

Development of a Texas Building Registry

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Introduction

The Texas Building Registry (TBR or Registry) provides data collection, storage, and analysis of above-code residential housing construction in Texas. The original system was developed to support the Texas Emissions Reduction Plan (TERP).

Background

In 2008, the 81st Texas Legislature amended the Texas Administrative Code (TAC .§388.008 2009) to develop a Registry of Above-Code homes. The Laboratory built the first version of the Registry in 2009. This preliminary version allowed The Laboratory to provide basic metrics on the above code calculators, *IC3* and *TCV*.

Simulated Buildings

The Registry presently handles the data that describes a building from the Laboratory's IC3 and TCV calculators.

The Laboratory is working with partners to write connectors to import data from:

- DOE's ResCheck™ (via CheckXML)
- REM/Rate™ (via the export function)

Inspected Buildings

Potential Sources:

- Cities
- TX HERO
- Utilities
- Green Building Chapters

Values

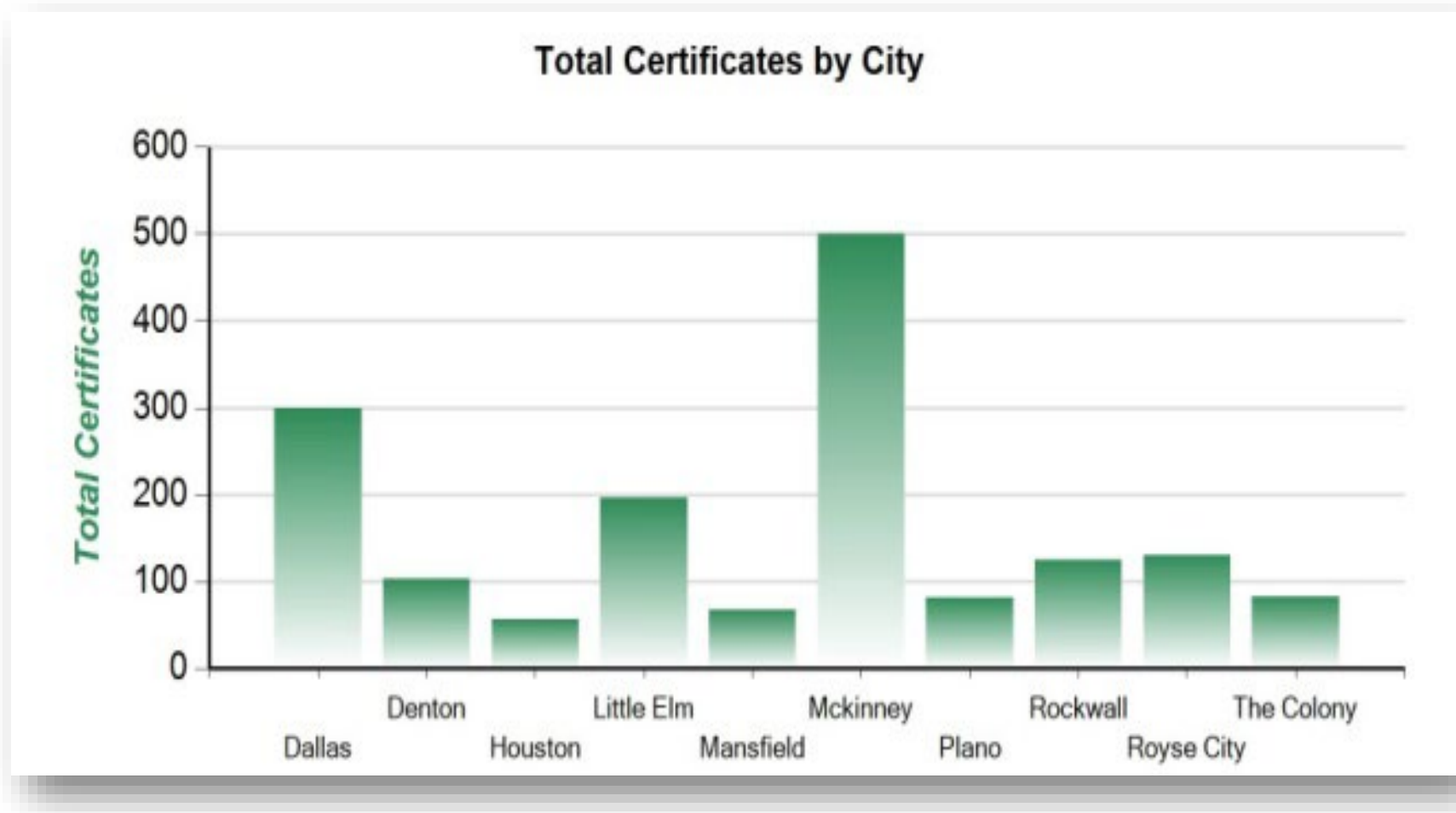
- Blower door and duct blaster
- Confirmation of envelope values
- HVAC Tonnage

Measured Values

The Registry's measured data is divided into several major sections, many of which go back several years:

- Solar data (since 2008)
- NOAA Weather Data (since 2000)
- Electrical and Natural Gas Utility Bills (since 2008)
- Hourly temperature, humidity and kW data from a collection of homes (since 2001)

