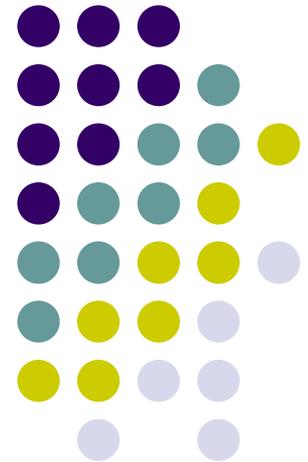


Scottsdale Solar Energy Trends 2022

City of Scottsdale Green Building Program

January 6, 2023

Anthony Floyd, FAIA, LEED-AP
City of Scottsdale
Office of Environmental Initiatives



Solar Permits - 2022

2022 Quarter	Solar Electric PV Permits	Solar Hot Water Permits	Total Permits
1st	270	0	270
2nd	266	0	266
3rd	333	0	333
4th	296	0	296
Total	1,165	0	1,165

Source: Scottsdale CDS permit records

Solar Permits - 2021

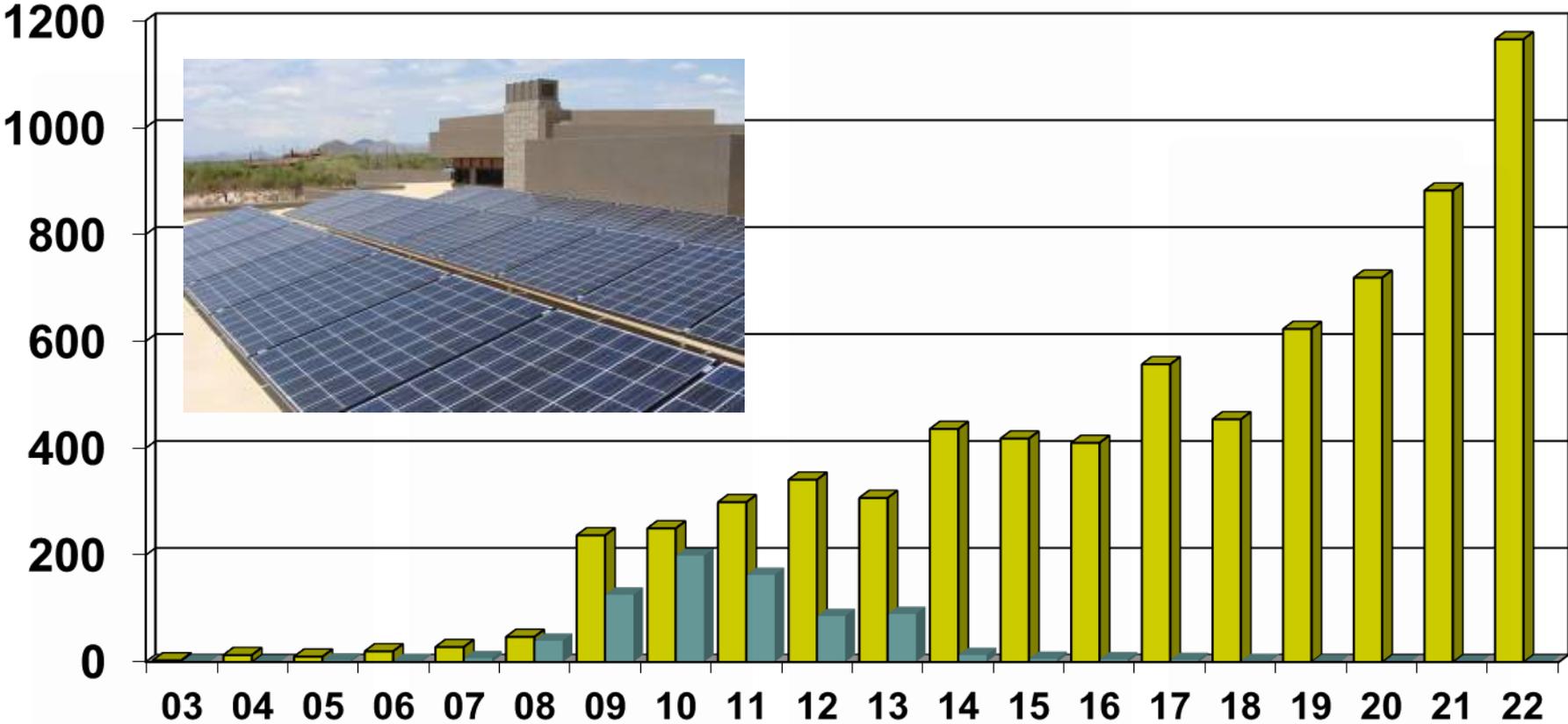
2021 Quarter	Solar Electric PV Permits	Solar Hot Water Permits	Total Permits
1st	173	0	173
2nd	215	0	215
3rd	285	0	285
4th	209	0	209
Total	882	0	882

