.80%	2.50%	2.40%	2.40%
Lower 10%	1.00%	1.20%	1.50%	1.60%	1.70%	1.50%	1.20%	1.00%
Median	1.50%	2.00%	2.40%	2.40%	2.30%	2.00%	1.80%	1.80%
Panelist 12								
Upper 10%	2.00%	2.45%	4.00%	3.50%	3.50%	3.50%	3.00%	2.50%
Lower 10%	1.00%	1.50%	2.00%	2.00%	2.00%	1.00%	1.00%	1.00%
Median	1.50%	2.00%	3.00%	3.00%	3.00%	2.00%	2.00%	1.80%
Panelist 13								
Upper 10%	2.05%	2.30%	2.60%	2.70%	2.82%	3.00%	3.00%	3.00%
Lower 10%	0.75%	0.70%	0.80%	0.80%	0.50%	0.30%	0.30%	0.30%
Median	1.10%	1.40%	1.50%	1.60%	1.70%	1.80%	1.80%	1.80%
Panelist 14								
Upper 10%	2.50%	2.80%	3.30%	3.50%	4.00%	4.00%	4.00%	4.00%
Lower 10%	1.00%	1.20%	1.30%	1.40%	1.40%	1.20%	1.00%	1.00%
Median	1.40%	1.60%	2.00%	2.20%	2.30%	2.00%	1.80%	1.80%

All data in the above table are percentage growth rates.

Arizona Non-Farm Employment Growth

	2013	2014	2015	2016	2017	2022	2027	2032
Panelist 1								
Upper 10%	3.50%	3.58%	4.32%	4.98%	4.93%	4.30%	5.94%	5.85%
Lower 10%	1.10%	1.42%	1.68%	2.02%	1.87%	1.30%	-0.74%	-1.05%
Median	2.30%	2.50%	3.00%	3.50%	3.40%	2.80%	2.60%	2.40%
Panelist 2								
Upper 10%	3.30%	3.70%	4.50%	4.50%	4.50%	4.50%	4.50%	4.50%
Lower 10%	1.20%	1.50%	1.80%	1.80%	1.80%	1.00%	-0.70%	-0.90%
Median	2.20%	2.50%	3.20%	3.30%	3.10%	2.50%	2.30%	2.20%
Panelist 3								
Upper 10%	3.00%	3.50%	4.20%	4.40%	4.50%	4.80%	5.00%	5.30%
Lower 10%	0.80%	1.00%	1.10%	1.00%	0.90%	0.60%	0.00%	-2.00%
Median	2.00%	2.20%	2.60%	2.80%	2.80%	3.00%	3.00%	3.00%
Panelist 4								
Upper 10%	3.50%	4.10%	4.80%	5.00%	4.80%	4.50%	6.00%	6.00%
Lower 10%	0.80%	1.30%	1.40%	1.60%	1.50%	1.00%	-1.00%	-1.00%
Median	2.20%	2.70%	3.10%	3.30%	3.00%	2.50%	2.30%	2.10%
Panelist 5								
Upper 10%	4.00%	4.50%	5.00%	5.50%	5.50%	4.50%	4.50%	4.50%