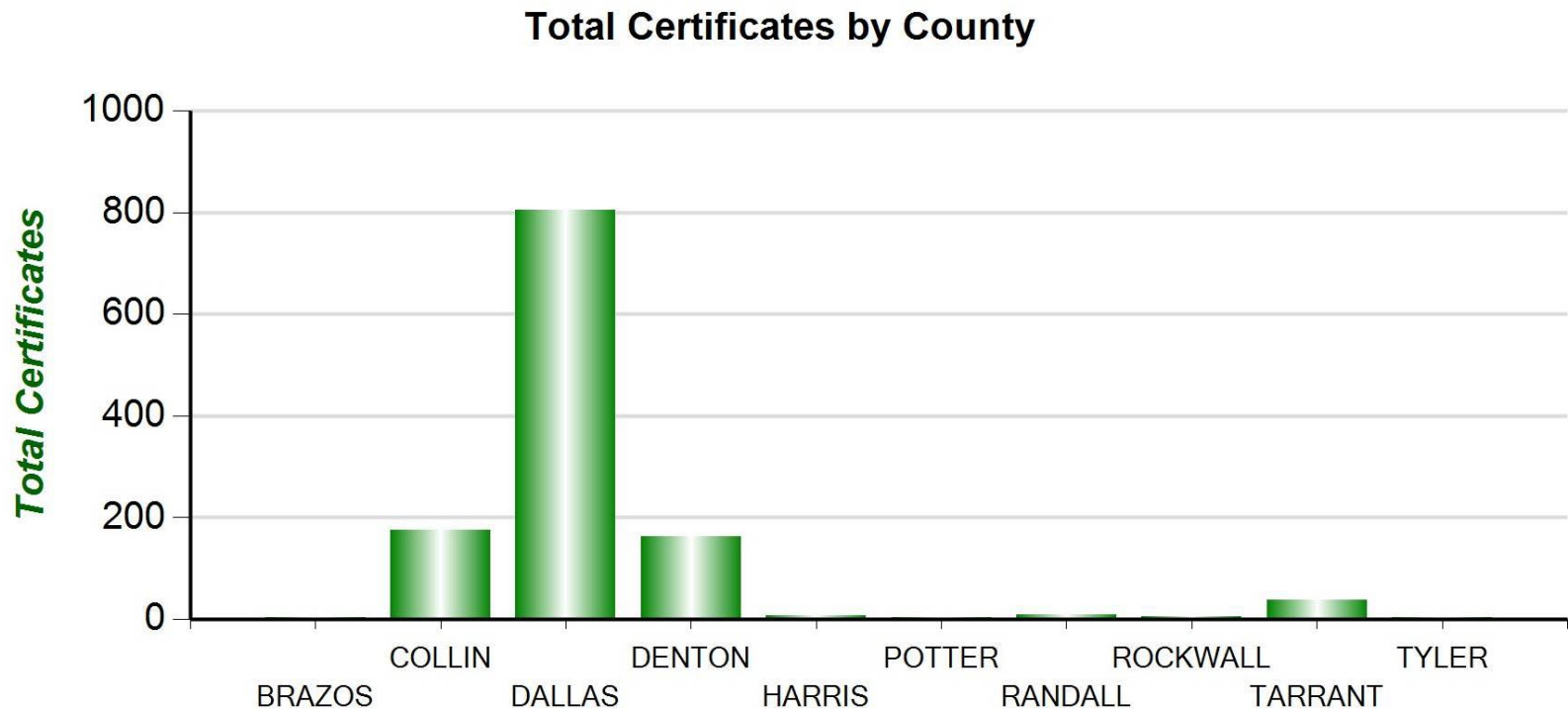
IC3 Certificates by City 2009



IC3 Certificates by City 2009

	2009.01	2009.02	2009.03	2009.04	2009.05	2009.06	2009.07	2009.08	2009.09	2009.10	2009.11	2009.12	Total
Dallas	24	10	14	15	16	32	48	17	36	34	19	35	300
Denton		3	7	7	7	9	28	8	11	4	3	16	103
Houston						1		5	8	13	13	17	57
Little Elm	4	7	12	21	45	8	11	15	19	21	16	17	196
Mansfield	11	3	1	2	5	2	14	7	5	6	3	8	67
McKinney	13	18	26	29	26	95	40	30	71	45	46	61	500
Plano					1	2	2	11	11	13	25	16	81
Rockwall	9	6	10	8	6	12	5	3	21	4	15	26	125
Royse City	2	13	5	4	12	10	8	3	14	13	14	32	130
The Colony	17	22	43						1				83
Total	80	82	118	86	118	171	156	99	197	153	154	228	1642

