



ALABAMA STATIST	ICS SUMMARY (2011 - 2024)
19	CLIMATE DISASTER DECLARATIONS
\$1.6 BILLION	FEMA + HUD POST-DISASTER FUNDING
5.0 MILLION PEOPLE	POPULATION TOTAL
\$314	PER CAPITA SPENDING ON CLIMATE DISASTERS
MOBILE & PERRY (8 DISASTERS)	COUNTY WITH THE HIGHEST DISASTER OCCURRENCES
26 COUNTIES	COUNTIES HAVE HAD FIVE OR MORE DISASTERS
1.4 MILLION PEOPLE	LIVE IN AREAS WITH VERY HIGH SOCIAL VULNERABILITY (SVI > 0.75)
6.7 HOURS	TOTAL OUTAGE DURATION (HOURS PER CUSTOMER PER YEAR)
C- (2022)	ASCE INFRASTRUCTURE REPORT CARD GRADE
17	SUPERFUND SITES
\$4.1 BILLION	CLIMATE INFRASTRUCTURE SUPPORTED THROUGH SMALL INSURANCE SURCHARGE

SOCIAL VULNERABILITY INDEX 2022

AREAS OF GREATEST SOCIAL VULNERABILITY

Baldwin County has low social vulnerability and experienced the greatest population growth from 2010 to 2024, 28%, but it also had 6 federal disasters.

Social Vulnerability Index

CDC (2022) No Value

0.0 - 0.2

0.2 - 0.4

0.4 - 0.6

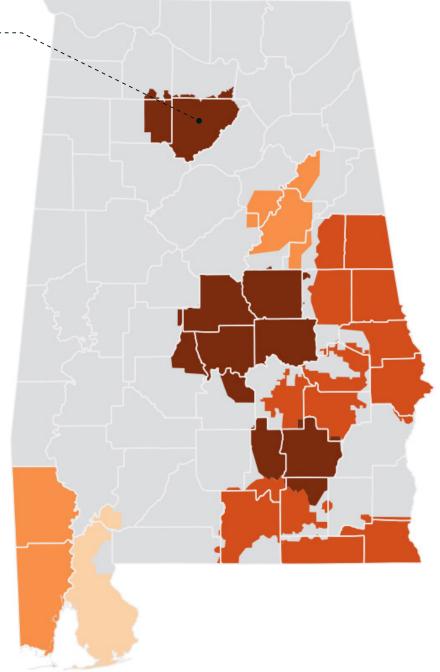
0.8 - 1.0

MAP MADE BY REBUILD BY DESIGN DATA SOURCE: CDC/ATSDR 2022 SVI

ENERGY RELIABILITY 2023

COUNTIES AT GREATEST RISK OF POWER OUTAGES

Cullman County has the largest area with the second longest service interruptions in the state, 1,155 minutes total, but it grew 10% in population from 2010 to 2024.



