

# Connecticut 2011 Ozone Mid-Season Update



Peter Babich  
August 11, 2011  
SIPRAC

# How we are doing so far this year?

Actual Exceedance Days = 13\*

Forecast Exceedance Days = 10

Month	Actual Dates	Forecast Dates
May		
June	<b>1, 7, 8, 9, 21</b>	<b>7, 8, 9</b>
July	<b>6, 7, 11, 16, 18, 21, 22, 23</b>	<b>6, 12, 17, 18, 21, 22, 23</b>
August		
September		
<b>Total</b>	<b>13</b>	<b>10</b>

\* Exceedance days when forecasted are in reference to the 75 ppb standard.

**Connecticut Department of Environmental Protection  
8-Hour Ozone Daily Maximums\*  
June 2011**

Site	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Cornwall	75	55	51	49	43	53	70	63	58	39	27	26	29	26	41	59	48	51	35	51	74	49	36	28	40	32	46	64	50	40
Danbury	81	53	50	45	42	44	71	66	86	45	25	24	32	27	32	58	51	55	35	54	83	36	29	33	57	38	48	72	47	40
East Hartford	62	40	51	49	34	49	58	62	74	47	24	26	35	25	44	53	43	52	37	48	81	16	30	25	47	34	45	60	45	36
Greenwich	63	55	53	46	31	64	87	93	79	62	33	33	36	37	43	65	54	68	42	49	71	40	36	36	53	48	46	56	53	48
Groton	43	46	49	45	24	53	82	80	63	55	29	26	37	26	46	68	63	64	41	42	77	36	32	31	41	50	43	50	59	50
Madison	50	50	53	52	29	60	97	97	69	61	33	29	45	32	50	65	56	68	49	40	71	38	31	36	44	54	43	46	57	55
Middletown	62	46	54	51	33	56	80	85	79	54	27	25	37	28	47	64	52	62	43	56	79	36	35	25	49	41	47	56	50	39
New Haven	60	44	52	49	29	37	83	85	74	41	27	28	35	30	40	57	51	50	40	36	71	37	29	34	53	52	40	53	50	41
Stafford	62	46	47	48	39	45	60	68	62	35	26	27	37	23	34	54	49	50	32	53	72	36	38	25	44	33	44	56	46	40
Stratford	61	53	52	49	29	57	92	95	84	63	33	34	38	36	48	64	59	72	43	43	73	42	36	40	54	53	45	53	51	52
Westport	62	51	52	48	33	60	92	101	87	65	30	33	37	25	41	69	56	73	38	50	75	36	32	33	54	49	47	54	51	46
# days > Federal Standard	1						2	3	4												5									

Good (0-59 ppb)

Moderate (60-75 ppb)

Unhealthy for Sensitive Groups (76-95 ppb)

Unhealthy (96-115 ppb)

Very Unhealthy (116 > ppb)

Units - parts per billion (ppb)

Federal Standard = 75 ppb

M = missing data

\* Data is preliminary and has not been quality assured

**Connecticut Department of Environmental Protection  
8-Hour Ozone Daily Maximums\*  
July 2011**

Site	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
<b>Cornwall</b>	39	44	42	37	42	65	60	54	42	45	69	52	37	34	49	62	58	50	40	69	85	62	57	51	23	38	32	46	51	43	43
<b>Danbury</b>	36	48	44	43	55	82	50	54	39	52	78	56	39	33	42	73	60	56	43	71	89	64	59	44	22	49	30	51	51	43	42
<b>East Hartford</b>	39	42	40	37	49	72	48	38	40	49	80	53	34	36	45	61	58	47	52	68	92	58	59	40	17	41	31	52	43	44	36
<b>Greenwich</b>	43	59	47	51	57	75	86	51	45	53	77	60	42	40	64	76	65	68	62	63	72	80	64	45	26	65	37	55	63	48	51
<b>Groton</b>	46	51	60	57	67	76	75	44	45	46	79	61	49	32	62	78	68	83	61	57	54	88	85	39	21	40	38	45	45	45	47
<b>Madison</b>	55	49	63	64	68	78	79	42	44	50	82	65	51	M	65	73	70	92	70	59	59	99	90	43	28	48	46	50	49	47	50
<b>Middletown</b>	43	47	52	45	58	88	58	46	43	48	90	56	38	34	54	66	68	59	57	61	79	67	67	41	21	48	35	50	48	46	45
<b>New Haven</b>	42	48	53	49	39	36	77	54	43	49	98	57	38	38	55	78	70	50	68	61	66	80	71	45	22	41	30	45	41	46	39
<b>Stafford</b>	36	38	48	36	49	72	46	46	38	51	87	53	38	30	45	63	57	47	36	70	82	53	53	41	17	46	29	43	44	38	42
<b>Stratford</b>	49	50	54	59	64	79	87	52	42	54	88	59	42	39	59	74	72	82	75	61	65	87	68	43	29	59	42	52	52	45	46
<b>Westport</b>	40	54	49	56	57	81	87	47	44	53	86	60	41	37	58	79	72	65	65	64	77	76	66	43	28	68	38	52	52	46	47
<b># days &gt; Federal Standard</b>						6	7				8					9		10			11	12	13								