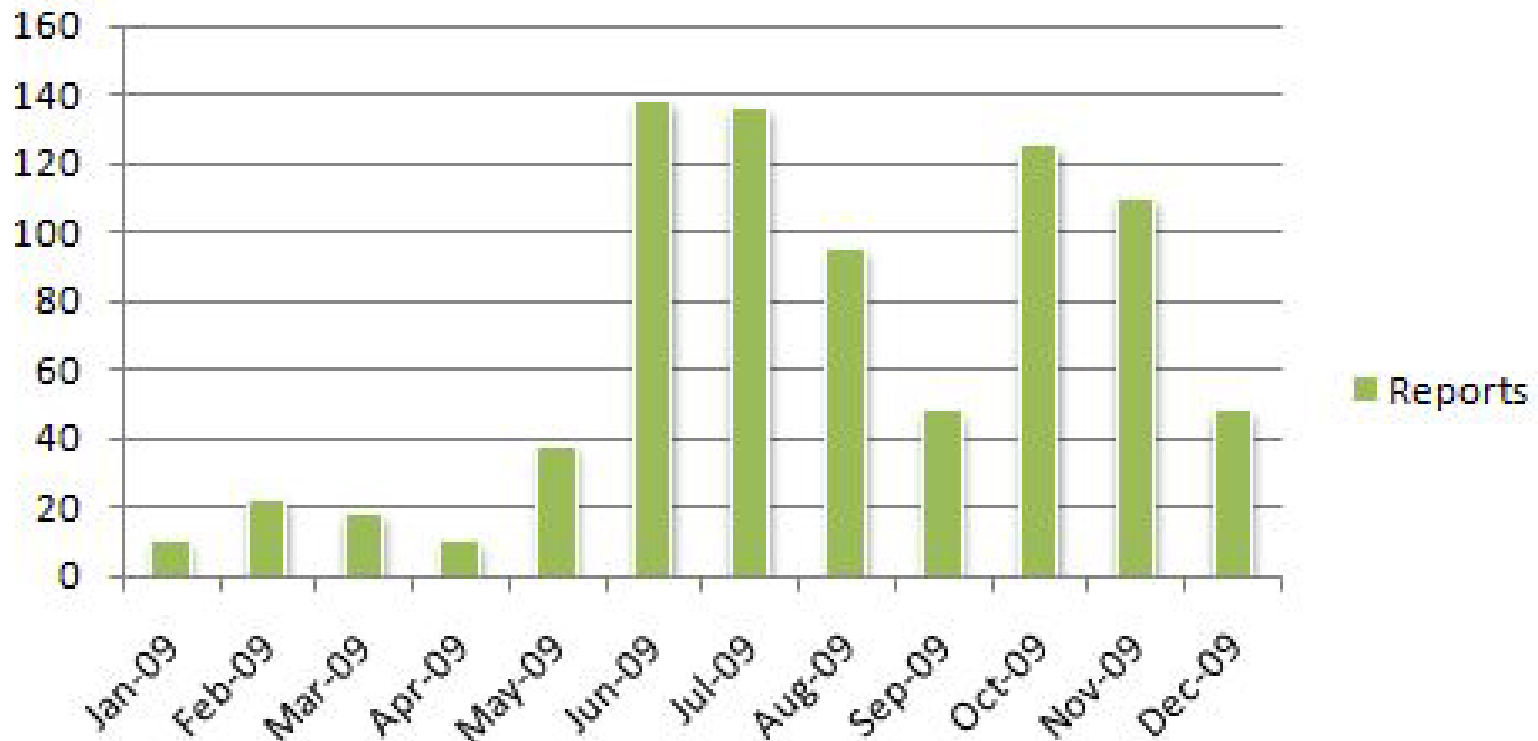
IC3 Certificates by County 2009



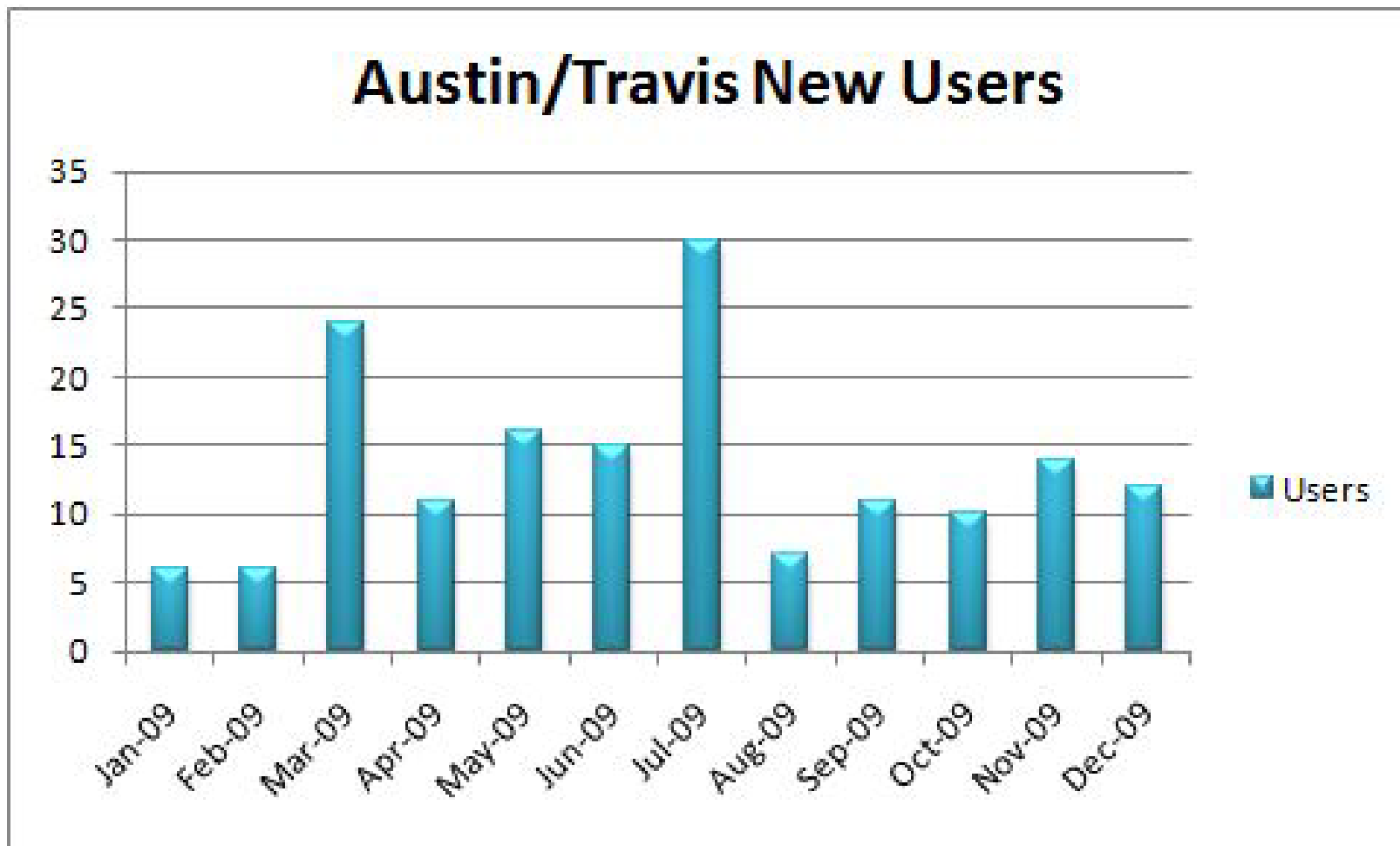
IC3 Certificates by County 2009

	2009.01	2009.02	2009.03	2009.04	2009.05	2009.06	2009.07	2009.08	2009.09	2009.10	2009.11	2009.12	Total
Brazos	1				1							1	3
Collin	12	11	9	10	12	18	21	11	14	18	19	20	175
Dallas	19	35	42	51	49	108	59	61	104	76	81	120	805
Denton	3	17	13	8	19	13	18	17	10	15	16	14	163
Harris									3	2		2	7
Potter			3										3
Randall						1	3			5		1	10
Rockwall	2		2					1					5
Tarrant	2	5	2	3	6		3	5	4	2	4	3	39
Tyler												4	4
Total	39	68	71	72	87	140	104	95	135	118	120	165	1214