Aggregated Annual Electric Outage Duration Including major events - SAIDI_W_MED

missing electric outage data

0 - 60 minutes

60 - 120 minutes

120 - 240 minutes 240 - 456 minutes

456- 7,700 minutes

MAP MADE BY REBUILD BY DESIGN SOURCE: U.S. ENERGY INFORMATION ADMINISTRATION 2023

TOTAL : 40 DICASTEDS			Total	20	11	20	2012	2014	2016	2017		2018	2	2019				202	0			2021		2023	
TOTAL: 19 DISASTERS FEMA PA + HM: \$891.0 M				1971: SEVEF	RE STORMS,	4052: SEVERE STORMS,		4176: SEVERE STORMS,	4251: SEVERE STORM	MS,	4000- 05	TYPE OTODAY AND	4419: SEVERE STORMS,	4426: SEVERE		4540, OEVERE OTORNO AN	4554: SEVERE ST	ORMS,	IFDE			4596: SEVERE STORMS,	4684: SEVERE	STORMS, 4710: 3	SEVERE STORMS,
HUD CDBG-DR: \$688.4 M				TORNADOES, S WINDS, AND		TORNADOES, STRAIGHT- LINE WINDS, AND	4082: HURRICANE IS	AAC TORNADOES, STRAIGHT-LI WINDS, AND FLOODING	IE TORNADOES, STRAIGHT WINDS, AND FLOODIN		TE 4362: SE	EVERE STORMS AND TORNADOES 4406: HURRICANE MICHAEL	STRAIGHT-LINE WINDS, AND TORNADOES	STRAIGHT-LIN TORNADOE	ES, AND	4546: SEVERE STORMS AN FLOODING	STRAIGHT-LINE W AND TORNADO			E SALLY 4573: HUI	RRICANE ZETA	STRAIGHT-LINE WINDS, AND TORNADOES	4632: SEVERE STORMS AND FLOODING STRAIGHT-LINE TORNAL		NIGHT-LINE WINDS,
FEMA + HUD ASSISTANCE: \$1.	.6 B			WINDS, AND	PLOODING	FLOODING		WINDS, AND FEOODING	WINDS, AND FEOODIF	10			AND TORNADOES	FLOOD			AND TORNADO	ES				TORNADOES			
GEOID County Name	# of Disaster	rs TOTAL FEMA	PA Obligations HM Obligations	PA Obligations	HM Obligations	PA HM Obligations Obligations	PA HI Obligations Obliga	M PA Obligations Obligation	PA Obligations Obligat	I PA Obligations Obliga	M tions PA Obliga	ations HM PA Obligations HM Obligations	PA HM Obligations Obligations	PA Obligations	HM Obligations	PA Obligations HM Obligation	PA s Obligations Obli	HM PA	HM Obligations PA Obligations HW	Obligations PA Obligati	ions HM Obligations F	PA Obligations HM Obligations	PA HM PA Obligations Obligations	HM Obligations PA Oblig	igations HM Obligation
01000 01000: Statewide	17	\$145,701,988.02	\$138,506,573.88 \$7,195,414.14	\$64,495,901.42	\$4,493,449.42		\$345,162.84 \$46,2	230.00 \$3,264,574.47 \$1,196,489	00 \$2,131,421.32 \$296,7	706.00 \$1,004,267.07 \$222,	861.00 \$280,6	\$19.05 \$27,552.00 \$2,036,699.02 \$84,423.17	\$446,474.25 \$66,124.55	5 \$511,108.67	\$79,065.00	\$638,328.66 \$29,089.	00 \$847,456.23 \$3	\$809,195.36	\$30,235.00 \$37,555,966.91	\$592,009.00 \$17,607,510	0.85 \$0.00	\$2,858,756.55 \$0.00	\$2,485,506.04	\$0.00 \$1,187	7,625.17 \$0.0
01001 01001: Autauga County	7	\$7,755,283.99	\$7,556,904.38 \$198,379.61	\$34,140.69	V .00,.000				\$215,979.69 \$29,2	70,000	\$0.00						\$918,350.82	\$0.00		\$3,919,420			\$2,311,467.84	\$0.00 \$152	2,282.70 \$0.0
01003	6	\$237,323,840.97 \$2,151,003.92	\$225,274,959.05 \$12,048,881.92 \$2,151,003.92 \$0.00	\$0.00 \$0.00	, , , , , , , , , , , , , , , , , , , ,		\$2,836,049.55	\$0.00 \$10,124,188.69 \$1,846,674	\$699,118.87	\$9,790,537.40 \$1,648,9	957.02						\$79.425.23	\$0.00	\$202,432,809.33 \$ \$1,372,459.82	7,840,475.41 \$91,374 \$0.00	4.08 \$0.00		\$0.00	\$0.00	
01007 01005. Barbour County	2	\$5,331,854.65	\$4,644,876.62 \$686,978.03	\$622,951.31					ф099, 110.0 <i>1</i>	\$0.00							\$19,425.25	\$0.00	\$1,372,439.02	φυ.υυ		\$4,021,925.31 \$183,438.90	\$0.00	\$0.00	
01009 01009: Blount County	6	\$4,567,731.80	\$3,822,705.72 \$745,026.08	\$246,350.68	\$382,059.64			\$1,620,148.06 \$250,466	44 \$723,138.10	\$0.00				\$83,069.59	\$0.00	\$286,450.39 \$0.	00	\$863,548.90	6112,500.00						
01011 01011: Bullock County	3	\$322,443.54	\$310,443.54 \$12,000.00	\$0.00				· · ·	, ,, ,,	\$0.00															
01013 01013: Butler County	6	\$1,135,564.76	\$1,011,294.76 \$124,270.00 \$47,450.055.00 \$5,750.000.00	\$98,805.98	\$84,295.00			\$140,949.66 \$31,975	00 \$251,065.38 \$8,0	000.00	¢20, 200, 2	200 70 04 040 040 47				\$248,993.97 \$0.	00		\$135,016.18	\$0.00 \$136,463	·	\$2.040.470.47			