**Good** (0-59 ppb)

**Moderate** (60-75 ppb)

**Unhealthy for Sensitive Groups** (76-95 ppb)

**Unhealthy** (96-115 ppb)

**Very Unhealthy** (116 > ppb)

Units - parts per billion (ppb)

Federal Standard = 75 ppb

M = missing data

\* Data is preliminary and has not been quality assured

**Connecticut Department of Environmental Protection  
1-Hour Ozone Daily Maximums\*  
June 2011**

Site	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
<b>Cornwall</b>	97	60	53	51	46	57	77	67	82	40	31	27	32	29	48	65	55	53	41	61	88	64	39	33	49	36	49	72	53	63	
<b>Danbury</b>	102	60	53	49	48	50	82	71	123	52	31	27	34	34	42	65	63	61	36	64	93	48	34	37	68	42	54	82	61	78	
<b>East Hartford</b>	70	48	55	53	37	54	63	66	95	50	27	28	37	31	48	61	51	56	38	52	89	36	33	30	64	37	53	64	50	60	
<b>Greenwich</b>	79	64	56	53	35	71	97	119	102	69	38	38	40	45	49	79	61	80	50	61	85	48	38	38	63	57	55	61	57	M	
<b>Groton</b>	47	53	51	51	27	58	94	97	78	64	32	29	44	31	52	78	69	73	49	47	88	43	37	36	45	58	49	52	66	63	
<b>Madison</b>	52	57	56	61	32	64	104	106	84	71	36	32	51	38	56	75	65	76	55	45	85	41	33	41	51	65	48	49	65	59	
<b>Middletown</b>	71	53	57	55	36	62	89	95	92	57	29	27	39	32	54	74	58	75	48	65	88	43	38	31	66	49	55	64	57	52	
<b>New Haven</b>	67	51	54	57	33	50	95	96	98	58	31	32	37	35	45	75	55	74	44	43	86	46	30	38	62	58	47	62	52	66	
<b>Stafford</b>	68	49	50	50	41	49	69	79	76	42	30	29	40	29	38	63	55	55	35	60	86	46	41	29	48	38	51	62	52	67	
<b>Stratford</b>	71	55	54	57	33	63	101	114	125	68	37	37	45	40	51	77	66	81	53	48	85	53	40	41	58	62	51	56	57	72	
<b>Westport</b>	74	59	54	51	35	66	99	116	121	72	36	36	41	38	46	84	63	80	42	59	85	45	36	36	62	54	63	59	53	70	
<b># days &gt; Federal Standard</b>									1																						

**Good** (0-60 ppb)

**Moderate** (61-124 ppb)

**Unhealthy for Sensitive Groups** (125-164 ppb)

**Unhealthy** (165-204 ppb)

**Very Unhealthy** (204 > ppb)

Units - parts per billion (ppb)