Lower 10%	-3.00%	-1.00%	0.00%	0.00%	0.00%	-1.00%	-2.00%	-3.00%
Median	2.20%	2.60%	3.20%	3.30%	3.10%	2.60%	2.30%	2.10%
Panelist 6								
Upper 10%	2.80%	3.20%	3.50%	4.00%	5.00%	4.00%	3.00%	3.00%
Lower 10%	1.50%	1.20%	0.50%	0.30%	0.20%	0.00%	-0.50%	-0.50%
Median	2.40%	3.00%	3.00%	3.20%	3.50%	2.00%	1.70%	1.50%
Panelist 7								
Upper 10%	6.81%	6.59%	6.14%	6.06%	5.90%	5.95%	5.68%	5.37%
Lower 10%	0.01%	-0.21%	-0.66%	-0.74%	-0.90%	-0.85%	-1.12%	-1.43%
Median	3.21%	2.99%	2.54%	2.46%	2.30%	2.35%	2.08%	1.77%
Panelist 8								
Upper 10%	3.48%	3.60%	4.00%	4.20%	4.40%	3.80%	5.20%	5.20%
Lower 10%	1.08%	1.20%	1.20%	1.40%	1.60%	1.00%	-0.80%	-0.80%
Median	2.28%	2.40%	2.60%	2.80%	3.00%	2.40%	2.20%	2.20%
Panelist 9								
Upper 10%								
Lower 10%								
Median	3.00%	3.50%	4.00%	3.50%	3.00%	3.00%	3.00%	3.00%
Panelist 10								
Upper 10%	2.45%	3.16%	3.48%	4.10%	4.50%	4.85%	5.10%	4.90%
Lower 10%	0.90%	1.20%	1.45%	1.67%	1.84%	1.10%	0.90%	1.20%
Median	1.75%	2.55%	2.90%	3.40%	3.75%	3.50%	3.65%	3.75%
Panelist 11								
Upper 10%	3.00%	3.50%	3.80%	4.00%	3.80%	3.50%	3.50%	3.50%
Lower 10%	1.50%	1.80%	2.20%	2.50%	2.00%	1.80%	1.80%	1.80%
Median	2.50%	3.00%	3.40%	3.50%	3.20%	3.00%	2.80%	2.50%
Panelist 12								
Upper 10%	3.50%	3.50%	4.00%	3.50%	3.50%	3.50%	3.50%	
Lower 10%	2.00%			3.00%	2.00%	2.00%	1.00%	
Median	2.50%	3.00%	3.50%	3.50%	3.40%	3.00%	2.50%	
Panelist 13								
Upper 10%	3.28%	3.73%	4.00%	4.20%	4.50%	4.50%	5.00%	5.00%
Lower 10%	1.03%	-0.50%	0.00%	1.00%	-0.10%	-0.10%	-0.50%	-0.50%
Median	2.15%	2.40%	2.40%	2.50%	2.70%	2.60%	2.20%	2.00%
Panelist 14								
Upper 10%	3.10%	3.60%	5.50%	5.60%	5.40%	4.50%	4.50%	4.50%
Lower 10%	1.40%	1.60%	2.00%	1.50%	1.20%	1.00%	0.50%	0.00%
Median	2.10%	2.50%	3.30%	3.40%	3.20%	2.50%	2.40%	2.20%

