

UTILITY-SCALE GIS LAYERS & DATA

S.no	Gis_Layer	Description	Measured_Units	Relevant_Time_Period	Data_Type	Data_Creator	Data_Source
1	Arizona_Solar_Intensity	Monthly and annual average solar resource potential for Arizona State	Giga-Watt hours/Day	1998-2005	Vector digital data - Polygons	Developed by SUNY Albany and National Renewable Energy Laboratory (NREL)	na
2	Arizona_Land_Ownership	Dissolved version of the LAND coverage that shows land ownership information for Arizona State	% of land ownership	1988	Vector digital data - Polygons	Arizona State Land Department, Arizona Land Resources Information System	GIS Data Repository, ISSR, ASU
3	Arizona_Transmission_Lines	Major power transmission lines within Arizona extracted from 1992 U.S. Census Bureau TIGER/line files	Distance in Kilometers	1992	Vector digital data - Polylines	U.S. Bureau of the Census	GIS Data Repository, ISSR, ASU
4	Arizona_Urban_Areas	Polygonal boundaries for the 2000 Census Urbanized areas in Arizona	Distance in Kilometers	2002	Vector digital data - Polygons	U.S. Bureau of the Census	GIS Data Repository, ISSR, ASU
5	Arizona_Cities	Locations for cities within Arizona with populations of 10,000 or greater and all state capitals	Distance in Kilometers	1990	Vector digital data - Points	Environmental Systems Research Institute, Inc. (ESRI)	GIS Data Repository, ISSR, ASU
6	Arizona_5%_Slope	N/A (No Information Available)	% of stopped land	na	Vector digital data - Polygons	na	na
7	Arizona_Temp_Maximum	Data representing areas of Average Maximum Temperature in Arizona for the period 1971-2000	degrees F	2006	Converted from grids to polygons	PRISM Group at Oregon State University	GIS Data Repository, ISSR, ASU
8	Arizona_Temp_Minimum	Data representing areas of Average Minimum Temperature in Arizona for the period 1971-2000	degrees F	2006	Converted from grids to polygons	PRISM Group at Oregon State University	GIS Data Repository, ISSR, ASU
9	Arizona_Precipitation_2009	Data representing inches of precipitation for the annual year 2009 in Arizona	Acre-feet/Year	2006	Converted from grids to polygons	PRISM Group at Oregon State University	State Climate Office, Arizona
10	Arizona_Surface_Stream_Flow	Data showing location of all surface water stream gages, its historical mean discharge, and its current discharge rate for the year 2009	Distance in kilometers, Discharge in acre-feet/year	2009	Vector digital data - Points	Decision Theater, ASU, Tempe	U.S. Geological survey, Title: Surface water data for Arizona: USGS surface-water annual statistics, URL: http://waterdata.usgs.gov/az/nwis/annual/
11	Arizona_Water_Planning_Zones	Water planning boundaries for the state of Arizona	% of water planning zone	na	Vector digital data - Polygons	Arizona Department of Water Resources (ADWR)	ADWR
12	Arizona_Species	Species and Habitat conservation areas for the State of Arizona	List of top 5 affected species	na	Vector digital data - Polygons	Arizona Game and Fish Department	Dept. of Game and Fish

UTILITY-SCALE ECONOMIC & ENVIRONMENTAL DATA

S.no	Data	Description	Measured_Units	Data_Source
1	Business as Usual	Looks at usable production on the hottest day in 2009. Transmission system remains as is, mapped at 69 kV or above. Solar investment tax credit remains until end of 2016, ; all other sources increase proportionately		na
2	AZ Electricity Generation	Breakdown of total electricity industry by fuel source within Arizona	Percentage	EIA (2009)
3	AZ CO2 Emissions	CO2 emissions from coal, petroleum and natural gas generated electricity within Arizona	CO2 Per Thousand Metric Tonnes	EIA (2009)
4	AZ Electricity Demand Forecast			Demand Forcasts provided by 3 major utilities
5	AZ 2009 Average Electricity Price	\$95.6 per MWh		EIA (2009)
6	Water consumption	Water consumption for each technologyq	gals/ MWh	NREL survey report
7	Capital costs for technologies	overnight costs per Kw	\$ per Kw	EIA (AEO 2011)-relies on an EIA sponsored R.W. Beck study commissioned oct 2010

UTILITY-SCALE ELECTRICAL ENGINEERING/TRANSMISSION DATA

S.no	Data	Data_Source
1	2009 Planning Test Case Data	WECC (via an NDA)
2	PV Generation Data	APS
3	Load Data	ERCOT web site (public source)