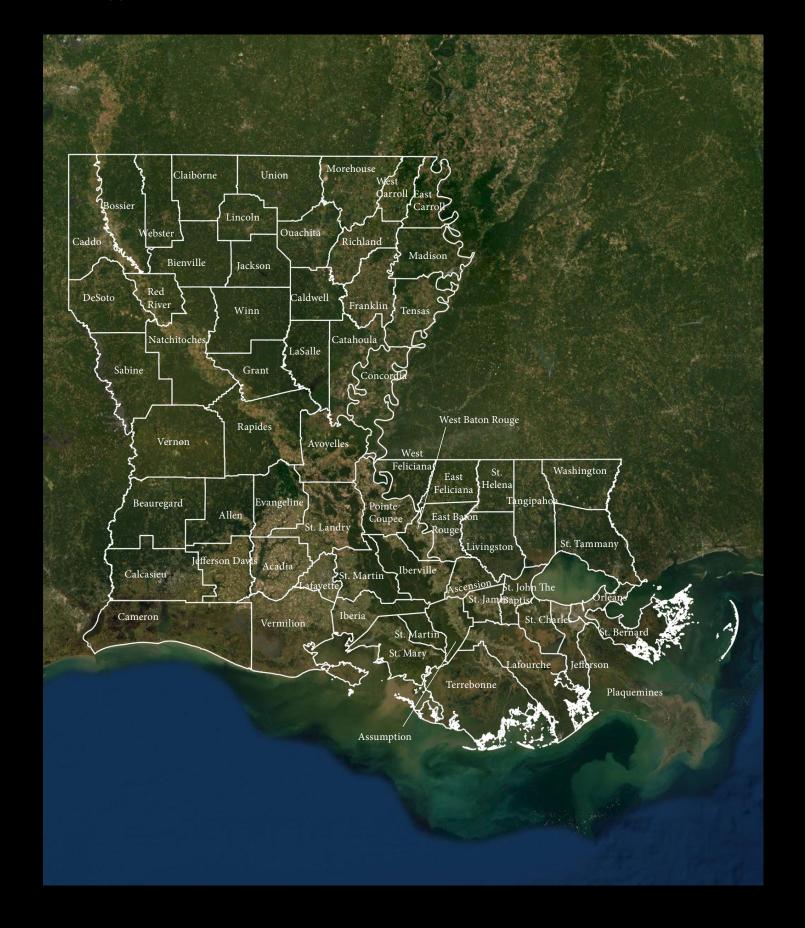
# 



LOUISIANA STATISTICS SUMMARY (2011 - 2024)								
19	CLIMATE DISASTER DECLARATIONS							
\$13.7 BILLION	FEMA + HUD POST-DISASTER FUNDING							
4.7 MILLION PEOPLE	POPULATION TOTAL							
\$2,953	PER CAPITA SPENDING ON CLIMATE DISASTERS							
WEST FELICIANA, LAFOURCHE & ASSUMPTION (13 DISASTERS)	COUNTY WITH THE HIGHEST DISASTER OCCURRENCES							
64	COUNTIES HAVE HAD FIVE OR MORE DISASTERS							
948K PEOPLE	LIVE IN AREAS WITH VERY HIGH SOCIAL VULNERABILITY (SVI > 0.75)							
11.1 HOURS	TOTAL OUTAGE DURATION (HOURS PER CUSTOMER PER YEAR)							
D+ (2017)	ASCE INFRASTRUCTURE REPORT CARD GRADE							
30	SUPERFUND SITES							
\$5.2 BILLION	CLIMATE INFRASTRUCTURE SUPPORTED THROUGH SMALL INSURANCE SURCHARGE							
\$1,736	PER CAPITA SPENDING ON CLIMATE DISASTERS							
\$5.2 BILLION	OF CLIMATE INFRASTRUCTURE COULD BE SUPPORTED THROUGH A SMALL INSURANCE SURCHARGE							

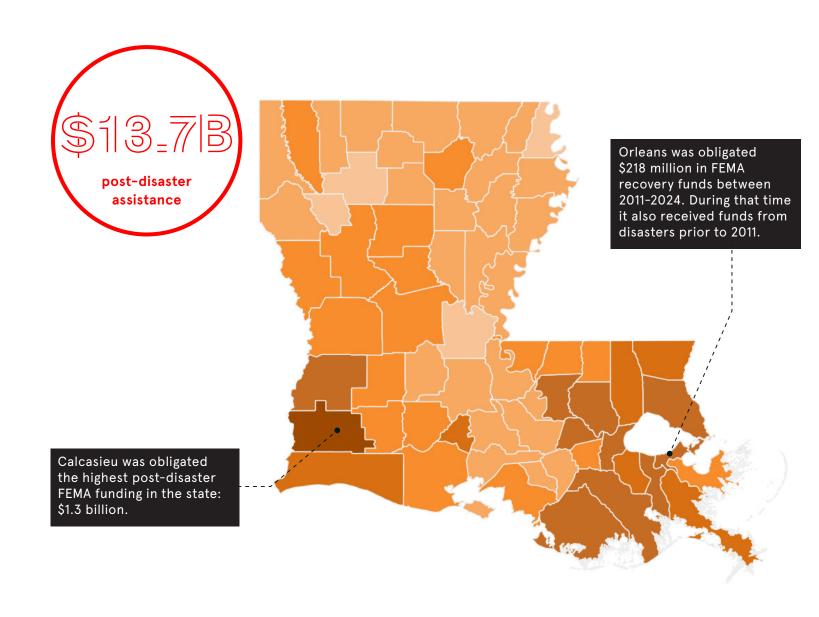
# **DISASTER OCCURRENCES 2011–2024**

FEDERALLY DECLARED MAJOR DISASTERS BY PARISH

# declarations Twenty parishes in Louisiana have had 10 or more recent disasters. Lafourche, West Feliciana, and Assumption parishes have had the highest number of disasters in the state: 13 disasters each.