All data in the above table are percentage growth rates.

Arizona Nominal Gas Price Growth

	2013	2014	2015	2016	2017	2022	2027	2032
Panelist 1								
Upper 10%	18.88%					28.76%	30.12%	41.92%
Lower 10%	-8.88%					-21.76%	-23.12%	-34.92%
Median	5.00%	5.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Panelist 2								
Upper 10%	10.00%	10.00%	10.00%	15.00%	15.00%	25.00%	30.00%	30.00%
Lower 10%	-5.00%	-10.00%	-10.00%	-11.00%	-15.00%	-20.00%	-20.00%	-20.00%
Median	3.00%	3.00%	3.50%	3.50%	3.50%	3.50%	3.00%	2.50%
Panelist 3								
Upper 10%	10.00%	8.00%	10.00%	11.00%	11.00%	12.00%	20.00%	25.00%
Lower 10%	-4.00%	-5.00%	-7.00%	-8.00%	-9.00%	-12.00%	-15.00%	-20.00%
Median	2.50%	2.70%	2.70%	2.50%	2.50%	2.50%	2.50%	2.50%
Panelist 4								
Upper 10%	8.00%	7.00%	8.00%	10.00%	10.00%	10.00%	15.00%	15.00%
Lower 10%	-1.00%	-4.00%	-7.00%	-8.00%	-8.00%	-8.00%	-10.00%	-10.00%
Median	2.70%	2.20%	2.20%	2.30%	2.40%	2.60%	3.60%	3.60%
Panelist 5								
Upper 10%	20.00%	25.00%	25.00%	25.00%	25.00%	30.00%	40.00%	40.00%
Lower 10%	-20.00%	-20.00%	-20.00%	-20.00%	-20.00%	-20.00%	-20.00%	-20.00%
Median	3.00%	3.00%	3.00%	3.00%	3.00%	1.00%	0.00%	0.00%
Panelist 6								
Upper 10%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%
Lower 10%	-10.00%	-15.00%	-15.00%	-15.00%	-15.00%	-15.00%	-15.00%	-15.00%
Median	0.00%	2.00%	4.00%	7.50%	7.50%	7.50%	7.50%	7.50%
Panelist 7								
Upper 10%	15.00%	10.00%	15.00%	20.00%	15.00%	30.00%	20.00%	20.00%
Lower 10%	-15.00%	-10.00%	-5.00%	0.00%	-25.00%	10.00%	-20.00%	0.00%
Median	-5.00%	0.00%	5.00%	10.00%	-15.00%	20.00%	-10.00%	10.00%
Panelist 8								
Upper 10%								
Lower 10%	Not Provided							
Median								
Panelist 9								
Upper 10%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%
Lower 10%	-15.00%	-15.00%	-15.00%	-15.00%	-15.00%	-15.00%	-15.00%	-15.00%
Median	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
Panelist 10								
Upper 10%	14.50%	15.56%	12.80%	9.40%	12.50%	15.80%	12.50%	17.20%
Lower 10%	2.10%	-4.80%	-2.45%	-4.30%	-3.40%	-6.40%	0.70%	0.60%
Median	8.50%	6.70%	5.84%	3.10%	2.85%	-0.84%	1.50%	1.50%
Panelist 11								
Upper 10%	20.00%	20.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%
Lower 10%	-20.00%	-10.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Median	-10.00%	0.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Panelist 12								
Upper 10%	10.00%	15.00%	10.00%	10.00%	10.00%	10.00%	15.00%	15.00%
Lower 10%	3.00%	0.00%	5.00%	4.00%	4.00%	4.00%	4.00%	4.00%
Median	5.00%	6.00%	7.00%	6.00%	5.00%	5.00%	5.00%	5.00%
Panelist 13								
Upper 10%	10.25%	6.57%	8.19%	8.84%	8.05%	29.05%	28.87%	27.84%
Lower 10%	-4.82%	-8.50%	-11.15%	-10.50%	-11.29%	-21.98%	-22.16%	-23.19%
Median	2.71%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
Panelist 14								
Upper 10%	15.00%	20.00%	25.00%	25.00%	25.00%	30.00%	35.00%	40.00%
Lower 10%	-5.00%	-8.00%	-10.00%	-12.00%	-15.00%	-25.00%	-25.00%	-25.00%
Median	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%

All data in the above table are percentage growth rates.