Austin/Travis Total Energy Reports

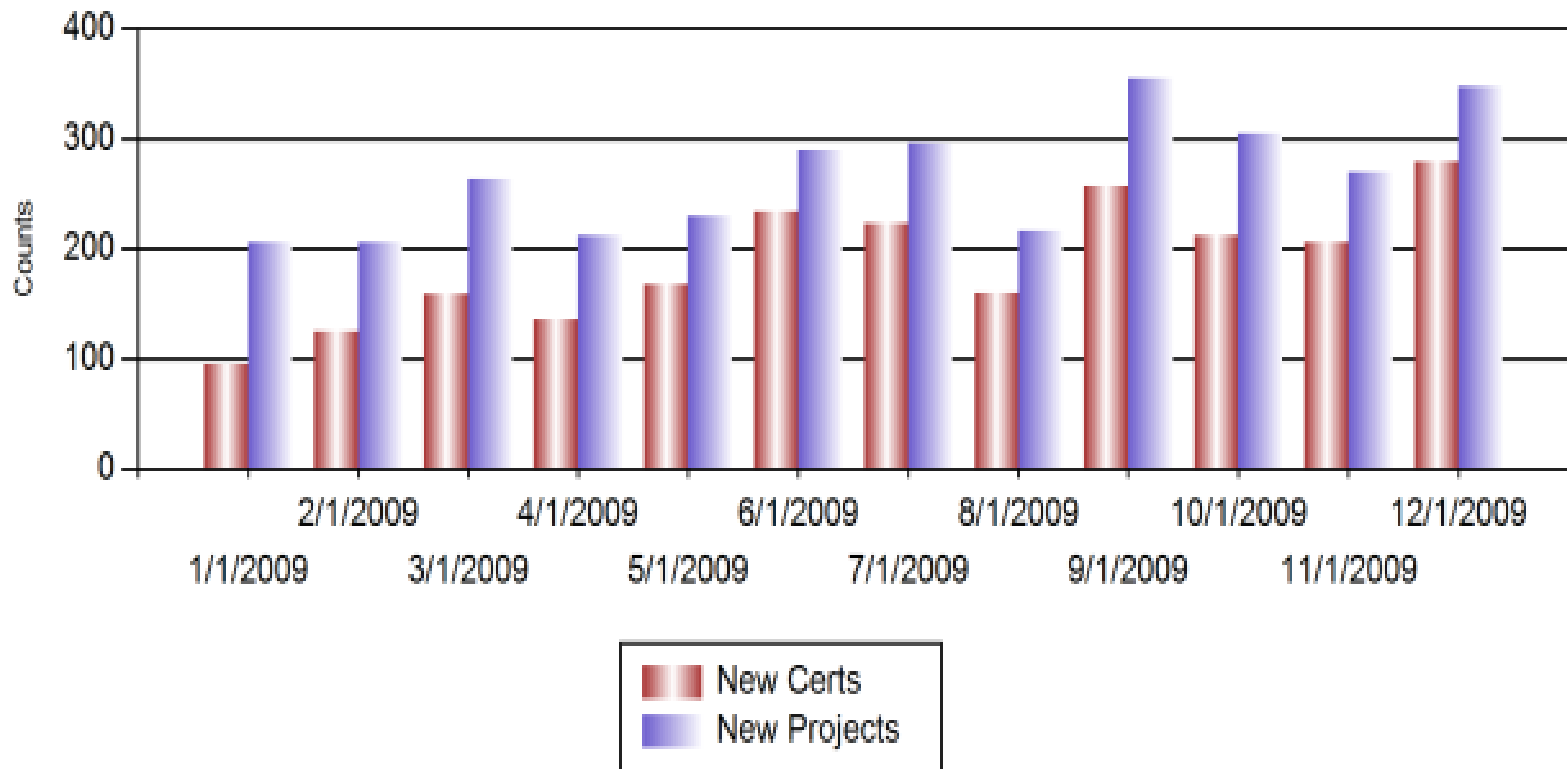


Austin/Travis Specific Registrations 2009



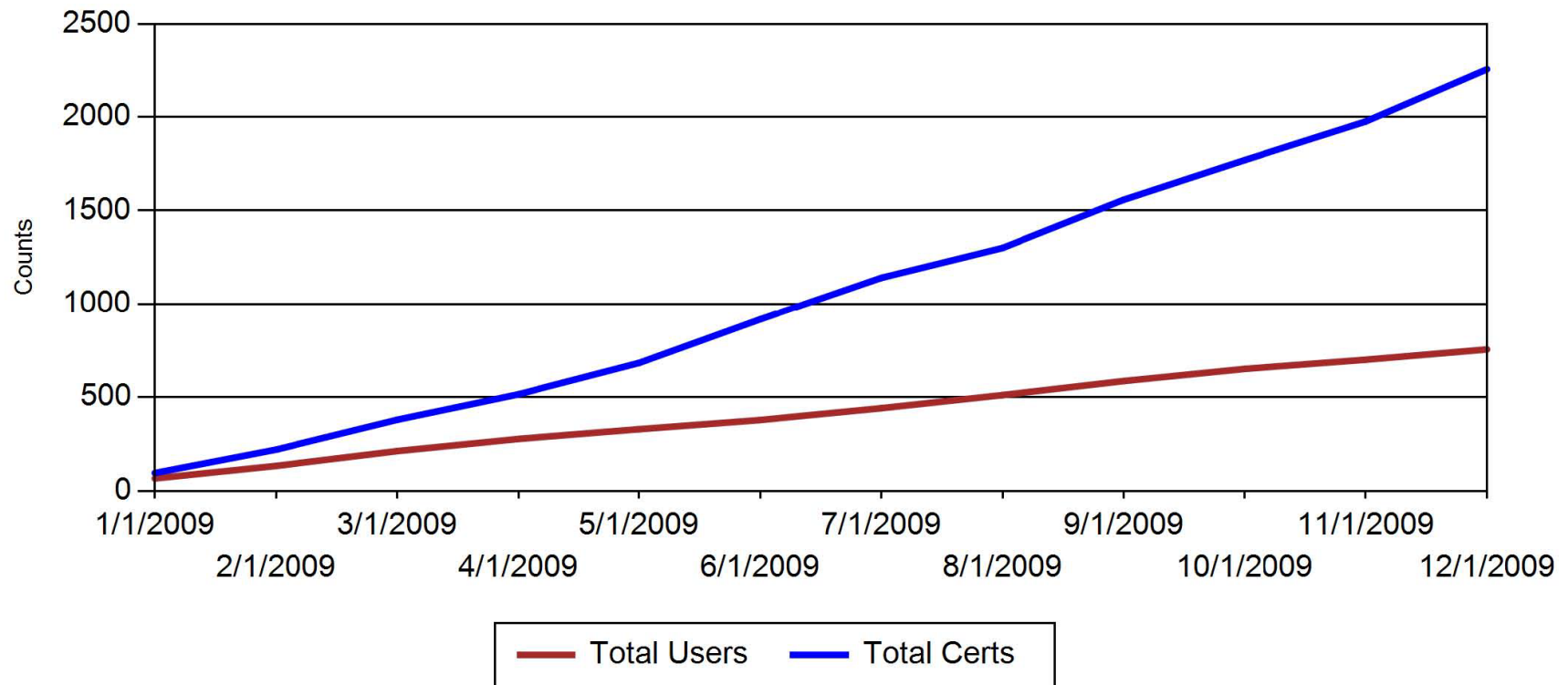
Texas IC3 Projects vs Certificates 2009

Projects and Certificates by Month 2009



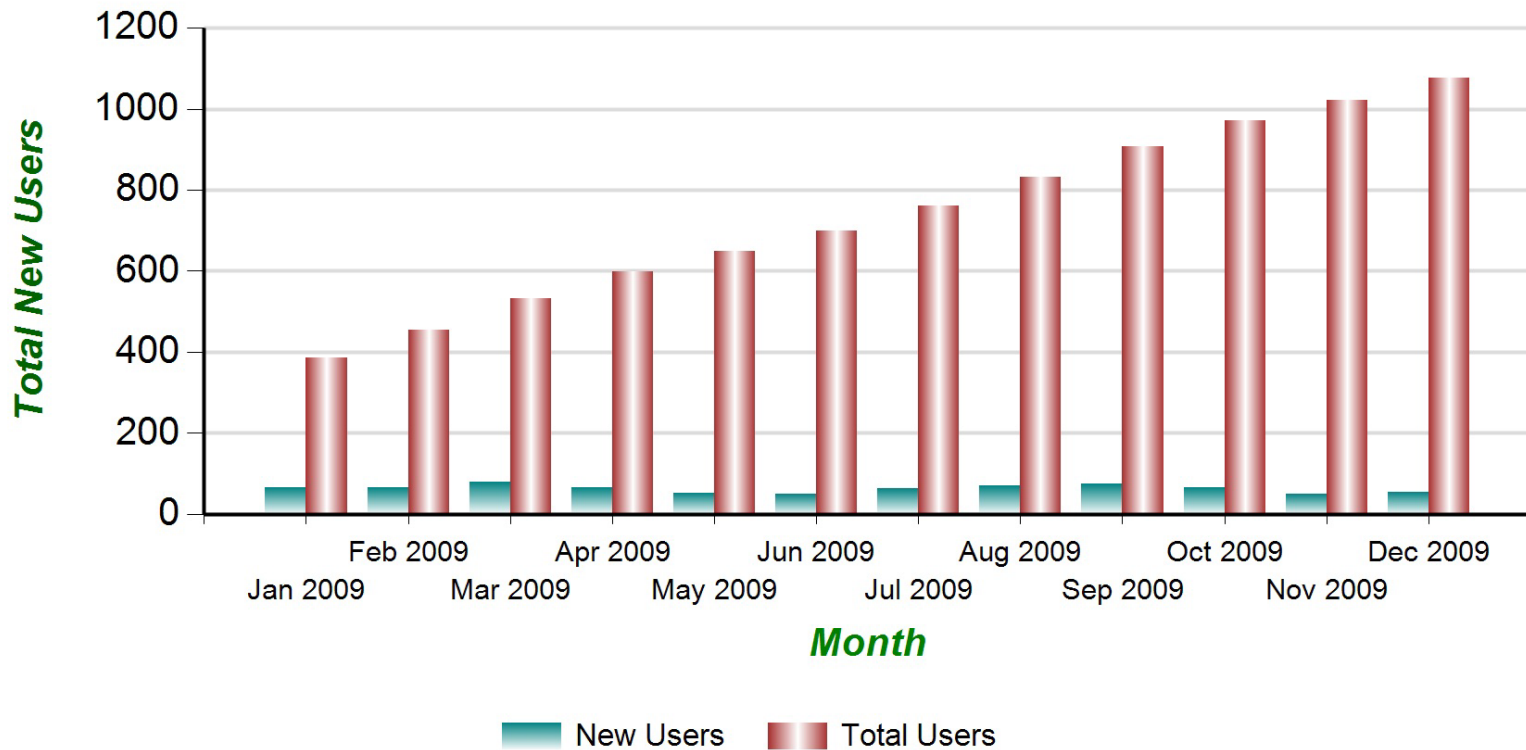
Texas IC3 Users vs Certificates 2009

Total Users and Certificates by Month 2009



IC3 User Growth 2009

Total Users by State (Texas)



4th Qtr 2009 Emissions by County

Estimated SOx NOx CO2 Per County from IC3 Runs

	2009.10			2009.11			2009.12			TOTAL
	SOx	NOx	CO2	SOx	NOx	CO2	SOx	NOx	CO2	
DENTON	61	113	93,841	53	100	81,395	183	346	287,910	464,002
DALLAS	107	193	156,051	121	218	175,494	81	142	115,525	447,932
COLLIN	93	170	137,682	93	173	140,808	98	178	143,331	422,626
TARRANT	79	148	121,160	53	101	83,166	94	173	140,204	345,179
ROCKWALL	29	51	40,233	21	39	32,075	46	83	67,643	140,222
RANDALL	0	1	773	15	27	21,698	25	50	42,499	65,089
BEXAR	9	18	14,643	2	3	2,676	9	15	12,118	29,493
HARRIS	2	4	3,121	7	13	10,805	11	18	14,300	28,281
TYLER	17	31	24,266				(2)	1	2,884	27,197
WICHITA	2	3	2,459				16	28	22,729	25,236
HUTCHINSON				11	22	18,246				18,278