01015	5	\$52,906,638.03 \$2,363,147.14	\$47,152,955.83 \$5,753,682.20 \$2,241,537.14 \$121,610.00	\$16,197,92	\$934,872.03 \$121,610.00				\$679,724.09	\$0.00	\$30,390,3	393.78 \$4,818,810.17				\$174,271.92 \$0.	00			\$347,483	3.69 \$0.00	\$3,013,179.47 \$0.00	\$189,799.65	\$0.00 \$1,181	1.543.56 \$0.0
01019 01019: Cherokee County	4	\$687,180.10	\$390,285.10 \$296,895.00	\$168,710.23					\$108,181.85 \$70,1	****				\$113,393.02	\$0.00	Ç, <u>-</u>				\$(0.00 \$0.00		Ç.:ss,, .cs.	40.00 4.,.0 .	γοιο
01021 01021: Chilton County	4	\$1,624,156.38	\$599,662.72 \$1,024,493.66	\$0.00	\$1,024,493.66	\$0.00 \$0.00											\$280,177.31	\$0.00		\$319,48	5.41 \$0.00				
01023 01023: Choctaw County	4	\$1,427,837.80	\$409,549.16 \$1,018,288.64	\$305,814.47	\$555,755.5					\$0.00 \$22,						\$103,734.69 \$0.	00		0040.040.04	\$0.00 040 400 00	0.00 \$0.00				
01025	4	\$12,912,999.69 \$404,543.03	\$12,335,054.03 \$577,945.66 \$246,258.08 \$158,284.95	\$10,540.22 \$17,206.33	\$577,945.66 \$158,284.95				\$33,627.53	\$12,403.36 \$0.00	\$0.00								\$212,049.04	\$0.00 \$12,100,06° \$172,28°	40.00	\$23,136.86 \$0.00			
01029 01029: Cleburne County	2	\$107,185.15	\$43,691.15 \$63,494.00	\$0.00						\$0.00										Ψ172,20	ψο.σο	ψ20,100.00 ψ0.00			
01031 01031: Coffee County	4	\$6,495,788.99	\$3,128,022.53 \$3,367,766.46	\$0.00	\$434,871.00				\$2,485,176.11 \$2,932,8	395.46							\$77,556.37	\$0.00	\$565,290.05	\$0.00					
01033	5	\$5,143,329.65	\$3,556,903.13 \$1,586,426.52		\$1,500,251.52					\$0.00				\$833,055.49	\$86,175.00	\$165,166.34 \$0.	00			•					9,348.23 \$0.0
01035 01035: Conecuh County	4	\$1,175,300.70 \$1,320,140.67	\$1,071,075.70 \$104,225.00 \$1,320,140.67 \$0.00						\$526,890.43	\$0.00							¢712.002.01	00.02	\$491,252.68	\$0.00 \$84,432	2 10 00		\$52,932.59 \$67,635.25	\$0.00	8.231.43 \$0.0
01037	7	\$1,320,140.67 \$8,476,306.28	\$1,320,140.67 \$7,786,189.03 \$690,117.25	\$16,838.89 \$4,260.24	\$0.00 \$486,332.25		\$789,568.94 \$176,5	522.00 \$481,455.73 \$27,263	00 \$4.022.256.10	\$0.00						\$0.00	00 \$1,033.820.43	\$0.00 \$0.00	\$1,454,827.59	\$0.00	2.19 \$0.00		\$67,635.25	φυ.υυ \$438	8,231.43 \$0.0
01041 01041: Crenshaw County	6	\$3,824,403.38	\$3,814,163.38 \$10,240.00	\$0.00	\$0.00		Ţ. 66,666.6 . Ţ. 1. 6,6	\$253,665.55 \$10,240		\$0.00						\$374,830.59 \$0.	00 \$290,766.56	\$0.00	\$333,007.49	\$0.00					
01043 01043: Cullman County	5	\$18,224,797.14	\$15,451,098.57 \$2,773,698.57	\$9,881,900.86	\$2,225,982.65				\$3,578,514.10 \$547,7	715.92	\$749,2					\$290,654.10 \$0.	00	\$950,797.56							
01045 01045: Dale County	7	\$2,335,362.80	\$2,249,699.80 \$85,663.00	\$0.00	, ,		****	· · ·	00 \$1,041,603.41	\$0.00	22.22	\$423,749.51 \$0.00					\$583,002.60	\$0.00	\$31,668.35	\$0.00			\$98,439.77	\$0.00	
01047	6 5	\$14,308,860.66 \$7,627,636.29	\$14,022,521.72 \$286,338.94 \$5,693,972.39 \$1,933,663.90		\$286,338.94 \$1,933,663.90		\$308,789.36		00 \$501,167.46	\$3,236.42 \$0.00	\$0.00			\$220,743.09	\$0.00	\$320,128.42 \$0.	00	\$1,030,821.04	\$0.00	\$4,825,548	8.96 \$0.00		\$8,544,066.27	\$0.00	
01051 01051: Elmore County	5	\$3,044,617.00	\$2,245,359.28 \$799,257.72		\$743,157.72			ψ113,310.11 ψ0	\$777,462.23 \$56,1					Ψ220,743.03	ψ0.00			\$1,030,021.04	ψ0.00	\$156,413	3.61 \$0.00		\$673,612.58	\$0.00 \$109	9,071.22 \$0.0
01053 01053: Escambia County	3	\$5,673,657.22	\$5,482,993.91 \$190,663.31		\$120,405.00				\$508,237.00 \$70,2										\$4,974,756.91	\$0.00					
01055 01055: Etowah County	4	\$4,224,270.39	\$2,914,992.89 \$1,309,277.50	\$175,680.95	\$602,567.58			\$638,887.94 \$706,709			\$971,1	185.92 \$0.00						\$1,129,238.08	\$0.00						
01057 01057: Fayette County	3	\$662,148.25	\$484,930.92 \$177,217.33	\$368,441.39	****,=*****			# 400 F40 C0		\$0.00				\$004 400 00	#0.00	\$52,318.96 \$0.	00								