M = missing data

\* Data is preliminary and has not been quality assured

**Connecticut Department of Environmental Protection  
1-Hour Ozone Daily Maximums\*  
July 2011**

Site	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
<b>Cornwall</b>	41	54	44	39	48	75	71	61	62	51	76	55	43	36	57	71	62	55	42	81	93	72	66	56	27	43	34	52	55	48	44	
<b>Danbury</b>	41	56	46	49	65	90	52	80	41	59	101	62	46	35	45	92	68	67	45	87	97	70	65	47	31	64	33	57	63	46	56	
<b>East Hartford</b>	43	46	45	41	54	111	51	47	42	55	110	58	40	40	52	67	67	54	57	73	117	61	79	50	24	54	35	62	48	47	42	
<b>Greenwich</b>	50	79	52	72	62	98	94	58	46	56	109	66	46	47	72	86	73	88	70	74	82	102	81	55	41	82	41	61	74	52	60	
<b>Groton</b>	51	53	66	62	75	95	81	55	47	54	94	67	55	36	65	85	84	97	69	65	57	103	90	46	24	46	40	49	49	48	56	
<b>Madison</b>	58	54	69	77	74	100	88	49	46	54	114	76	64	M	72	86	85	112	82	67	65	116	97	48	30	60	52	52	54	51	56	
<b>Middletown</b>	46	52	59	48	62	114	61	55	46	53	126	62	45	37	60	84	83	67	63	65	98	71	80	44	26	62	38	57	52	49	50	
<b>New Haven</b>	47	55	57	55	60	51	87	62	46	56	137	61	45	43	60	92	86	66	76	68	80	99	88	49	27	58	32	51	48	49	47	
<b>Stafford</b>	38	43	56	42	52	106	50	51	41	57	119	56	47	32	49	81	67	56	39	84	107	58	70	49	23	60	34	49	47	41	46	
<b>Stratford</b>	57	56	58	70	67	108	95	69	44	62	132	65	48	45	65	92	87	106	83	67	74	113	81	49	41	74	47	57	55	50	54	
<b>Westport</b>	44	67	53	79	64	107	94	53	46	56	118	65	46	43	62	88	82	89	81	69	99	97	82	48	42	81	43	55	61	49	55	
<b># days &gt; Federal Standard</b>											2																					

**Good** (0-60 ppb)

**Moderate** (61-124 ppb)

**Unhealthy for Sensitive Groups** (125-164 ppb)

**Unhealthy** (165-204 ppb)

**Very Unhealthy** (204 > ppb)

Units - parts per billion (ppb)

M = missing data

\* Data is preliminary and has not been quality assured

# 2011 Ozone Mid-Season Update

## Electric Demand and Ozone Exceedance Days

### Top 10 Demand Days

All Demand Days		Weekend Demand Days	
Date	Demand (MW)	Date	Demand (MW)
Aug 2, 2006	28,130	Aug 13, 2005	24,065
July 22, 2011	27,702*	July 23, 2011	23,182*
Aug 1, 2006	27,467	Aug 14, 2005	22,688
July 18, 2006	27,329	Aug 25, 2007	22,523
Aug 3, 2006	27,118	July 29, 2006	22,507
July 6, 2010	27,100	June 26, 2005	22,393
July 27, 2005	26,885	July 16, 2006	22,373
July 19, 2005	26,736	Aug 4, 2007	22,323
July 17, 2006	26,721	June 25, 2005	21,945
July 21, 2011	26,409*	Sept 8, 2007	21,867