# FEDERAL ASSISTANCE 2011-2024

POST-DISASTER PUBLIC ASSISTANCE AND HAZARD MITIGATION FUNDS OBLIGATED BY PARISH FOR CLIMATE DISASTERS



### **Number of Disaster Events**

Major Disaster Declarations (2011-2024)

0 occurences

1 occurrence

2-3 occurences

4-6 occurrences

7-9 occurrences

10+ occurrences

MAP MADE BY REBUILD BY DESIGN FEMA DATA COURTESY OF IPARAMETRICS

### **FEMA Public Assistance and Hazard Mitigation**

Federal Share Obligated (2011-2024)

\$0 to \$100K

\$100K to \$1M

\$1M to \$10M

\$10M to \$50M

\$50M to \$100M

\$100M to \$500M

\$8B FEMA obligations

\$5.7B HUD CDBG-DR Funds

\$13.7B FEMA + HUD assistance

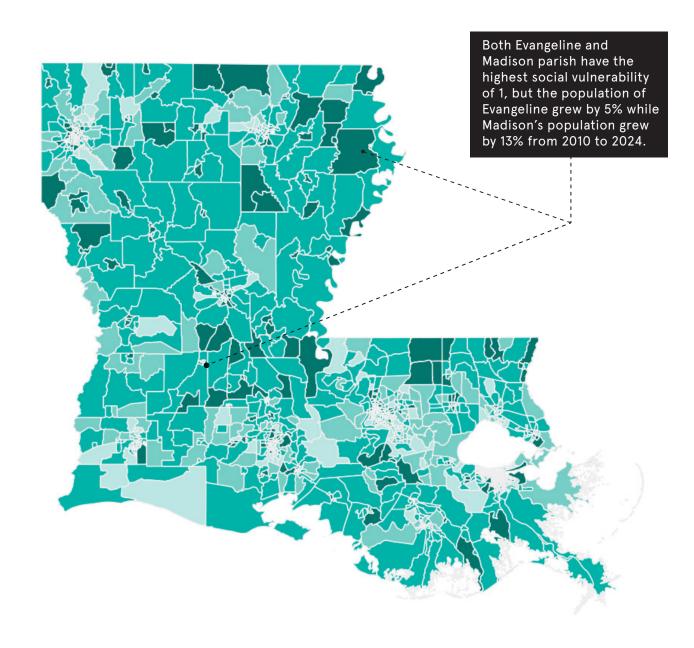
\$2953 per capita cost

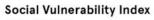
MAP MADE BY REBUILD BY DESIGN FEMA DATA COURTESY OF IPARAMETRICS

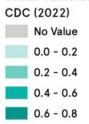
108

# **SOCIAL VULNERABILITY INDEX 2022**

# AREAS OF GREATEST SOCIAL VULNERABILITY





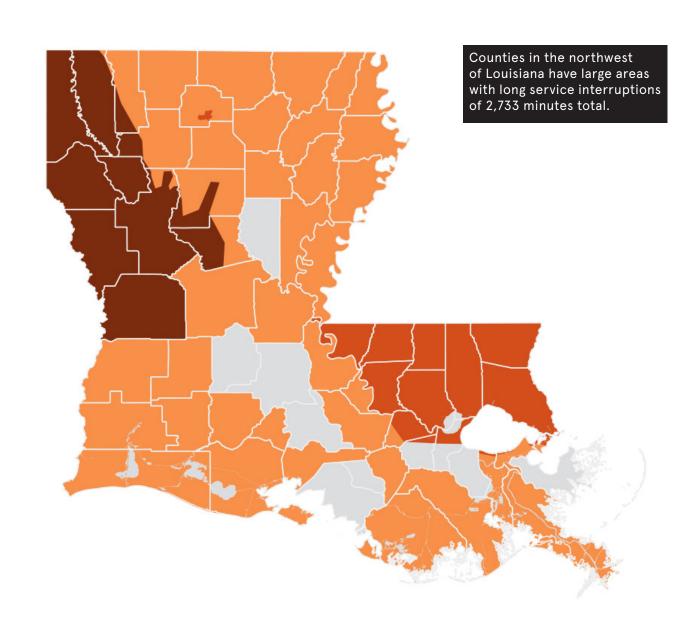


0.8 - 1.0

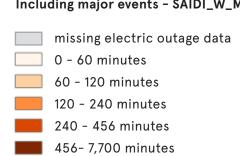
MAP MADE BY REBUILD BY DESIGN DATA SOURCE: CDC/ATSDR 2022 SVI

# **ENERGY RELIABILITY 2023**

# PARISHES AT GREATEST RISK OF POWER OUTAGES



# Aggregated Annual Electric Outage Duration Including major events - SAIDI\_W\_MED



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

110

TOTAL: 19 DISASTERS			Total		2011	2012	2013	2015		2016	5		201	7		2019				2020			2021		2024
FEMA PA + HM: \$8.0 B					4044, TRODICAL STORM		4400, CEVEDE CTODMC	4000, CEVERE CTORMS AND	1262. CEVEDE 63	TODING AND	4077, OFVEDE O	TORMS AND 4300	0: SEVERE STORMS,	4245, TROPICAL CTOR	4420, CEVERE CTORM	CAND						4500, CEVED	4606: SEVERE STORMS		4047. HUDDICANE
HUD CDBG-DR: \$5.7 B				4015: FLOODIN	NG 4041: TROPICAL STORM LEE	4080: HURRICAN	E ISAAC 4102: SEVERE STORMS AND FLOODING	4228: SEVERE STORMS AND FLOODING	1263: SEVERE ST FLOODII		4277: SEVERE S	NG T	ORNADOES, AND RAIGHT-LINE WINDS	4345: TROPICAL STORM HARVEY	4439: SEVERE STORM TORNADOES	4458: HURRICANE B	SARRY 4462: FLO	OODING	4559: HURRICAI	NE LAURA 4570: HURRICAI	NE DELTA 4577: HURRICANE Z	ETA 4590: SEVER	TORNADOES AND	4611: HURRICANE IDA	4817: HURRICANE FRANCINE
FEMA + HUD ASSISTANCE: \$13.												318													
GEOID COUNTY NAME	# OF DISASTERS	FEMA TOTAL	PA Obligations HM Obligations	PA H	HM PA HM igations Obligations Obligations	A Obligations HM	Obligations   PA   HM   Obligations   Obliga	PA Obligations   HM Obligations   PA	A Obligations H	M Obligations   F	A Obligations H	IM Obligations Obli	PA HM gations Obligations	PA HM Obligations Obligation	PA Obligations Oblig	M PA Obligations Oblig	HM gations PA Obligations	S HM Obligations	PA Obligations	HM Obligations PA Obligations	HM Obligations PA Obligations Obli	HM PA Obligations	HM Obligations PA Obligations Obligatio	ns PA Obligations HM Obligat	tions PA HM Obligations Obligations
22000 22000: Statewide	18	\$2,961,826,146.34 \$2	,889,373,363.01 \$72,452,783.33 \$	\$1,835,632.89 \$99	9,078.00 \$486,460.44 \$10,404.04 \$1	07,160,008.79 \$	5,797,112.25 \$594,187.58 \$929.9	\$935,602.28 \$0.00 \$	18,268,915.80	\$581,094.00 \$	281,002,967.42	\$16,600,629.00	\$	2,971,945.93 \$96,654.	80 \$18,129,309.04 \$831	,909.37 \$19,048,237.40 \$1,05	1,369.00 \$5,411,165.80	0 \$449,777.36 \$	1,342,535,049.21	\$25,190,845.60 \$45,748,428.40 \$	\$1,119,872.00 \$82,360,106.17 \$1,36	8,044.00 \$24,731,946.72	\$1,980,076.07 \$4,234,879.35 \$345,077.	50 \$933,506,824.73 \$16,929,91	10.93 \$411,695.06 \$0.00