01059	6	\$21,854,513.22 \$11,634,156.87	\$20,390,119.75 \$1,464,393.47 \$10,761,932.78 \$872,224.09		\$1,451,343.47 \$204,750.00		\$464.370.02 \$33.5	\$130,518.62 \$0 532.00 \$1,275,873.79 \$33,039		\$0.00		\$6,304,381.65 \$522,337.50		\$934,463.89	\$0.00				\$1,998,833.00	\$78,565,59					
01063 01063: Greene County	4	\$1,597,941.01	\$1,100,352.75 \$497,588.26		\$497,588.26		Ψ101,070.02 Ψ00,0	ψ1,210,010.10 ψ00,000	Ψ110, 11 1.02	ψο.σσ		\$6,661,661.66 \$622,661.66		\$179,103.09	\$0.00	\$441,531.31 \$0.	00		Ψ1,000,000.00	Ψ10,000.00			\$392,912.87	\$0.00	
01065 01065: Hale County	4	\$1,388,795.72	\$1,218,789.97 \$170,005.75	\$843,148.09	\$170,005.75															\$(0.00 \$0.00	\$93,008.16 \$0.00	\$282,633.72	\$0.00	
01067 01067: Henry County	4	\$1,193,034.32	\$1,193,034.32 \$0.00		• • • • • • • • • • • • • • • • • • • •			**********	` '	\$0.00		\$567,734.52 \$0.00					\$227,347.52	\$0.00	21 212 222 21	20.00					
01069	5 1	\$12,851,838.34 \$11,947,835.20	\$12,496,940.34 \$354,898.00 \$8,720,382.14 \$3,227,453.06	\$0.00 \$503 123 26	\$89,908.00 \$2,713,677.26			\$911,266.60 \$0	00 \$1,127,765.16 \$264,9 \$244,340.76 \$65,6			\$8,647,048.34 \$0.00		\$7,687,602.15	\$448 121 25			\$285,315.97	\$1,810,860.24 \$0.00	\$0.00					
01073 01073: Jefferson County	5	\$47,728,507.95	\$39,096,596.15 \$8,631,911.80		\$6,892,643.16	\$0.00 \$146,221.00		\$6,092,040.30 \$1,593,047		304.00				ψ1,001,002.10	ψ++0, 121.20			Ψ200,010.01	ψ0.00			\$0.00 \$0.00	\$0.00 \$0.00		
01075 01075: Lamar County	5	\$2,674,665.80	\$2,104,889.67 \$569,776.13	\$1,108,163.27	\$478,533.00			\$231,962.98 \$0	00 \$284,180.56 \$18,7	763.88				\$119,575.26	\$13,434.75	\$361,007.60 \$59,044.	50								
01077 01077: Lauderdale County	2	\$5,889,152.74	\$5,406,994.99 \$482,157.75	\$2,021,700.51	¥ 10=,101111				********															\$3,385	5,294.48 \$0.0
01079	2	\$4,346,160.25 \$5,254,091.87	\$969,948.50 \$3,376,211.75 \$4,716,759.72 \$537,332.15		\$3,376,211.75 \$41,506.00			\$637,110.81 \$0		\$0.00 \$0.00			\$3,580,746.16 \$495,826.15	5											
01083 01083: Limestone County	3	\$10,335,163.91	\$9,368,014.72 \$967,149.19		\$928,587.00			\$4,356,009.68 \$38,562		ψ0.00			ψ-50,020.10			\$379,827.54 \$0.	00								
01085 01085: Lowndes County	3	\$273,087.70	\$273,087.70 \$0.00	\$0.00	\$0.00				\$261,434.09	\$0.00										\$11,653	3.61 \$0.00				
01087 01087: Macon County	5	\$7,787,567.49	\$7,297,134.91 \$490,432.58		\$292,425.43				\$5,017,878.55 \$198,0	007.15 \$2,650.49	\$0.00					\$2,196,836.78 \$0.	00							\$79	9,769.09 \$0.0
01089	2	\$13,873,748.67 \$2,245,074.10	\$12,662,717.94 \$1,211,030.73 \$2,154,306.35 \$90,767.75	+10,001,000101	\$1,211,030.73 \$90,767.75									\$2,324,852.27	\$0.00					¢1 912 044	6.79 \$0.00				
01093 01093: Marion County	5	\$8,879,358.11	\$8,197,342.97 \$682,015.14		\$643,667.72				\$491,070.09 \$38,3	347.42				\$239,256.03	\$0.00	\$621,232.15 \$0.	00			ψ1,010,040	ψυ.υυ				\$0.00 \$0.0
01095 01095: Marshall County	4	\$10,878,188.31	\$9,268,278.07 \$1,609,910.24		\$1,609,910.24					\$0.00								\$581,786.71							8,049.65 \$0.0
01097 01097: Mobile County	8	\$49,028,545.98	\$41,746,950.21 \$7,281,595.77		\$2,135,854.29			\$0.00 \$1,220,793.29 \$1,382,763			\$0.00	\$287,654.36 \$45,563.01								3,717,415.17 \$14,104,994	·		\$0.00	\$0.00	
01099	5	\$1,050,574.05 \$18,661,998.14	\$406,220.05 \$644,354.00 \$18,582,875.14 \$79,123.00	\$10,143.13 \$0.00	\$620,617.00 \$79,123.00		\$105,741.40 \$23,7 \$209,946.74	\$0.00	\$182,711.83	\$0.00 \$976,054.46	\$0.00						\$28,020.02	\$0.00	\$59,573.81 \$17,347,703.92	\$0.00 \$48,049 \$0.00 \$21,150	· ·				
01103 01103: Morgan County	4	\$2,434,117.25	\$1,694,896.29 \$739,220.96		\$739,220.96		ψ203,340.74	ψ0.00		ψθ10,05 4 .40	ψ0.00			\$297,362.38	\$0.00		Ψ20,020.02	ψ0.00	ψ11,041,100.92	ψ0.00 ψ21,130	ψ0.00		\$0.00	\$0.00 \$444	4,203.99 \$0.0