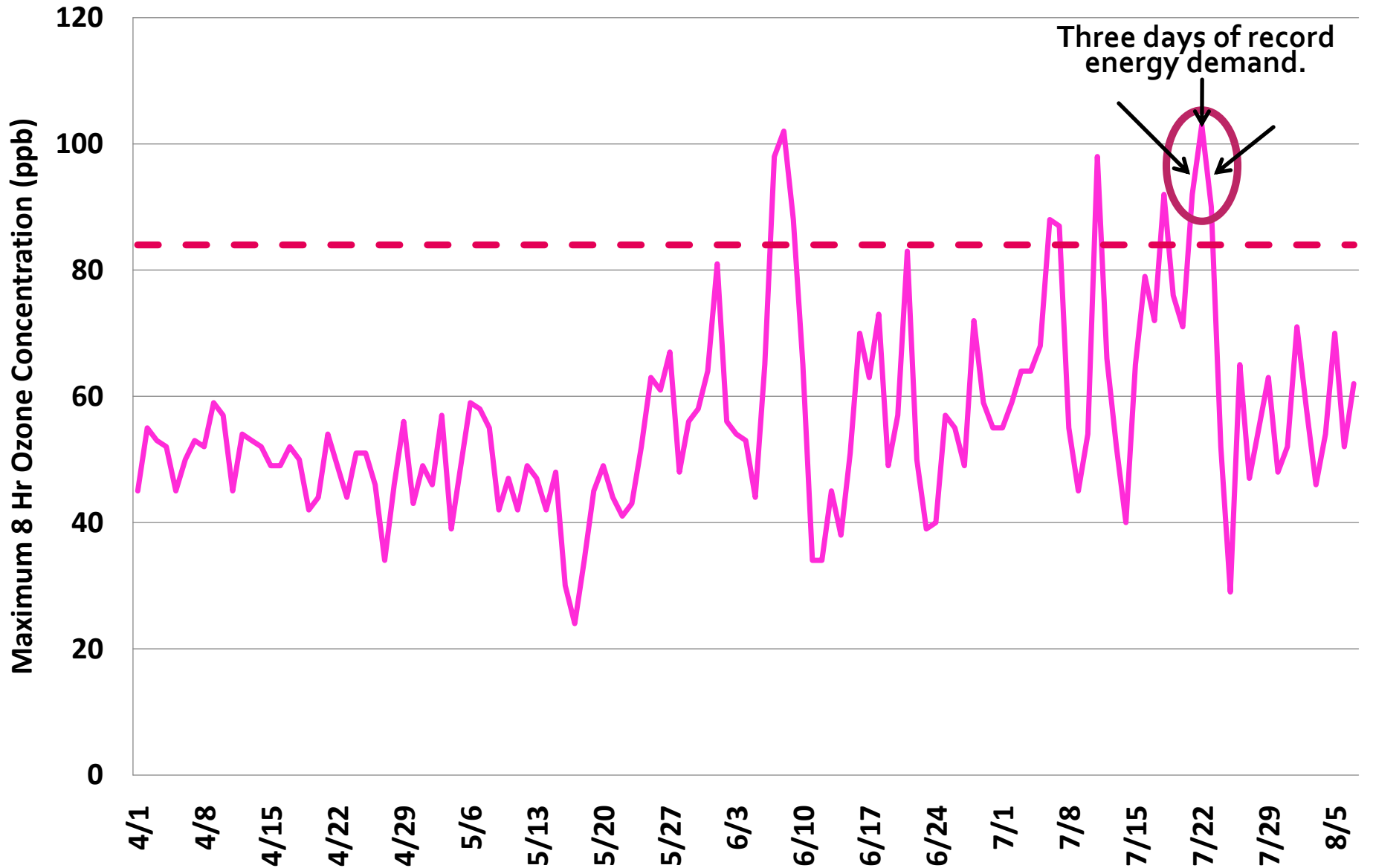
- July 22, 2011 Demand of Con Edison in NY peaked at 13,189 megawatts (MW) at 4PM.

[http://www.coned.com/newsroom/news/pr20110722\\_5.asp](http://www.coned.com/newsroom/news/pr20110722_5.asp)



\*Data may be revised in November 2011, after ISO-NE has completed the 90-day resettlement process.