22001 22001: Acadia Parish	9	\$11,082,288.83	\$10,881,944.54 \$200,344.29			\$6,977.16	\$0.00 \$3,914,828.88 \$0.00				\$1,050,490.56	\$0.00		\$5,125.41 \$0.	00		• • • • •		\$4,841,158.36	\$0.00 \$1,030,473.19	\$200,344.29 \$0.00	\$0.00 \$0.00	\$0.00	\$32,890.98	\$0.00
22003 22003: Allen Parish 22005 22005: Ascension Parish	·		\$21,744,079.06 \$223,500.00	\$0.00	\$0.00	\$7,693.90 \$1,639,199.44	\$0.00 \$370,585.50		\$62,693.04 \$858.492.44		\$83.957.697.49	¢44 042 457 50		\$131,069.27 \$0.	00	\$118,494.31 \$548,007.89	\$0.00 \$0.00		\$17,808,389.29 \$126,618.88	\$0.00 \$3,601,489.25	\$0.00 \$0.00	\$0.00 \$14,250.00	\$0.00 \$0.00 \$1.769.713.76 \$304.846	\$0.00 20 \$27.474.759.77	\$0.00 \$0.00 \$334.213.04 \$0.00
22005 22005: Ascension Parish		\$2.303.106.04	\$116,882,204.07 \$12,028,139.20 \$1.862.229.54 \$440.876.50	\$0.00	\$0.00	· · · ·	\$370,751.50		\$000,49Z.44	\$309,230.00	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	\$70,125.00		\$25,208.48 \$0.	00	\$117,685.21	\$0.00 \$67.949.41	1 \$0.00	\$3.620.82	\$0.00 \$155,664.60	\$0.00 \$13,949.05	\$0.00 \$3,007.51	\$0.00 \$1,769,713.76 \$304,646.	, , , , , , , , , , , , , , , , , , , ,	\$0.00 \$334,213.04 \$0.00 \$0.00 \$9.438.75 \$0.00
22009 22009: Avoyelles Parish	8	\$507,320.08	\$223,353.61 \$283,966.47	\$0.00	\$0.00	\$74,126.20	\$0.00		\$44,868.09	\$34,500.00		\$249,466.47		, ,, ,, ,		, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, , , , , , , , ,	,,,,,	\$0.00	\$0.00 \$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
22011 22011: Beauregard Parish	8	\$122,273,490.44	\$121,733,611.24 \$539,879.20			\$0.00	\$0.00		\$275,931.31	\$0.00				\$186,810.98 \$0.	00				\$109,727,864.74	\$539,879.20 \$11,139,655.85	\$0.00 \$0.00	\$0.00 \$403,348.36	\$0.00	\$0.00	\$0.00
22013 22013: Bienville Parish	-	\$315,327.31	\$315,327.31 \$0.00			<b>#</b> 40.004.00	<b>#0.00</b>	\$0.500.400.54 \$4.000.045.44 \$\$	\$137,434.63	\$0.00									\$89,823.40	\$0.00 \$0.00	\$0.00	\$88,069.28	\$0.00	\$0.00	\$0.00
22015 22015: Bossier Parish 22017 22017: Caddo Parish	•	\$35,136,909.03 \$6.356.683.54	\$31,642,627.92 \$3,494,281.11 \$2.032.296.29 \$4.324.387.25			\$18,284.82 \$0.00	\$0.00 \$0.00	\$2,599,182.51 \$1,006,945.11 \$ \$590.912.14 \$0.00	28,317,192.74 \$603.334.84	\$840,336.00 \$972.674.75									\$161,196.10 \$142.563.97	\$0.00 \$0.00 \$0.00 \$0.00	\$0.00	\$540,127.84 \$695,485.34	\$0.00 \$3.351.712.50	\$6,643.91 \$1,647,00 \$0.00	50.00
22019 22019: Calcasieu Parish	•	71,111,1111	,300,948,940.96 \$40,107,410.34			ψ0.00	<b>Q</b> 0.00	1,	<b>4000,00</b>	\$643,692.00			\$	2,213,968.22 \$168,486.	14			\$	1,284,441,402.84	\$39,147,265.90 \$6,956,340.73	\$0.00 \$0.00	7000,10000	¥3,521,1 1=155	40.00	\$0.00
22021 22021: Caldwell Parish	7	\$1,697,852.18	\$1,337,349.68 \$360,502.50			\$59,425.08	\$0.00		\$493,671.74	\$315,052.50							\$424,295.49	9 \$45,450.00	\$313,416.96	\$0.00 \$33,535.87	\$0.00	\$13,004.54	\$0.00	\$0.00	\$0.00
22023 22023: Cameron Parish	·	701,000,00011	\$74,459,087.73 \$13,074,540.00			\$1,878.08	\$0.00				\$425,976.18	\$187,500.00		\$274,959.07 \$0.	00	\$26,339.93	\$0.00		\$73,729,934.47	\$12,887,040.00 \$0.00	\$0.00 \$0.00	\$0.00 \$0.00	\$0.00	\$0.00	\$0.00
22025 22025: Catahoula Parish 22027 22027: Claiborne Parish	·	\$3,268,319.85 \$1.704.448.67	\$3,228,198.94 \$40,120.91 \$765,005.27 \$939,443.40	\$0.00	\$0.00	\$6,612.52 \$0.00	\$0.00 \$105,222.07 \$0.00 \$0.00		\$207,600.16 \$393,425.96	\$40,120.91 \$0.00							\$882,180.33	\$0.00	\$214,915.59 \$66,168.53	\$0.00 \$1,506,634.65 \$939,443.40 \$0.00	\$0.00 \$0.00	\$305,033.62 \$305,410.78	\$0.00	\$0.00	00.00