West Coast No. 2 Nominal Diesel Price Growth

	2013	2014	2015	2016	2017	2022	2027	2032
Panelist 1								
Upper 10%	17.86%					24.61%	24.15%	33.53%
Lower 10%	-7.86%					-18.21%	-18.15%	-27.53%
Median	5.00%	6.00%	4.60%	3.40%	3.30%	3.20%	3.00%	3.00%
Panelist 2								
Upper 10%	10.00%	10.00%	10.00%	15.00%	15.00%	25.00%	30.00%	30.00%
Lower 10%	-5.00%	-10.00%	-10.00%	-11.00%	-15.00%	-20.00%	-20.00%	-20.00%
Median	3.00%	3.00%	3.50%	3.50%	3.50%	3.50%	3.00%	2.50%
Panelist 3								
Upper 10%	10.00%	10.00%	11.00%	12.00%	13.00%	15.00%	20.00%	25.00%
Lower 10%	-2.00%	-5.00%	-8.00%	-9.00%	-11.00%	-15.00%	-20.00%	-22.00%
Median	3.00%	2.50%	2.00%	2.00%	1.50%	2.00%	2.00%	1.50%
Panelist 4								
Upper 10%	8.00%	7.00%	8.00%	10.00%	10.00%	14.00%	14.00%	18.00%
Lower 10%	-2.00%	-5.00%	-5.00%	-8.00%	-8.00%	-8.00%	-10.00%	-10.00%
Median	3.00%	2.50%	2.50%	2.50%	2.60%	3.00%	3.00%	3.00%
Panelist 5								
Upper 10%	30.00%	30.00%	30.00%	30.00%	30.00%	35.00%	35.00%	40.00%
Lower 10%	-10.00%	-20.00%	-20.00%	-20.00%	-20.00%	-25.00%	-25.00%	-25.00%
Median	2.70%	-1.00%	-1.50%	-0.80%	-1.60%	3.50%	3.40%	2.30%
Panelist 6								
Upper 10%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%
Lower 10%	-10.00%	-15.00%	-15.00%	-15.00%	-15.00%	-15.00%	-15.00%	-15.00%
Median	0.00%	2.00%	4.00%	7.50%	7.50%	7.50%	7.50%	7.50%
Panelist 7								
Upper 10%	5.00%	5.00%	10.00%	15.00%	15.00%	20.00%	15.00%	15.00%
Lower 10%	-20.00%	-15.00%	-10.00%	-5.00%	-30.00%	5.00%	-25.00%	-5.00%
Median	-10.00%	-5.00%	0.00%	5.00%	20.00%	15.00%	-15.00%	5.00%
Panelist 8								
Upper 10%								
Lower 10%	Not Provided							
Median								
Panelist 9								
Upper 10%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%
Lower 10%	-15.00%	-15.00%	-15.00%	-15.00%	-15.00%	-15.00%	-15.00%	-15.00%
Median	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
Panelist 10								
Upper 10%	12.75%	11.80%	12.80%	10.50%	12.20%	11.50%	10.90%	12.50%
Lower 10%	-2.00%	-3.35%	-5.60%	-4.10%	-2.30%	-4.30%	-2.50%	-2.70%
Median	8.00%	6.70%	6.80%	5.70%	8.20%	7.70%	6.20%	8.00%
Panelist 11								
Upper 10%	20.00%	20.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%
Lower 10%	-20.00%	-10.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Median	-10.00%	0.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Panelist 12								
Upper 10%								
Lower 10%	Not Provided							
Median								
Panelist 13								
Upper 10%	10.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Lower 10%	-10.00%	-8.00%	-5.00%	-3.00%	-3.00%	-3.00%	-3.00%	-3.00%
Median	2.71%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
Panelist 14								
Upper 10%	10.00%	12.00%	12.00%	18.00%	20.00%	30.00%	30.00%	30.00%
Lower 10%	-6.00%	-10.00%	-12.00%	-13.00%	-14.00%	-20.00%	-25.00%	-30.00%
Median	2.50%	2.00%	2.00%	2.00%	2.00%	3.00%	3.00%	3.00%

All data in the above table are percentage growth rates.

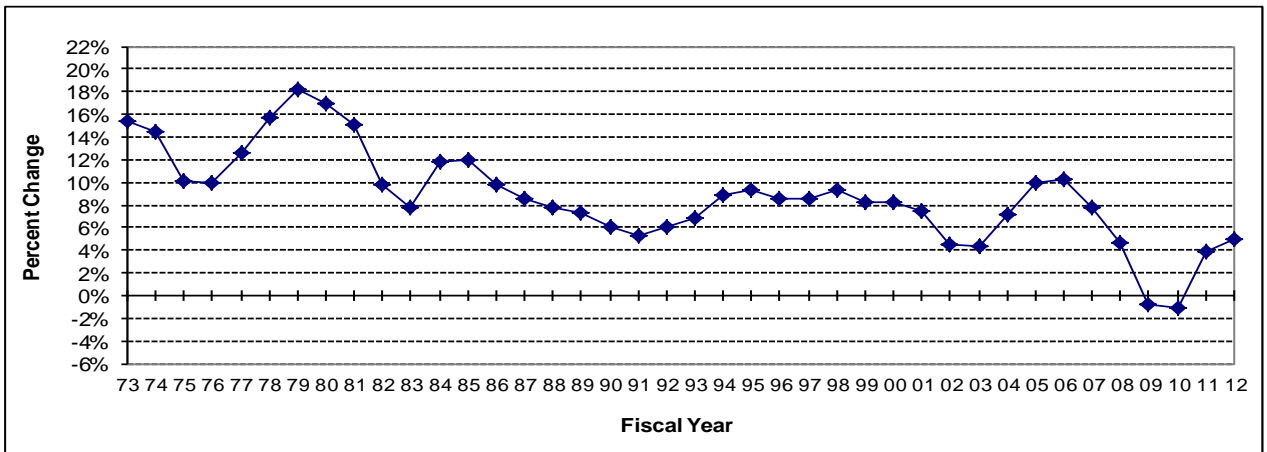
HISTORICAL DATA
ARIZONA NOMINAL PERSONAL INCOME GROWTH
(Annual Percent Change)