4Qtr 2009 - % Above Code By County

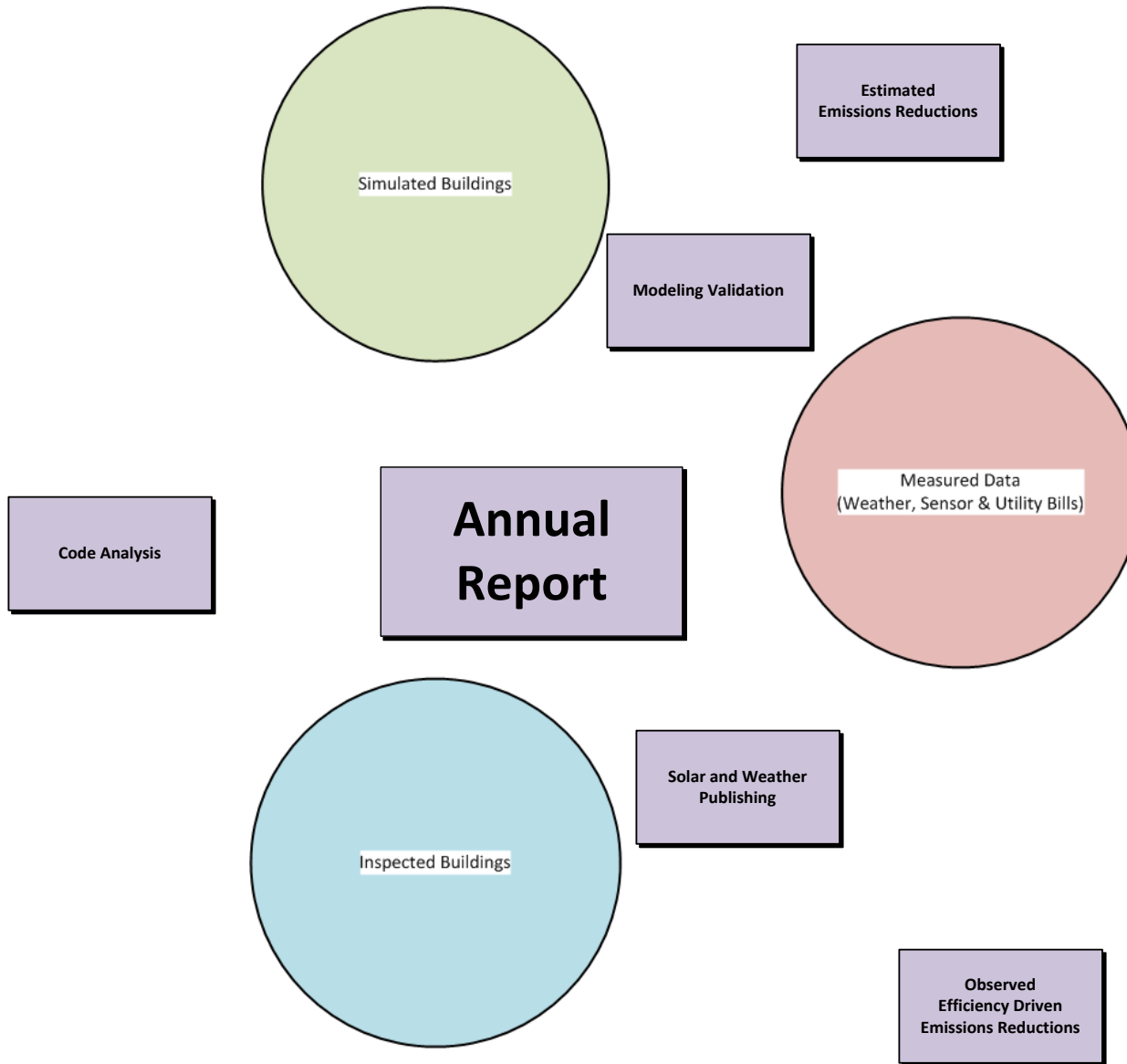
Avg User/Avg Code expressed in MMBtu

	2009.10			2009.11			2009.12			2009 Q4 Averages		
	Avg User	Avg Code	% Above	Avg User	Avg Code	% Above	Avg User	Avg Code	% Above	Avg User	Avg Code	% Above
ORANGE	41.7	53.8	22.5				67.5	91.6	26.3	54.6	72.7	24.4
COMAL	63.6	76.6	17.0							63.6	76.6	17.0
SAN PATRICIO							115.6	138.3	16.4	115.6	138.3	16.4
LUBBOCK							111.5	132.6	15.9	111.5	132.6	15.9
ELLIS							46.1	54.7	15.7	46.1	54.7	15.7
KING	90.3	108.3	16.6	103.2	121.1	14.8				96.8	114.7	15.7
HUTCHINSON	81.5	95.9	15.0							81.5	95.9	15.0
IRION				83.7	97.2	13.9				83.7	97.2	13.9
WILSON	97.2	111.1	12.5							97.2	111.1	12.5
TYLER	63.0	74.9	15.9	74.5	80.5	7.5				68.8	77.7	11.7
HOOD	201.3	234.2	14.1				390.0	429.1	9.1	295.6	331.7	11.6
KLEBERG							70.1	79.2	11.6	70.1	79.2	11.6