22027: Clarborne Parish 22029: Concordia Parish	_	\$2,764,749.24	\$2,764,749.24 \$0.00	\$56,386.31	\$0.00	\$0.00	\$0.00 \$82,895.81 \$0.00		ψυσυ,420.90	φυ.υυ							\$2,015,738.61	1 \$0.00	\$4,477.28	\$0.00 \$4.976.86	\$0.00	\$586,337.86	\$0.00	\$0.00	\$0.00
22031 22031: De Soto Parish	6	\$1,277,299.29	\$1,277,299.29 \$0.00						\$1,119,775.48	\$0.00				\$20,971.71 \$0.	00				\$62,590.39	\$0.00 \$0.00	\$0.00	\$73,961.71	\$0.00	\$0.00	\$0.00
22033 22033: East Baton Rouge Parish		7010,010,001110	\$302,146,438.23 \$47,464,123.56	\$0.00	\$0.00	\$6,401,965.13				\$	190,027,750.61	\$45,522,056.46				\$2,871,336.87	\$0.00		\$706,931.10	\$0.00 \$5,195,242.20	\$0.00 \$0.00	\$0.00 \$3,831,723.75	\$0.00 \$961,850.44 \$0.	00 \$91,562,787.81 \$916,40	99.70 \$586,850.32 \$0.00
22035 22035: East Carroll Parish		\$780,542.80	\$780,542.80 \$0.00 \$0.458.236.04 \$2.484.430.00	\$497,126.33	\$0.00	\$0.00	\$0.00 \$14,504.27 \$0.00		\$20,798.07	\$0.00	CC 04C 404 44	¢70.700.00				<b>67.075.47</b>	\$248,114.13	3 \$0.00	\$0.00	\$0.00 \$0.00	\$0.00	\$0.00	\$0.00	7	\$0.00
22037 22037: East Feliciana Parish 22039 22039: Evangeline Parish		\$11,642,656.94 \$1,175,701.84	\$9,158,226.94 \$2,484,430.00 \$1,175,701.84 \$0.00		\$22,788.27 \$0.00	\$238,586.55 \$68.919.44	\$0.00 \$0.00 \$208,848.60 \$0.00				\$6,916,491.44 \$255,772.45	\$78,730.00 \$0.00				\$7,075.47	\$0.00		\$0.00 \$642,161.35	\$0.00 \$370,592.19	\$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00	\$0.00	\$1,602,693.02 \$2,405,70 \$0.00	00.00 \$0.00 \$0.00 \$0.00
22041 22041: Franklin Parish		\$1,402,050.98	\$807,051.08 \$594,999.90			\$30,046.39	\$0.00 \$147,084.88 \$0.00		\$172,781.15	\$0.00	\$200,112. <del>1</del> 0	ψ0.00					\$268,538.16	6 \$0.00	\$0.00	\$0.00 \$0.00	\$0.00	\$188,600.50	\$0.00	\$0.00 \$594,99	
22043 22043: Grant Parish	6	\$21,325,160.76	\$18,444,757.26 \$2,880,403.50					\$32,006.88 \$0.00	\$167,464.70										\$17,455,577.11	\$2,847,903.00 \$330,615.00	\$0.00	\$459,093.57	\$0.00	\$0.00	\$0.00
22045 22045: Iberia Parish		\$9,558,244.92	\$8,705,335.42 \$852,909.50	\$0.00		\$155,367.49	\$0.00					\$308,000.00		\$16,878.63 \$0.	00	\$998,305.79 \$387	•		\$5,141,635.71	\$0.00 \$1,516,208.97	\$157,770.00 \$0.00	\$0.00 \$42,765.48	\$0.00	, , , , , , , , , , , , , , , , , , , ,	\$0.00
22047 22047: Iberville Parish 22049 22049: Jackson Parish		\$5,619,474.39 \$3,495,569.06	\$5,183,188.14 \$436,286.25 \$2.811.288.06 \$684.281.00	\$0.00	\$0.00	\$1,089,560.64 \$1,016.78	\$0.00		\$1,192,800.19	\$0.00	\$922,400.48	\$289,582.50				\$262,372.10	\$0.00 \$76,577.47	7 \$0.00	\$168,685.60 \$1.617.471.09	\$0.00 \$0.00 \$684.281.00 \$0.00	\$0.00 \$0.00	\$0.00 \$33,563.59 \$0.00	\$0.00 \$1,699,317.74 \$146,703.	, , , , , , , , , , , , , , , , , , , ,	\$0.00 \$0.00 \$0.00
22049 22049. Jackson Parish	<u> </u>	**,***	\$419.379.058.51 \$17.771.438.10		\$1.824.309.47 \$0.00 \$	\$1,010.76 \$27,823,657.54 \$8	\$0.00 3.573.541.00		\$1,192,000.19	φυ.υυ						\$1,701,045.85	\$0.00			\$1.620.675.00 \$161.750.78	\$0.00 \$16.604.314.44 \$74		\$0.00	\$370,156,484.74 \$6,829,94	
22053 22053: Jefferson Davis Parish	_		\$15,947,960.57 \$1,769,829.00		ψησΣησσοι ψοίσο ψ	\$0.00	\$0.00 \$281,301.44 \$0.00				\$767,320.48	\$240,000.00		\$21,424.57 \$0.	00	ψ1,101,1010C	Ψ0.00			\$1,529,829.00 \$665,938.53	\$0.00 \$0.00	\$0.00 \$0.00	\$0.00	\$0.00	\$0.00