01105 01105: Perry County	8	\$3,044,062.34	\$2,762,715.34 \$281,347.00	\$155,833.04	\$32,380.00	\$0.00 \$0.00	\$91,590.69 \$13,8	\$53.00 \$210,397.89 \$57,416	00 \$359,821.80 \$55,8	865.00						\$880,161.12 \$121,833.	00			\$397,73	7.57 \$0.00	\$667,173.23 \$0.00			
01107 01107: Pickens County	3	\$786,020.90	\$237,773.49 \$548,247.41	\$23,984.69	*,		\$153,120.17 \$58,7	739.00 \$60,668.63 \$31,149																	
01109 01109: Pike County	4	\$6,327,729.26	\$6,083,679.54 \$244,049.72 \$1,403,153.23 \$260,357.25	\$0.00	\$58,033.00 \$142,115.25				\$2,479,507.09 \$176,5	577.52						\$1,055,137.74 \$118,242.	\$2,994,787.26	9,439.20	\$609,385.19	\$0.00	7.50 \$0.00	\$174,259.75 \$0.00		¢125	5,618.22 \$0.0
01111 01111: Randolph County 01113 01113: Russell County	2	\$1,663,510.48 \$1,137,303.05	\$1,403,153.23 \$260,357.25 \$772,532.05 \$364,771.00		\$93,443.00				\$772,532.05 \$271,3	328.00						\$1,000,137.74 \$110,242.	00			φ40, 13	7.52 \$0.00	\$174,259.75 \$0.00		\$123	5,616.22 \$0.0
01115 01115: St. Clair County	3	\$5,286,647.46	\$2,573,730.07 \$2,712,917.39		\$2,416,450.13				\$179,966.62 \$174,8		\$329,3	330.09 \$121,595.25													
01117 01117: Shelby County	3	\$1,952,699.55	\$1,597,516.71 \$355,182.84	\$74,243.40	\$355,182.84																	\$1,523,273.31 \$0.00	\$0.00 \$0.00		
01119 01119: Sumter County	2	\$1,001,601.67	\$486,047.47 \$515,554.20		\$515,554.20															•	0.00		\$86,105.46	\$0.00	
01121 01121: Talladega County 01123 01123: Tallapoosa County	2	\$2,080,180.97 \$6,720,098.73	\$852,419.82 \$1,227,761.15 \$5,967,223.67 \$752,875.06		\$1,227,761.15 \$307,632.66												\$1,157,232.35 \$343	3 992 40		\$586,290	6.83 \$0.00		¢250.075.42	\$101,250.00 \$4,158	8 168 68
01123 01123: Taliapoosa County 01125 01125: Tuscaloosa County	3	\$36,500,331.26	\$22,975,922.10 \$13,524,409.16					\$2,269,995.03 \$1,006,339	06							\$3,136,749.32 \$1,800,732.		7,552.70					φ200,970.13	φ101,230.00 φ4,138	5, 100.00
01127 01127: Walker County	3	\$4,604,762.21	\$2,817,320.82 \$1,787,441.39							\$0.00								\$262,566.48	6112,500.00						
01129 01129: Washington County	4	\$3,572,217.10	\$2,988,042.10 \$584,175.00	· ·	, , , , , , , , , , , , , , , , , , , ,			\$15,864.46 \$0	00	\$12,634.14	\$0.00										7.71 \$0.00				
01131 01131: Wilcox County	3	\$1,199,151.71	\$1,195,151.71 \$4,000.00						0504.704.45	740.75				6.17 0 / · ·	MAT 025	\$141,030.76 \$0.	00			\$1,054,120	0.95 \$0.00				
11133 01133: Winston County Total Total	10	\$2,034,622.94 \$890,979,075,02	\$979,804.58 \$1,054,818.36 \$789,441,417.13 \$101,537,657.89		\$848,174.61 \$63,346,282,14	\$0.00 \$146.221.00	\$6.640.827.42 \$252.6	313 00 \$34 914 043 03 \$9 242 424	\$564,761.48 \$160,7	743.75 218.83 \$15.743.741.26 \$4.904	318 02 \$38 736 7	760 79 \$4 967 957 42 \$18 267 267 40 \$652 222 68	\$4 027 220 41 \$561 050 70	\$176,114.54 0 \$13,719,699,47		\$11 868 302 36 \$2 120 044	39 \$9 230 945 64 \$29	1 612 60 \$5 012 270 10	\$255 235 00 \$202 245 784 26 \$4	2 228 465 17 \$60 700 47	7 63 \$0.00	\$12 374 712 64 \$182 429 00	\$0.00 \$0.00 \$15.426.007.47	\$101,250,00, \$12,200	9 206 42
aı ıotai	19	\$890,979,075.02	\$789,441,417.13 \$101,537,657.89	\$201,043,394.72	\$63,346,282.14	\$0.00 \$146,221.00	\$6,640,827.42 \$352,6	513.00 \$34,914,043.03 \$8,212,134	04 \$36,201,886.24 \$5,449,2	218.83 \$15,743,741.36 \$1,894,	318.02 \$38,726,7	700.79 \$4,907,957.42 \$18,267,267.40 \$652,323.68	\$4,027,220.41 \$561,950.70	0 \$13,719,699.47	\$672,696.00	\$11,868,392.36 \$2,128,941.	39 \$9,230,945.61 \$384	1,012.60 \$5,913,270.10	\$255,235.00 \$292,245,784.36 \$1	2,228,465.1/ \$60,788,17	7.63 \$0.00 \$	\$12,374,712.64 \$183,438.90	\$0.00 \$0.00 \$15,436,087.17	\$101,250.00 \$12,299	9,206.42 \$0.0