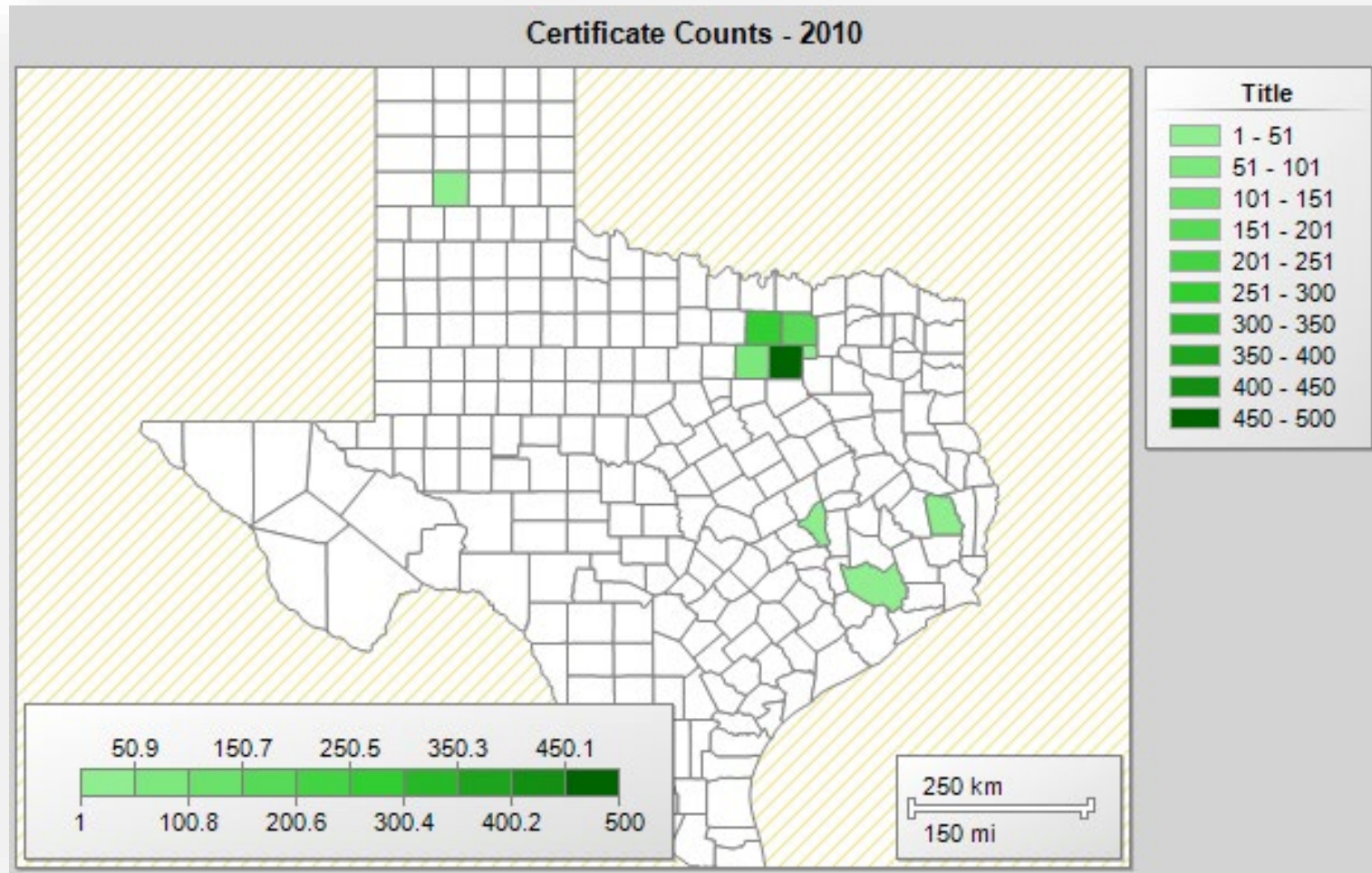
Future Reports

- Average Glazing per Sq Ft
- Average Tonnage per Sq Ft
- Simulated vs Measured Energy Consumption
- Rated value vs Energy Consumption per Sq Ft
- Most above code regions
- Lowest energy per Sq Ft regions
- Map based reports

Long Term Architecture

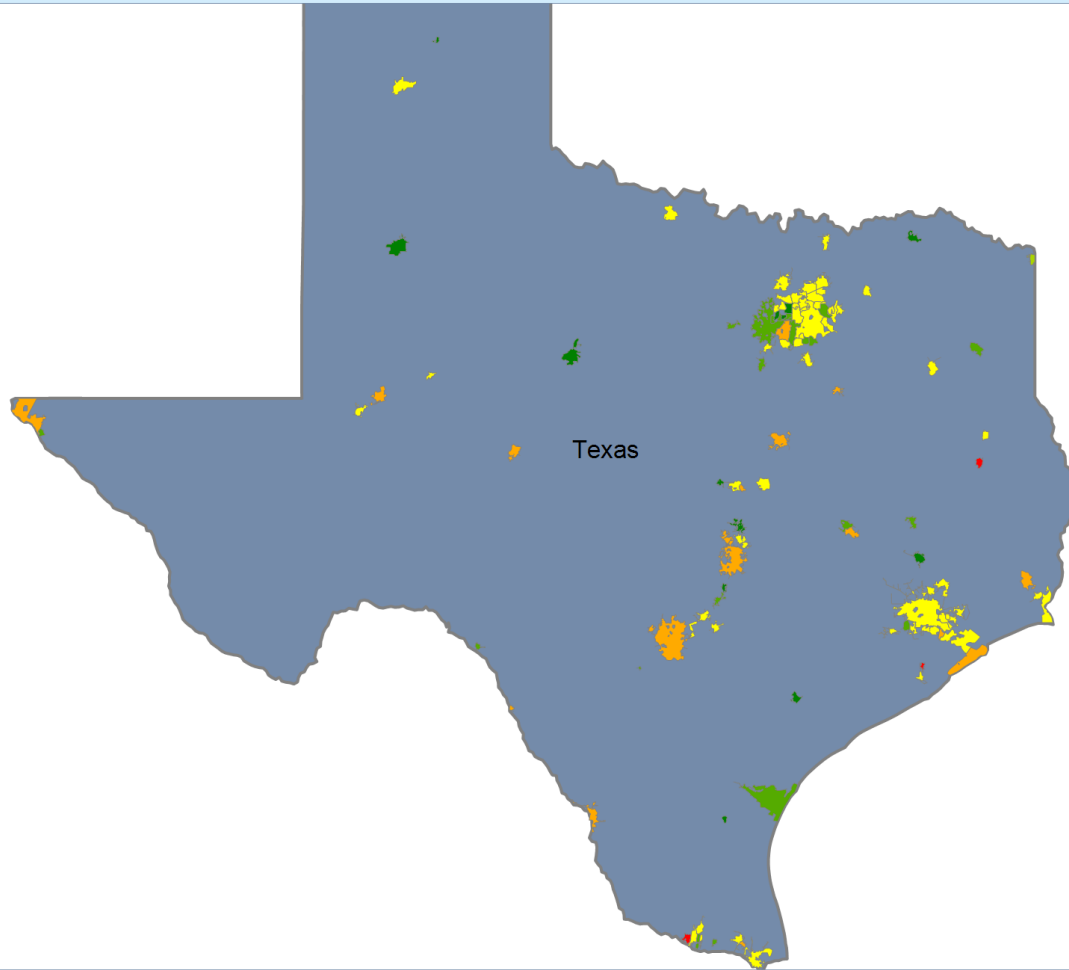


IC3 Certificate by County 2010



IECC Adoption - Texas

IECC Codes used by Texas Cities - As Of Feb 2010



ESL Survey of IECC Code Adoption - 2010

2000 2003 2004 2006 2009 None