22055 22055: Lafayette Parish	10	\$82,104,009.88	\$67,327,309.99 \$14,776,699.89			\$440,586.89	\$0.00				\$12,932,107.50	\$13,412,372.11		\$25,220.70 \$0.	00	\$3,310,070.34	\$0.00		\$15,110,522.96	\$0.00 \$33,622,865.36 \$	1,364,327.78 \$0.00	\$0.00 \$196,475.62	\$0.00 \$0.00 \$0.	00 \$1,689,460.62	\$0.00
22057 22057: Lafourche Parish		<b>40</b> _1,100,0_1101	\$326,427,342.55 \$738,285.09	*****		\$5,899,486.57	\$0.00		\$0.00	\$0.00				\$422,313.38 \$0.	00	\$3,778,707.49	\$0.00		\$356,382.95	\$0.00 \$2,580,181.96	\$0.00 \$10,246,150.32	\$0.00 \$0.00	\$0.00 \$0.00 \$0.	00 \$301,815,279.61	\$0.00 \$409,625.08 \$0.00
22059 22059: LaSalle Parish 22061 22061: Lincoln Parish	-	\$1,069,745.56 \$7,662,280.13	\$1,069,745.56 \$0.00 \$6.003.332.13 \$1.658.948.00	\$0.00	\$0.00	\$10,855.16 \$20,716.01	\$0.00 \$0.00		\$71,889.00 \$715,898.17	\$0.00 \$53.625.00					\$2,838,044.65 \$1,605	323 00			\$961,349.85 \$2,314,360.76	\$0.00 \$4,389.05 \$0.00 \$0.00	\$0.00	\$21,262.50 \$114,312.54	\$0.00	\$0.00 \$0.00	00.00
22063 22063: Livingston Parish	-		\$218,418,769.58 \$43,329,653.75				3,113,022.77 \$261,476.51 \$0.00		\$144,696.75	700,000	165,660,432.82	\$39,671,170.98	\$0.00 \$0.00		Ψ2,030,044.03 Ψ1,003	\$401,814.27	\$0.00		\$98,583.70	\$0.00 \$218,284.44	\$0.00	\$0.00 \$181,770.84	\$0.00	\$49,145,904.50 \$162,00	00.00 \$77,869.59 \$0.00
22065 22065: Madison Parish	8	\$1,032,073.46	\$463,505.66 \$568,567.80	\$53,401.87	\$0.00	\$0.00	\$0.00 \$118,212.79 \$0.00		\$291,891.00	\$0.00									\$0.00	\$0.00 \$0.00	\$0.00	\$0.00	\$0.00	\$0.00 \$568,56	67.80
22067 22067: Morehouse Parish		\$1,855,337.54	\$1,855,337.54 \$0.00			\$145,232.28	\$0.00		\$399,397.53	\$0.00					\$0.00	\$0.00			\$1,253,595.72	\$0.00 \$0.00	\$0.00	\$0.00	\$0.00		\$0.00
22069 22069: Natchitoches Parish	-	¥ 11,100,0101=0	\$15,089,798.29 \$2,019,742.00			\$6,431.64	\$0.00	\$6,817,566.64 \$0.00	\$2,659,183.38	\$981,042.00				\$92,493.58 \$0.	00	<b>#2.070.000.50</b>	<b>#0.00</b>		\$5,258,533.43	\$1,038,700.00 \$0.00 \$44,300,300,00 \$0.00	\$0.00	\$255,589.62	\$0.00	*****	\$0.00
22071 22071: Orleans Parish 22073 22073: Ouachita Parish	-	· · ·	\$192,918,883.40 \$24,622,654.39 \$18.458.832.83 \$1.025.051.15			\$23,471,426.78 \$461,591.36	\$0.00	\$	10,013,293.83	\$825 854 15			\$0.00 \$21,945.40			\$3,970,899.58	\$0.00 \$1.044.566.43	3 \$0.00	\$603,256.34 \$6,421,581.86	\$14,389,328.00 \$28,927.52 \$199,197,00 \$11,777,54	\$0.00 \$6,915,981.58 \$2,79 \$0.00	5,284.00 \$102,788.86 \$397,777.92	\$0.00	\$157,820,112.93 \$1,481,66 \$108,243.89	52.74 \$5,489.81 \$0.00 \$0.00
22075 22075: Plaquemines Parish	10	\$96,269,726.02	\$82,962,001.67 \$13,307,724.35			46,996,980.32 \$1	· · · · · ·		,,	7020,000				\$489,890.55 \$0.	00	\$1,920,904.88 \$164	4,306.25	7	\$654,612.39	\$0.00 \$282,335.84	\$0.00 \$2,485,119.18 \$1,02		\$0.00		\$0.00 \$61,249.28 \$0.00
22077 22077: Pointe Coupee Parish	10	\$4,269,226.08	\$3,387,879.18 \$881,346.90	\$21,167.16	\$0.00	\$295,163.05	\$0.00				\$240,725.73	\$95,812.50				\$298,909.74	\$0.00 \$139,545.53	3 \$0.00	\$335,265.71	\$0.00 \$866,905.59	\$0.00 \$0.00	\$0.00 \$40,392.77	\$0.00	\$1,149,803.90 \$785,53	34.40
22079 22079: Rapides Parish			\$26,375,145.14 \$2,609,216.27			\$321,045.10	\$0.00		\$143,512.20					\$25,879.37 \$0.	00		\$5,005.72	2 \$0.00	+==,=::,:==:==	\$2,499,498.27 \$2,393,053.11	\$0.00	\$298,189.65	\$0.00		\$0.00