APPENDIX

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DATA VISUALIZATION TOOLS

It is evident the U.S. is already paying a steep price for this challenge. Rebuild by Design partnered with APTIM and iParametrics to create the following visual tools to demonstrate how climate events have affected each state. The set of six maps depicts which areas have been hit the hardest by recent climate events, where recovery funds are focused, where those individuals with high social vulnerabilities live, and which areas have the least energy reliability.

The U.S. needs to change the way it is making funding decisions. Where we make priority investments is equally important to what we invest in. Returns on investments (ROI) in the form of social benefits to communities needs to be part of grant evaluations. The U.S. need to utilize new decision-making frameworks that are forward-looking. The final map in the set includes an example of a new decisionmaking framework that takes into account current vulnerabilities and future climate risks. This is one example of how physical and social vulnerability indicators could inform where investments in adaptation infrastructure can yield high returns in social benefits to the most impacted communities. Our team recognizes, however, that there are other decision-making frameworks to explore, and further research is needed to understand which indicators should be included in any state-specific model. Given the ever-present constraints on funding availability, the intent of presenting these maps together is to prompt investments that address multiple known vulnerabilities simultaneously within projects, furthering comprehensive climate adaptation planning.

The following data are designed as a tool to help communities understand their risks to make better-informed choices with higher returns on investment, though each state should determine their own framework for investment.

There are always many ways to present these data. For the purposes of this report, we chose to analyze the years 2011–2024. The following six maps and two tables are presented in this format with the following considerations and limitations:

GEOGRAPHIC MAP

The map provides topographic and geographic context for each state and its surrounding areas, indicating whether the state encompasses coastal, riverine, lake, alpine, or desert land.

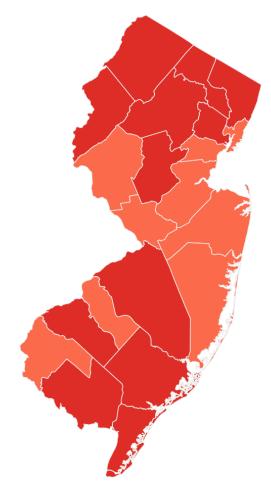


GEOGRAPHIC MAP. SOURCE: ESRI WORLD IMAGERY BASEMAP

DISASTER DECLARATIONS (RED)

This map shows federally declared climate disasters by county from 2011-2024 – providing a snapshot of the magnitude of climate disasters across the country in recent history. This report only identifies federally declared disasters, as there is no entity that collects and publishes state disaster declarations. It should be noted that the declarations shown in this report do not reflect every climate event that has occurred between 2011-2024; the report instead only shows those which have met the cost threshold for a federal disaster declaration. Therefore, the findings overall underestimate the number of occurrences and the suffering that some communities have experienced.