HISTORICAL DATA BY FISCAL YEAR (July 1 through June 30)

1970		1980	16.9%	1990	6.0%	2000	8.3%	2010	-1.1%
1971		1981	15.0%	1991	5.3%	2001	7.5%	2011	3.9%
1972		1982	9.8%	1992	6.0%	2002	4.5%	2012*	5.0%
1973	15.4%	1983	7.8%	1993	6.9%	2003	4.4%	2013	
1974	14.4%	1984	11.9%	1994	8.8%	2004	7.2%	2014	
1975	10.0%	1985	12.0%	1995	9.4%	2005	10.0%	2015	
1976	10.0%	1986	9.9%	1996	8.6%	2006	10.3%	2016	
1977	12.7%	1987	8.6%	1997	8.5%	2007	7.7%	2017	
1978	15.6%	1988	7.8%	1998	9.3%	2008	4.6%	2018	
1979	18.3%	1989	7.3%	1999	8.2%	2009	-0.7%	2019	

BEA for FY 1973-2011, Western Blue Chip, June 2012 for FY 2012* and FY 2013, and ADOT staff for FY 2014-32.

HISTORICAL DATA - GRAPHED



HISTORICAL DATA - ANALYSIS

Period	Historical		Mean	Std. Dev.	80% Range	
	Min.	Max.			Lower	Upper
5 Years	-1.1%	5.0%	2.3%	3.0%	-1.0%	4.8%
10 Years	-1.1%	10.3%	5.1%	3.9%	-0.8%	10.0%
Full Period	-1.1%	18.3%	8.8%	4.2%	4.5%	15.1%

**HISTORICAL DATA
ARIZONA POPULATION GROWTH
(Annual Percent Change)**

HISTORICAL DATA BY FISCAL YEAR (July 1 through June 30)

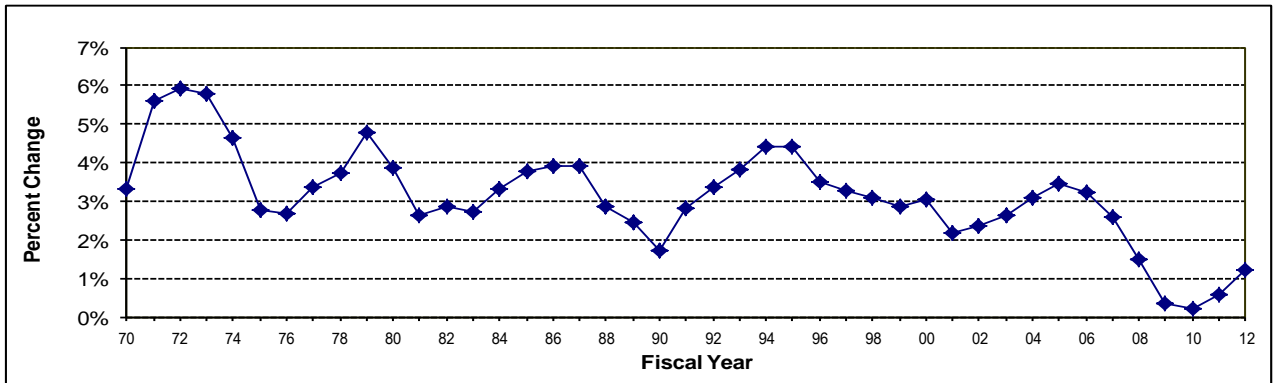
1970	3.3%	1980	3.9%	1990	1.7%	2000	3.0%	2010	0.2%
1971	5.6%	1981	2.6%	1991	2.8%	2001	2.2%	2011	0.6%
1972	5.9%	1982	2.8%	1992	3.4%	2002	2.3%	2012*	1.2%
1973	5.8%	1983	2.7%	1993	3.8%	2003	2.6%	2013	
1974	4.6%	1984	3.3%	1994	4.4%	2004	3.1%	2014	
1975	2.8%	1985	3.8%	1995	4.4%	2005	3.5%	2015	
1976	2.7%	1986	3.9%	1996	3.5%	2006	3.2%	2016	
1977	3.4%	1987	3.9%	1997	3.3%	2007	2.6%	2017	
1978	3.7%	1988	2.9%	1998	3.1%	2008	1.5%	2018	
1979	4.8%	1989	2.5%	1999	2.9%	2009	0.3%	2019	