22081 22081: Red River Parish 22083 22083: Richland Parish	+	\$469,220.33 \$1,473,000.70	\$469,220.33 \$0.00 \$946,389.10 \$526,611.60			\$3,190.63	\$0.00	\$168,584.78 \$0.00	\$291,543.88 \$762,391.68	\$0.00 \$0.00				\$0.00 \$0.	00				\$9,091.67 \$0.00	\$0.00 \$0.00 \$0.00 \$152.518.67	\$0.00 \$0.00	\$0.00	\$0.00 \$0.00	\$0.00 \$0.00 \$526,61	\$0.00 11.60
22085 22085: Sabine Parish		\$12,235,057.56	\$12,235,057.56 \$0.00			ψο, 100.00	ψ0.00		\$5,234,996.53	\$0.00				\$128,200.12 \$0.	00				\$6,649,545.39	\$0.00 \$132,318.67	\$0.00	\$222,315.52	\$0.00		\$0.00
22087 22087: St. Bernard Parish			\$23,133,071.17 \$4,524,165.00		\$232,097.74 \$0.00	\$3,487,843.78	\$0.00									\$204,411.02	\$0.00		\$305,252.11	\$0.00 \$31,916.52	\$0.00 \$3,573,210.95	\$0.00 \$0.00	\$0.00	\$15,298,339.05 \$4,524,16	
22089 22089: St. Charles Parish	·-	\$58,184,969.49	\$51,257,488.49 \$6,927,481.00	\$0.00	\$0.00 \$495,254.70 \$0.00	\$4,585,749.26 \$6	,,				. ,	\$717,981.00		\$295,869.17 \$0.	00	\$763,947.73	\$0.00		\$170,007.31	\$0.00 \$48,174.32	\$0.00 \$839,130.25	\$0.00 \$0.00	\$0.00	¥ 10, 101, <u>==</u> 0.00	\$0.00 \$126,807.15 \$0.00
22091 22091: St. Helena Parish 22093 22093: St. James Parish			\$10,383,931.05 \$354,932.00 \$23,148,912.14 \$250,502.00	\$20.690.14	\$0.00	\$180,700.05 \$881,338.88	\$0.00 \$250,502.00		\$92,670.27	\$91,988.00	\$531,125.51 \$401.807.32	\$0.00 \$0.00				\$26,876.38	\$0.00		\$0.00 \$65,764.02	\$0.00 \$19,740.17	\$0.00 \$0.00	\$0.00 \$118,704.76 \$0.00 \$0.00	\$0.00	\$9,414,113.91 \$262,94 \$21,399,414.02	\$0.00 \$0.00 \$0.00 \$0.00 \$379,807.76 \$0.00
22093: St. James Parish 22095: St. John the Baptist Parish	-	,,	\$23,148,912.14 \$112,986,490.59 \$3,332,005.47	Ψ20,090.14	*****	\$881,338.88 548,687,338.01 \$3					\$401,897.32 \$180,775.11	\$301,560.00				\$120,720.31	\$0.00		\$65,764.02 \$109,963.71	\$0.00 \$0.00	\$0.00 \$0.00	\$0.00 \$0.00	\$0.00		\$0.00 \$78,566.40 \$0.00
22097 22097: St. Landry Parish	-	\$8,787,218.20	\$7,215,171.70 \$1,572,046.50	\$0.00	\$0.00	\$202,239.44	\$0.00 \$93,519.42 \$0.00				\$4,303,260.04	\$0.00				\$207,087.06	\$0.00		\$603,746.83	\$0.00 \$1,625,884.94 \$	****	\$0.00 \$128,042.04	\$0.00		\$0.00
22099 22099: St. Martin Parish		\$3,192,754.21	\$3,192,754.21 \$0.00	\$0.00	\$0.00	\$109,097.73	\$0.00				\$985,636.80	\$0.00				\$384,995.83	\$0.00 \$152,986.41	1 \$0.00	\$283,944.94	\$0.00 \$1,168,732.40	\$0.00 \$0.00	\$0.00 \$6,561.25	\$0.00	,,	\$0.00 \$0.00 \$0.00
22101 22101: St. Mary Parish		, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	<b>4.0,002,022 42,0.0,0000</b>	\$394,831.61			\$845,363.45		10 200 070 04	¢007.450.00	<b>CEO 000 44</b>	¢705 000 00		\$47,893.55 \$0.	00	\$2,780,481.85	\$0.00 \$4,689,930.51	1 \$0.00	\$279,350.00	\$0.00 \$628,612.65 \$	,,	\$0.00 \$13,089.54	\$0.00		\$0.00 \$366,823.92 \$0.00
22103 22103: St. Tammany Parish 22105 22105: Tangipahoa Parish			\$104,584,385.65 \$6,044,281.00 \$88,313,205.18 \$7,866,801.65			\$7,128,653.34 \$4 \$1,815,869.81 \$				. ,	\$58,062.14 \$5,982,400.99	. ,				\$277,712.05	\$0.00		\$39,552.93 \$126,611.28	\$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$668,959.52 \$0.00 \$46.971.09	\$0.00 \$0.00 \$0.00 \$31,313.10	\$0.00 \$0.00	\$77,389,087.41 \$78,976,561.01 \$1,250,93	\$0.00 \$0.00 \$0.00 39.70 \$0.00 \$0.00
22103		\$1,096,782.90	\$96,783.00 \$999,999.90	\$5,254.80	\$0.00	\$0.00	\$0.00		+1,000,100.00	¥ 1,00 1,020.00	40,00 <u>2,</u> 100.00	\$5,551,550.00				ΨΖ11,112.00	40.00		\$0.00	\$0.00 \$0.00	\$0.00	\$91,528.20	\$0.00	\$0.00 \$999,99	