According to the Stafford Act, as amended in May 2021, a "major disaster" includes "any natural catastrophe (including any hurricane, tornado, storm, high water, winddriven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought), or, regardless of cause, any fire, flood,



DISASTER OCCURRENCES SOURCE: FEMA 2011-2024 MAP MADE BY REBUILD BY DESIGN

or explosion, in any part of the United States, which in the determination of the President causes damage of sufficient severity and magnitude to warrant major disaster assistance under this Act to supplement the efforts and available resources of States, local governments, and disaster relief organizations in alleviating the damage, loss, hardship, or suffering caused thereby."

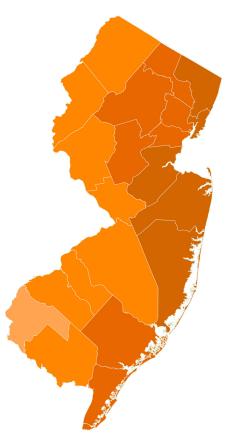
Importantly, extreme heat waves do not fit the criteria for federal disaster declarations despite being the leading cause of deaths among climate hazards. Likewise, sea level rise is not included in this definition despite the threat it poses to numerous communities, including damage to property, loss of land, and displacement.

It should be noted that while most disaster declarations are due to climate events, there are a few instances of disasters due to other natural hazards, such as earthquakes and volcanic eruptions. Though these events are not increasing in magnitude or frequency due to climate change, the severity of their impact may be connected. As climate impacts degrade household and critical infrastructure, communities may become more vulnerable to other natural hazards. Retrofitting infrastructure after these events often requires the same measures as floods, tornadoes, fires, etc., so these events were included in the report to demonstrate the need to prioritize multi hazard adaptation approaches.

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FEDERAL ASSISTANCE (ORANGE)

The map shows the amount of federal dollars allocated to counties through FEMA's Public Assistance and Hazard Mitigation Grant Programs between 2011-2024 which allocates funding to individual counties and statewide. The map does not show where "statewide" allocations were spent within the state, but rather only shows county allocations. However, these statewide allocation amounts are included in the Disaster Declaration table at the end of each chapter and included in the "FEMA Total" provided next to the map. The adjacent table adds HUD's Community Development Block Grant Disaster Recovery funds – which are only available to states after a disaster – to the FEMA Total for an estimate of federal post-disaster spending in each state.



FEDERAL ASSISTANCE SOURCE: FEMA (HA+PM) 2011-2024 MAP MADE BY REBUILD BY DESIGN

The Disaster Declaration tables provided at the end of each chapter show all federal Disaster Declarations declared between 2011-2024 and the corresponding FEMA obligations associated with those events.

However, in some instances, FEMA continues to obligate funds for years following a declaration. Some states have received funds for events that took place

between 2011-2024 after 2024, so the total sum of funds associated with that event are not captured. All FEMA funds allocated to counties between 2011-2024 are shown in the federal assistance map; however, they do not show up in the Disaster Declaration table if their corresponding event took place prior to 2011. For example, counties in the State of Illinois are still receiving funds from a 1960s storm. The funds obligated to those counties are included in the map, but that event is not included in the Disaster Declaration table at the end of the chapter.

There are additional sources of federal funding made available to governments or individuals in response to disasters, such as the U.S. Army Corp of Engineers (USACE) projects, Small Business Administration (SBA) loans, and private insurance payouts, which are not included in this report because they are harder to uniformly track and/or must be paid back. Therefore, our findings underestimate the total support available to states and individuals post-disaster.

Since disaster aid is allocated to repair physical damage to property, events such as extreme heat, which largely creates physical damage to persons and not property, rarely qualify for federal disaster recovery aid. Additionally, there is only a shallow understanding of the economic impact of social and health-related costs and environmental degradation after a disaster.

SOCIAL VULNERABILITY INDEX (GREEN)

Social vulnerability refers to the potential negative effects on communities caused by external stresses on human well-being. Such stresses include natural or human-caused disasters or disease outbreaks. The factors that determine social vulnerability are directly tied to social determinants of health or the social, economic, and physical factors - such as race, socioeconomic status, and environmental conditions - that influence health. Socially vulnerable populations fare the worst during a disaster and often take longer to recover. The Center for Disease Control/ Agency for Toxic Substance and Disease Registry Social Vulnerability Index (CDC/ATSDR SVI) uses 15 U.S. census variables to help local officials identify communities that may need support before, during, or after disasters. The map presents the SVI on a census block



SOCIAL VULNERABILITY SOURCE: CDC/ATSDR 2022 MAP MADE BY REBUILD BY DESIGN

level, indicating where the most socially vulnerable populations within each county live. The 15 indicators are grouped into four themes:

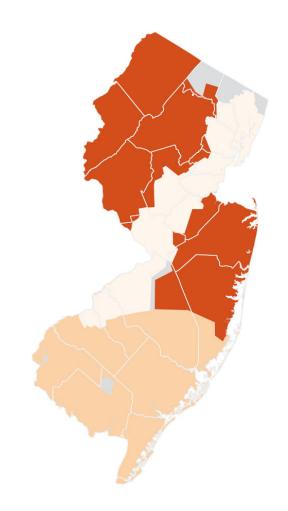
- Socioeconomic Status (below poverty, unemployed, income, no high school diploma);
- Household Composition & Disability (aged 65 or older, aged 17 or younger, older than age 5 with a disability, single-parent households);
- Minority Status & Language (minority, speak English "less than well"); and
- Housing Type & Transportation (multi-unit structures, mobile homes, crowding, no vehicle, group quarters).