# Connecticut's Daily Maximum 8-hr Ozone Concentration





2011 Ozone Season through 8/10/2011  
10 Exceedance Events > 84 ppb

**June: 7, 8, 9**

**July: 6, 7, 11, 18, 21, 22, 23**

**Red** dates indicate code red days (unhealthy)  $\geq 96$  ppb

2010: 1 day  $\geq 96$  ppb

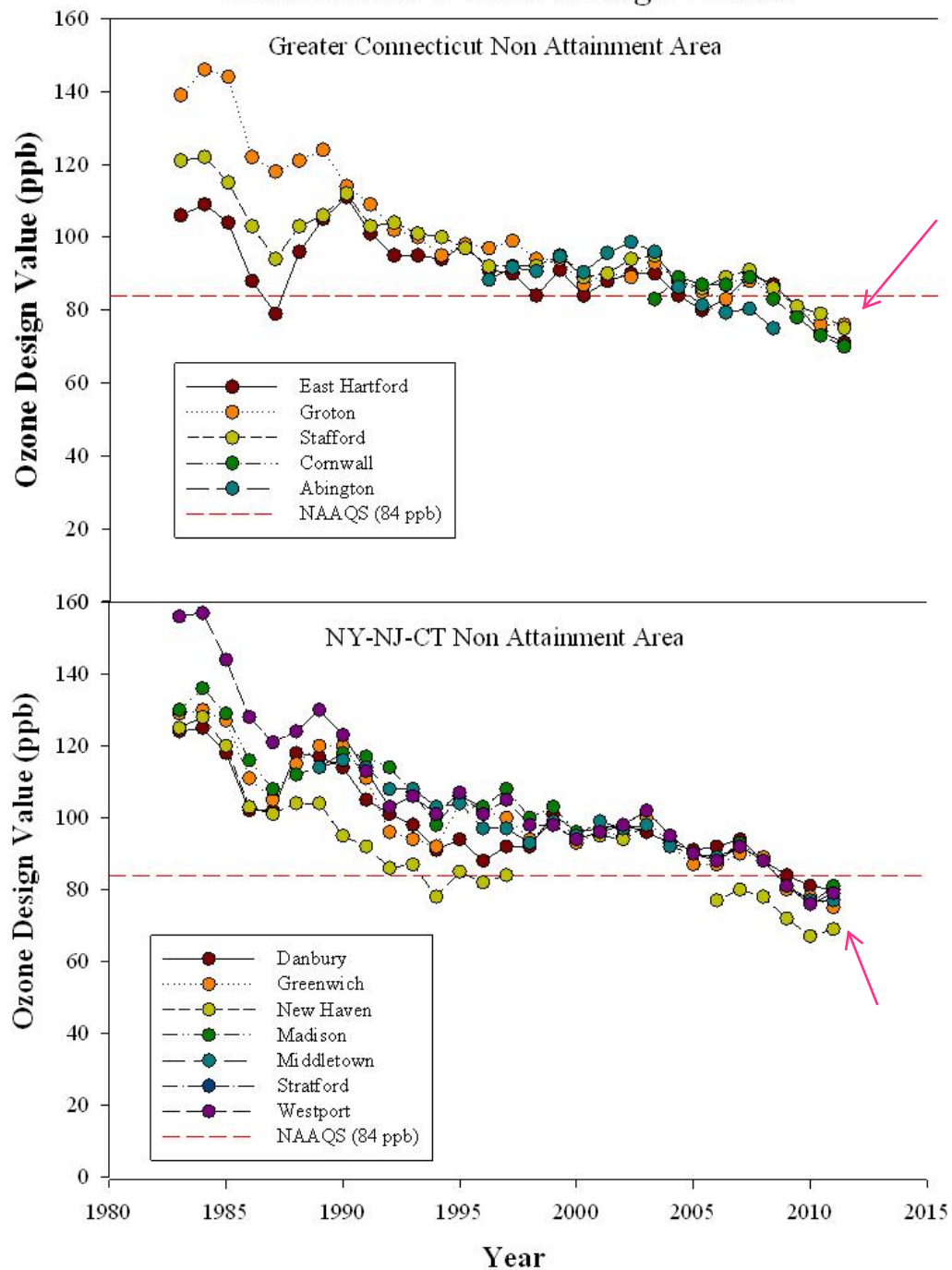
2009: none

# 8-hr Design Value Trends

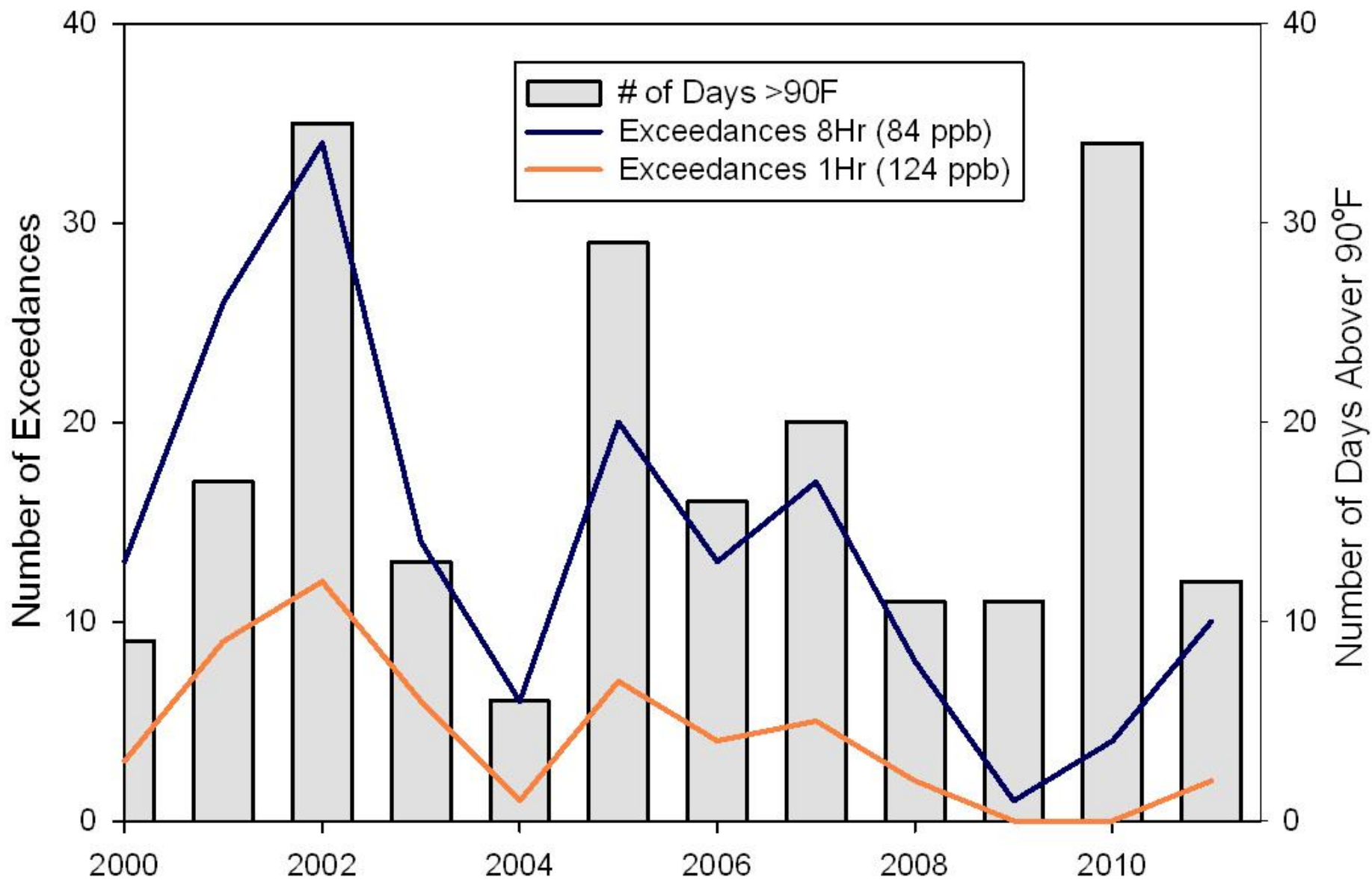
(1980-2011\*)

\*2011 design values calculated based on data through 8/10/2011

## Connecticut 8-Hour Design Values



# Connecticut 1Hr and 8Hr Ozone Exceedances and the Number on 90 Degree Days



# What's in a Design Value?

The 3-year average of the 4<sup>th</sup> highest daily maximum 8-hr value.

		2010 8-Hour Ozone Design Value Data (ppb)				2011 8-Hour Ozone Status as of 8/10/2011		2011 1-Hour Ozone Status as of 8/10/2011
		2008 4th High	2009 4th High	2010 4th High	2010 DV	2011 4th High as of 8/10/2011	2011 DV as of 8/10/2011	# 1 Hr Exc Days 2009-2011 (4 = violation)
SWCT Portion of NYC 1-Hour Area	Site Name							
	Danbury	86	74	84	81	83	80	0
	Greenwich	88	68	79	78	80	75	0