22109 22109: Terrebonne Parish			\$719,809,837.78 \$11,092,010.67 \$			\$2,265,637.93 \$										\$6,884,885.04	\$0.00 \$0.00	0 \$0.00	\$3,422,000.96	\$0.00 \$939,471.25	\$0.00 \$2,192,851.30 \$92			\$700,614,762.18 \$7,814,65	
22111 22111: Union Parish		\$3,280,083.73	\$3,241,234.48 \$38,849.25			\$4,526.49	\$0.00		\$3,164,035.46						\$37,390.81	\$0.00			\$35,281.72	\$0.00 \$0.00	\$0.00	\$0.00	\$0.00		\$0.00
22113 22113: Vermilion Parish		\$32,913,445.90 \$22,493,615,94	\$32,683,431.90 \$230,014.00 \$16,936,794.54 \$5,556,821.40			\$302,114.64	\$0.00 \$104,487.01 \$0.00		\$1 172 670 00		\$2,167,623.00	\$230,014.00		\$129,557.53 \$0.		\$666,424.38	\$0.00		\$26,834,451.17 \$15,708,190.48	\$0.00 \$2,213,390.80 \$3,662,950.40 \$12,414.04	\$0.00 \$0.00	\$0.00	\$0.00		00.00
22115 22115: Vernon Parish 22117 22117: Washington Parish			\$16,936,794.54 \$5,556,821.40 \$48,962,880.10 \$3,774,988.85			\$551,749.66	\$481.848.75		\$1,172,679.09 \$1,591,239.11		\$240,881.53	\$1,142,676,00		\$43,510.93 \$0.					\$15,708,190.48	\$3,662,950.40 \$12,414.04 \$0.00	\$0.00 \$0.00 \$747,332.62	\$0.00 \$0.00 \$210,072.17	\$0.00 \$0.00		\$0.00 64.10 \$37,319.95 \$0.00
22119 22119: Webster Parish		\$5,625,075.82	\$5,625,075.82 \$0.00			7.0.,1 10.00			\$5,387,616.39	\$0.00	,,001.00	, , , , , , , , , , , , , , , , , , , ,							\$233,069.58	\$0.00 \$0.00	\$0.00	\$4,389.85	\$0.00		\$0.00
22121 22121: West Baton Rouge Parish	8	\$3,222,782.01	\$823,462.48 \$2,399,319.53	\$0.00	\$0.00	\$210,302.27	\$0.00				\$181,758.41	\$2,399,319.53							\$66,135.52	\$0.00 \$180,797.81	\$0.00 \$0.00	\$0.00 \$3,605.63	\$0.00		\$0.00
22123 22123: West Carroll Parish		\$1,490,635.07	\$490,635.17 \$999,999.90	004 -04	00.00	\$0.00	\$0.00	074 700 77	\$490,635.17	\$0.00	00.701 (11	04.40: 0:===				A-11-11-11	00.00		\$0.00	\$0.00 \$0.00	\$0.00	\$0.00	\$0.00	\$0.00 \$999,99	
22125 22125: West Feliciana Parish			\$11,908,107.75 \$1,524,961.63 \$13,187,755.63 \$0.00	\$24,539.11	\$0.00 \$4,545.55 \$0.00	\$112,010.81	\$0.00	\$71,788.77 \$0.00	\$1,039,962.51	\$0.00	\$6,704,400.01	\$1,461,245.00				\$54,540.46	\$0.00 \$4,647,889.25	5 \$0.00	\$27,223.87 \$11,980,595.36	\$63,716.63 \$237,121.29 \$0.00 \$142,914.98	\$0.00 \$0.00	\$0.00 \$4,253.52 \$20,797.93	\$0.00 \$0.00		\$0.00 \$7,468.91 \$0.00
22127 22127: Winn Parish Total Total				\$5,553,128,41 \$837	7.363.09 \$5.570.929.04 \$849.612.04 \$2	96,477,507,39, \$5	5.357.043.29 \$5.926.569.26 \$929.90	\$11.392.918.14 \$1.006.945.11 \$1		·	767,264,816,78, \$	138,678,034,05	\$0.00 \$21 945 40 \$	7.569.191.15 \$265.140	\$21.004.744.50 \$2.437	.232.37 \$51.752.289 23 \$1.603	2.814.75 \$20.074 483 25	5 \$495.227.36 \$		\$0.00 \$142,914.98 \$107.240.552.40 \$125.831.697.98 \$			\$0.00 \$5,398,284.17 \$11,929,486.13 \$878,098.		\$0.00 07.06 \$3.077.847.84 \$0.00
otal Total	10	\$3,010,031,442.10	,020,000,000.00 \$000,010,444.70 \$	ψυ,000,120.41 ψ03/	7,000.00 \$0,070,020.04 \$040,012.04 \$2	.00, TIT, 001.09 \$00	σ,σοι,στο.2σ ψο,σ2ο,σοσ.2ο φσ29.9	ψ11,002,010.1+ ψ1,000,340.11 Φ1	σ1,100,011. <del>4</del> 1 Φ	12,270,104.00 \$	701,20 <del>1</del> ,010.70 \$	100,010,004.00	ψυ.ου ψΔ1,340.40 Φ	,,οοο, ιστ. ισ  ψ200, 140.	11 φ21,004,144.00 φ2,437	,202.01 \$01,102,200.20 \$1,002	2,014.10 ψ20,014,403.20	υ ψτου, ΖΖΙ.Ου Φ	2,000,020,000.20	7101,240,002.40 \$120,001,031.30 \$	-0,070,000.01 ψ120,004,010.41 ψ0,00	σ, σ20. πο φοτ, 201, 103.32	φο,οοο, <u>εοπ. 17</u> φττ, <i>σεσ</i> , <del>π</del> ου. 13 φο/ο,090.	10 40,020,010,100.01 449,200,00	στ.ου φο,σττ,ο <del>π</del> τ.ο <del>μ</del> φυ.ου