Social Vulnerability Index data are not being used to make post-disaster assistance funding decisions. HUD only requires Low and Moderate Income for a portion of their funding. FEMA does not consider it in their allocations.

ENERGY RELIABILITY (BROWN)

Climate events often lead to energy disruptions for hours, days, or weeks. This map shows the annual average interruption time (in minutes) across the different energy utility providers within a state. Regions (or utility territories) in the darkest shade, on average, experience longer energy outages. These data are aggregated by utility territory, not county, meaning more than one provider can serve a county or group of counties.

Viewing the Energy Reliability Map next to the SVI Map, one can begin to infer which regions have the most socially vulnerable residents and are served by the least reliable energy providers. Energy reliability is increasingly becoming related to climate disasters and weather events. Inclusion of these maps is to support evaluation of need for concurrent flood and energy resilience projects.



ENERGY RELIABILITY SOURCE: US ENERGY INFORMATION ADMINISTRATION 2023 MAP MADE BY REBUILD BY DESIGN

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System Average Interruption Duration Index (SAIDI)

is one of the performance metrics used to measure the reliability of an electric utility's service. This metric measures the total time (in minutes) an average customer experiences a non-momentary power interruption over a one-year (calendar) period.

A Major Event Day (MED) is another metric which occurs when the SAIDI exceeds a specific threshold within a given day and tends to reflect outages on the longer end of the spectrum. The data presented in this report shows a metric of SAIDI combined with MED to highlight and report electric reliability in areas (utility territories) irrespective of the root cause of the interruption. The Energy Reliability Map displays the SAIDI_W_MED metric for utility territories and highlights areas that are susceptible to electric system vulnerabilities based on reliability performances. These vulnerabilities serve as an indicator as to where investments and improvements in the distribution grid should be focused.

Electric utilities experience power interruptions due to a variety of issues. Those issues include inclement weather, vegetation management practices, utility practices, maintenance patterns, and capital investment strategy, among others, which all play a part in a utility's overall reliability performance. The U.S. Energy Information Administration produces an Annual Electric Power Industry Report which utilizes data collected from U.S. electric utilities reflecting their reliability performance against certain industry standards and performance metrics. Utilities have the flexibility to report interruptions according to duration and frequency either with major events, without major events, or both.

The annual SAIDI is the summation of the individual SAIDIs for each non-momentary interruption event over the entire year (2023):

 $SAIDI = \frac{\sum (Duration of Interruption \times No. of Sustained Customer Interruptions)}{Total No. of Customers Served}$

For utilities that report SAIDI metrics using the Institute of Electrical and Electronics Engineers (IEEE) standards, "non-momentary" interruptions are those lasting

longer than five minutes. A Major Event Day (MED) is another metric which occurs when the SAIDI exceeds a specific threshold within a given day and tends to reflect outages on the longer end of the spectrum.

Utilities have certain flexibilities when reporting with these metrics. Including MED in the SAIDI metric (SAIDI_W_MED) provides an overall picture of the electric reliability experienced by customers. Excluding MED from the SAIDI metrics (SAIDI_WO_MED) tends to separate power interruption events by their durations, which provides an indicator of the source of the power interruption (i.e., distinguishes a Major Event vs. Systematic Operation interruption).

Our methodology utilizes SAIDI_W_MED as the primary measurement indicator for the electric reliability experience of the end user (customer). Our SAIDI_W_MED metric highlights the reported electric reliability in areas (utility territories, counties, and states) irrespective of the root cause of the interruption. Our metric does not exclude interruptions categorized as MEDs.

This report endeavors to highlight areas across the national electric distribution network (utility territories) that are susceptible to electric system vulnerabilities based on historical reliability of performance. We view vulnerabilities caused by major events (longer duration outages) on par with vulnerabilities caused by systematic failures (shorter duration outages) and believe they should equally drive electric grid investment and improvement decisions. These investments should also incorporate solutions aimed at mitigating systemic vulnerabilities that stem from issues like vegetation management practices, distribution automation improvements to major event vulnerabilities with root causes embedded in grid hardening, distribution generation schemes, and Automated Metering Infrastructure (AMI) upgrades aimed at minimizing customer interruption numbers and durations.

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