BEA FY 1970-2000. FY 2001-2011 from ADOA Office of Employment and Population Statistics.

FY 2012* and FY 2013 based on June 2012 Western Blue Chip (Arizona) while FY 2014-2015 from ADOT staff.

FY 2016-2032 based on DES/ADOA Arizona Population Projections 2006-2055 growth rates dated March 31, 2006.

HISTORICAL DATA - GRAPHED



HISTORICAL DATA - ANALYSIS

Period	Historical		Mean	Std. Dev.	80% Range	
	Min.	Max.			Lower	Upper
5 Years	0.2%	1.5%	0.8%	0.6%	0.2%	1.4%
10 Years	0.2%	3.5%	1.9%	1.3%	0.3%	3.3%
Full Period	0.2%	5.9%	3.1%	1.3%	1.5%	4.6%

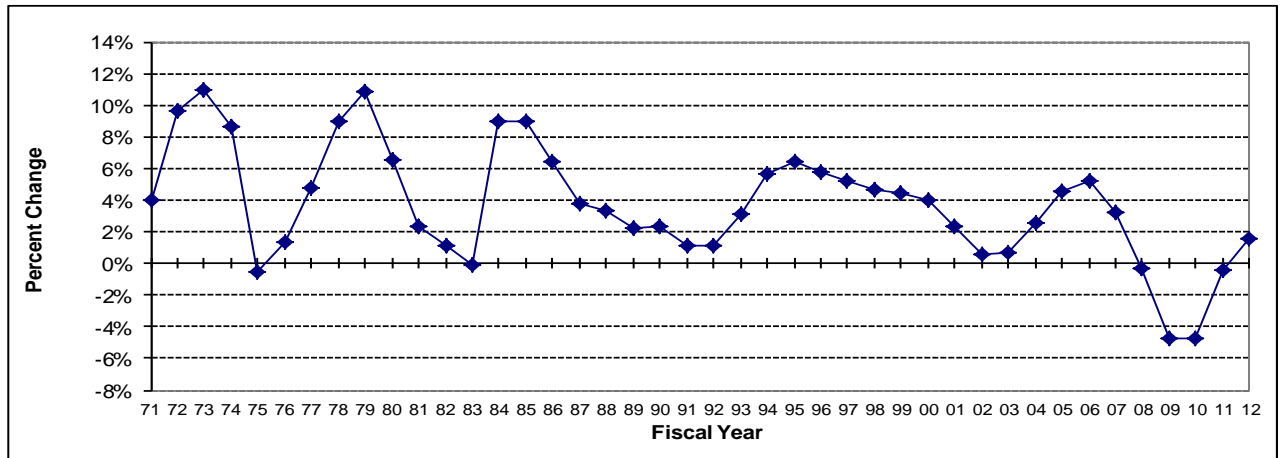
HISTORICAL DATA
ARIZONA TOTAL NON-FARM EMPLOYMENT GROWTH
(Annual Percent Change)

HISTORICAL DATA BY FISCAL YEAR (July 1 through June 30)

1970		1980	6.6%	1990	2.3%	2000	4.0%	2010	-4.7%
1971	4.0%	1981	2.3%	1991	1.1%	2001	2.3%	2011	-0.5%
1972	9.6%	1982	1.1%	1992	1.1%	2002	0.5%	2012*	1.5%
1973	10.9%	1983	0.0%	1993	3.1%	2003	0.7%	2013	
1974	8.6%	1984	9.0%	1994	5.6%	2004	2.5%	2014	
1975	-0.5%	1985	8.9%	1995	6.4%	2005	4.5%	2015	
1976	1.4%	1986	6.4%	1996	5.7%	2006	5.2%	2016	
1977	4.8%	1987	3.7%	1997	5.2%	2007	3.2%	2017	
1978	9.0%	1988	3.3%	1998	4.7%	2008	-0.3%	2018	
1979	10.9%	1989	2.2%	1999	4.4%	2009	-4.7%	2019	

Bureau of Labor Statistics for FY 1971-2011, ADOA, Arizona's Workforce Report, May 4, 2012 for FY 2012* and 2013, and ADOT staff estimates for FY 2014-2032.