Source: Scottsdale CDS permit records

Solar installations 2002 to 2022



7,969 solar PV and hot water installations (10.4% of 76,438 owner-occupied homes)



Source: Scottsdale CDS permit records and US Census 2019 housing estimates

Solar Permits 2002 to 2022

Solar Electric (PV)

7,221 solar PV permits issued

Year	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22
Permits	2	3	13	10	20	28	47	237	250	299	341	307	436	418	410	557	454	623	719	882	1165

Solar Hot Water

748 solar hot water permits issued

Year	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22
Permits	-	1	0	3	2	7	40	126	199	163	86	90	13	6	5	4	2	1	0	0	0

Note: Many early solar permits (2002 – 2008) were designated as minimum electrical, plumbing or water heater permits.

Source: Scottsdale CDS permit records

On-Site Energy Generation and Environmental Impact Reduction of Solar Electric (PV) Systems

Estimated energy savings and equivalent greenhouse gas reduction resulting from installed roof top solar PV systems in **2022**.

Green Home Energy Measures	Annual Energy Savings and Pollution Reduction	
	Per Home	Total Savings for 1,165 solar PV roof tops in 2022
Average PV system size	10 kW	11.65 MW
Average Annual On-Site Energy Generation¹	16,427 Kilowatt hours (kWh)	19,137,455 Kilowatt hours (kWh)
Average Annual Energy Value¹	\$1,784	\$2,078,360
Equivalent Annual Greenhouse Gas Reduction²	12.8 tons of carbon dioxide (CO ₂) avoided	14,912 tons of carbon dioxide (CO ₂) avoided
Equivalent Passenger Vehicles removed from Street²	2.5 cars	2,913 cars
Equivalent miles driven by an average passenger vehicle²	29,257 miles	34,084,405 miles

Sources: ¹pwwatts.nrel.gov; ²epa.gov/energy/greenhouse-gas-equivalencies-calculator

On-Site Energy Generation and Environmental Impact Reduction of Solar Electric (PV) Systems

Estimated energy savings and equivalent greenhouse gas reduction resulting from installed roof top solar PV systems from **2002 to 2022**.

Green Home Energy Measures	Annual Energy Savings and Pollution Reduction	
	Per Home	Total Savings for <u>7,221</u> solar PV roof tops
Average PV system size	10 kW	72.21 MW
Average Annual On-Site Energy Generation¹	16,427 Kilowatt hours (kWh)	118,619,367 Kilowatt hours (kWh)
Average Annual Energy Value¹	\$1,784	\$12,882,264
Equivalent Annual Greenhouse Gas Reduction²	12.8 tons of carbon dioxide (CO ₂) avoided	92,429 tons of carbon dioxide (CO ₂) avoided
Equivalent Passenger Vehicles removed from Street²	2.5 cars	18,053 cars
Equivalent miles driven by an average passenger vehicle²	29,257 miles	211,264,797 miles

Sources: ¹pwwatts.nrel.gov; ²epa.gov/energy/greenhouse-gas-equivalencies-calculator