# **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.

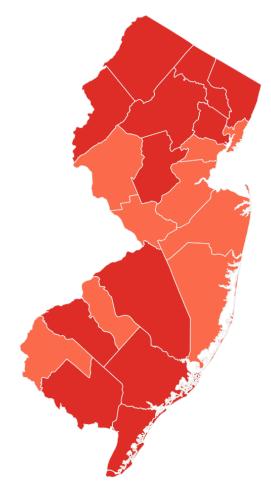


GEOGRAPHIC MAP. SOURCE: ESRI WORLD IMAGERY BASEMAP

### **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."

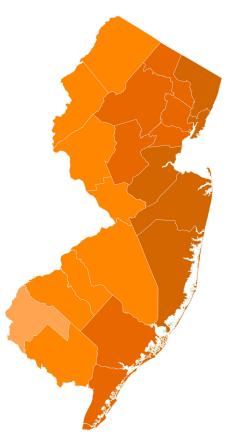
Importantly, extreme heat waves do not fit the criteria for federal disaster declarations despite being the leading cause of deaths among climate hazards. Likewise, sea level rise is not included in this definition despite the threat it poses to numerous communities, including damage to property, loss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

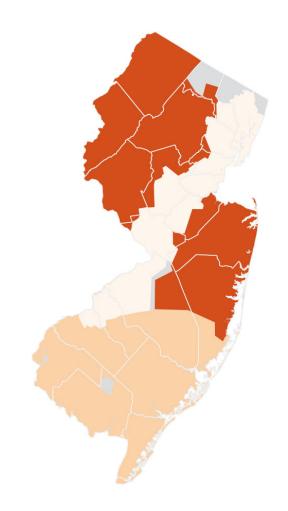
- Socioeconomic Status (below poverty, unemployed, income, no high school diploma);
- Household Composition & Disability (aged 65 or older, aged 17 or younger, older than age 5 with a disability, single-parent households);
- Minority Status & Language (minority, speak English "less than well"); and
- 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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