HISTORICAL DATA - GRAPHED



HISTORICAL DATA - ANALYSIS

Period	Historical		Mean	Std. Dev.	80% Range	
	Min.	Max.			Lower	Upper
5 Years	-4.7%	1.5%	-1.7%	2.8%	-4.7%	0.8%
10 Years	-4.7%	5.2%	0.8%	3.4%	-4.7%	4.6%
Full Period	-4.7%	10.9%	3.7%	3.7%	-0.3%	9.0%

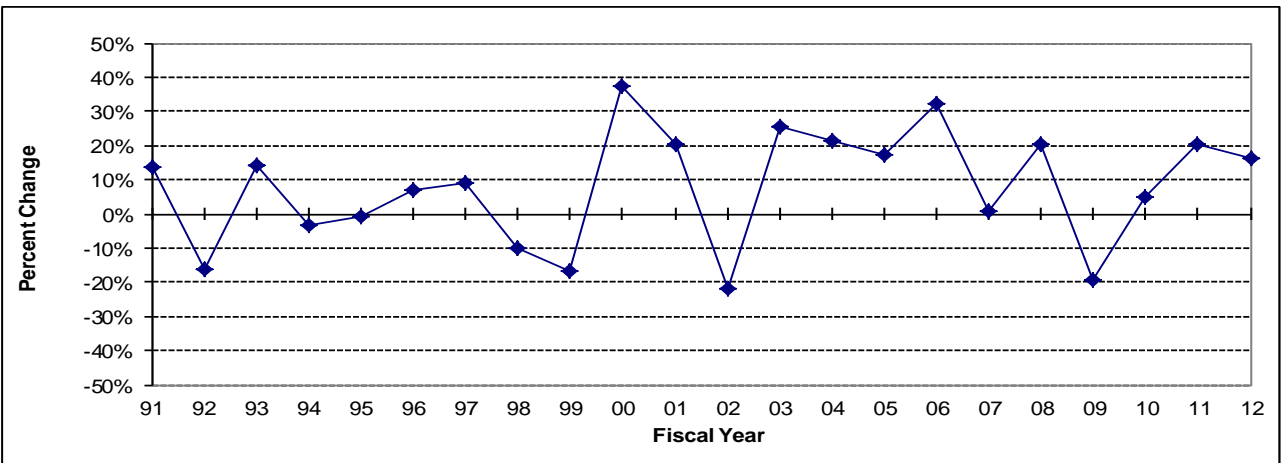
**HISTORICAL DATA
ARIZONA NOMINAL GAS PRICE GROWTH
(Annual Percent Change)**

HISTORICAL DATA BY FISCAL YEAR (July 1 through June 30)

1970	1980	1990	2000	37.2%	2010	4.7%	
1971	1981	1991	13.8%	2001	20.2%	2011	20.1%
1972	1982	1992	-16.0%	2002	-21.9%	2012	16.1%
1973	1983	1993	14.2%	2003	25.4%	2013	
1974	1984	1994	-3.3%	2004	21.6%	2014	
1975	1985	1995	-0.3%	2005	17.4%	2015	
1976	1986	1996	-9.2%	2006	32.1%	2016	
1977	1987	1997	-25.2%	2007	0.5%	2017	
1978	1988	1998	-10.3%	2008	20.2%	2018	
1979	1989	1999	-16.8%	2009	-19.3%	2019	

U.S. Department of Energy (EIA Administration) for FY 1985-2011, AAA Arizona for FY 2012 and Global Insight, 2nd Quarter 2012, Trend Forecast report for FY 2013-32