	Stratford	78	73	79	76	87	79	2
	Westport	90	73	79	80	87	79	0
Greater CT 1-Hour Area	Cornwall*	77	70	72	73	69	70	0
	East Hartford*	80	66	76	74	72	71	0
	Groton Fort Griswold*	80	73	75	76	82	76	0
	Stafford*	84	74	79	79	72	75	0
	Madison	78	73	79	76	92	81	0
	Middletown	82	70	81	77	80	77	1
	New Haven - Criscuolo Park	74	61	68	67	80	69	1

\* These sites are in the Greater CT 8-hour nonattainment area. All other sites are in the SWCT portion of the NYC 8-hour area.

Therefore when we reach 2012, 2013...and our slow economy/cool summers drop out, design values could **approach or even exceed the 84 ppb standard.**

# In Summary for 2011 (so far)

- Most >84 ppb exceedance days since 2007
- First >124 ppb 1-hr exceedance since 2008
  - Stratford has two 1-hr exceedances in 2011

	Days > 90 F	Days > 84 ppb
2009	11	1
2010	34	4
2011	12	10

- Next year, a clean-2009 drops out of DV calculation potentially pushing 2012 DVs above 84 ppb
- Neighboring states are also seeing elevated levels this ozone season; we'll be evaluating CT's contributions to these exceedance events