HISTORICAL DATA - GRAPHED



HISTORICAL DATA - ANALYSIS

Period	Historical		Mean	Std. Dev.	80% Range	
	Min.	Max.			Lower	Upper
5 Years	-19.3%	20.2%	8.4%	16.7%	-9.7%	20.2%
10 Years	-19.3%	32.1%	13.9%	14.8%	-1.4%	26.0%
Full Period	-21.9%	37.2%	7.8%	16.9%	-16.7%	25.0%

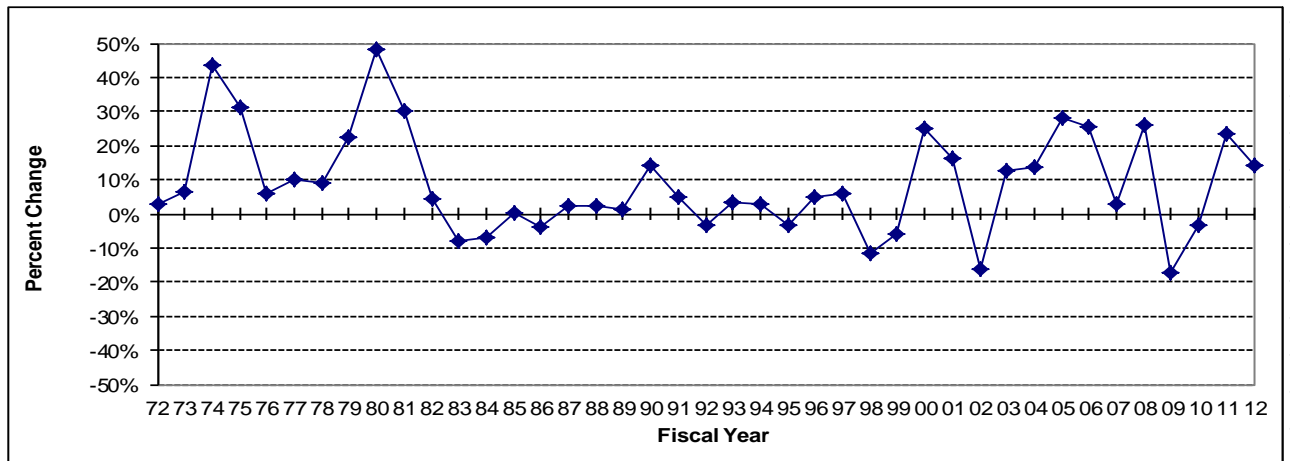
HISTORICAL DATA
WEST COAST NO. 2 NOMINAL DIESEL PRICE GROWTH
(Annual Percent Change)

HISTORICAL DATA BY FISCAL YEAR (July 1 through June 30)

1970		1980	48.1%	1990	14.2%	2000	25.0%	2010	-3.4%
1971		1981	30.2%	1991	4.6%	2001	16.4%	2011	23.5%
1972	2.7%	1982	4.3%	1992	-3.2%	2002	-16.4%	2012	14.2%
1973	6.4%	1983	-8.0%	1993	3.1%	2003	12.4%	2013	
1974	43.3%	1984	-6.8%	1994	2.7%	2004	13.6%	2014	
1975	31.4%	1985	0.1%	1995	-3.4%	2005	27.8%	2015	
1976	5.8%	1986	-4.0%	1996	4.9%	2006	25.5%	2016	
1977	10.0%	1987	2.1%	1997	5.8%	2007	2.7%	2017	
1978	9.1%	1988	2.3%	1998	-11.8%	2008	25.8%	2018	
1979	22.4%	1989	1.2%	1999	-5.9%	2009	-17.2%	2019	

U.S. Department of Energy (EIA Administration) for FY 1972-2012 and Global Insight, 2nd Quarter 2012, Trend Forecast report for FY 2013-32

HISTORICAL DATA - GRAPHED



HISTORICAL DATA - ANALYSIS

Period	Historical		Mean	Std. Dev.	80% Range	
	Min.	Max.			Lower	Upper
5 Years	-17.2%	25.8%	8.6%	18.4%	-11.7%	24.9%
10 Years	-17.2%	27.8%	12.5%	14.7%	-4.8%	26.0%
Full Period	-17.2%	48.1%	8.8%	15.0%	-6.8%	27.8%