

Emerging Technologies Integration Plan Quarterly Update for the Period Ending June 30, 2011

Prepared by the Emerging Technologies Working Group of
the ERCOT Wholesale Market Subcommittee

July 2011

Emerging Technologies Implementation Plan
Quarterly Update for the Period Ending June 30, 2011

1. Status of Emerging Technologies in Texas

As of June 30, 2011, the total new renewable facilities in Texas is at least 10,518 MW¹ which exceeds the 5,000 MW goal specified in the Public Utility Commission of Texas (PUCT) Substantive Rule 25.173 – Goal for Renewable Energy and it exceeds the January 1, 2025 “target” of 10,000 MW.

Technology	MW
Biomass	108
Hydro	33
Landfill Gas	91
Solar	21
Wind	10,265
Total	10,518

Figure 1 – New Renewable Generation Capacity Registered with the Program Administrator¹

1.1. Status of Wind, Solar, Landfill Gas and Biomass Generation in ERCOT

At the end of June, 2011, ERCOT had at least 9,452 MW of new wind generation capacity, at least 21 MW of utility-scale solar generation, at least 91 MW of landfill gas generation and at least 108 MW of biomass capacity in operation. For the six months ending June 30, 2011, no new wind, solar, or biomass resources became operational in ERCOT.

Wind generation has provided 9.9% of the total energy produced in ERCOT from January 1, 2011 through June 30, 2011. The monthly amount of wind energy production as a percentage of total monthly energy production in ERCOT is shown below in Figure 2.

¹ The values shown in Figure 1 are a compilation of data, as of 06-30-2011, from the ERCOT website (<https://www.texasrenewables.com/publicReports/rpt5.asp>) and the Public Utility Commission of Texas. These values do not include those new renewable resources that are not currently registered as a REC Account Holder with the Program Administrator.

**Emerging Technologies Implementation Plan
Quarterly Update for the Period Ending June 30, 2011**

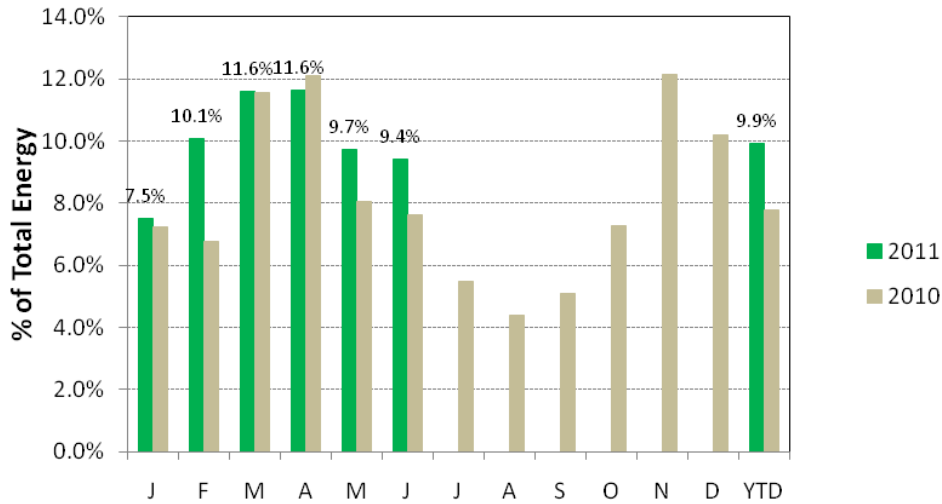


Figure 2 – Monthly Energy from Wind as a Percentage of Total ERCOT Energy Production

The monthly ERCOT generation fuel mix is available at:

<http://planning.ercot.com/reports/demand-energy/>

Furthermore, the amount of energy (i.e., MWh) produced by wind generation in ERCOT continues to increase. Figure 3 below shows the monthly cumulative amounts of wind generation since 2008.

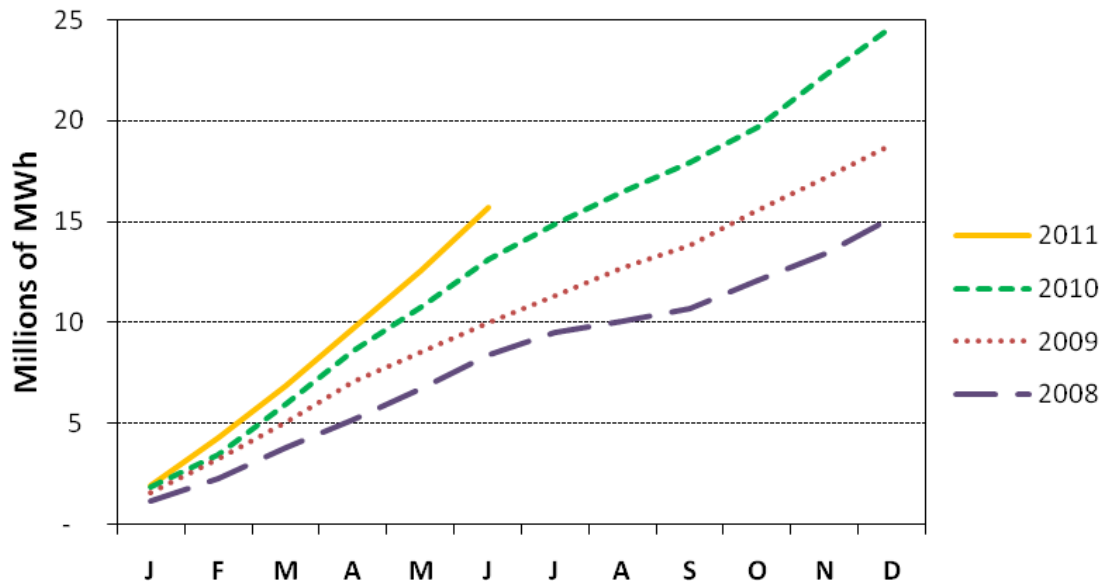


Figure 3 – Cumulative Energy from Wind in ERCOT

Emerging Technologies Implementation Plan
Quarterly Update for the Period Ending June 30, 2011

For the six-month period ending June 30, 2011, wind generation facilities in ERCOT operated at a cumulative capacity factor of 38.3%. The monthly capacity factors for wind generation in ERCOT are shown in Figure 4 below:

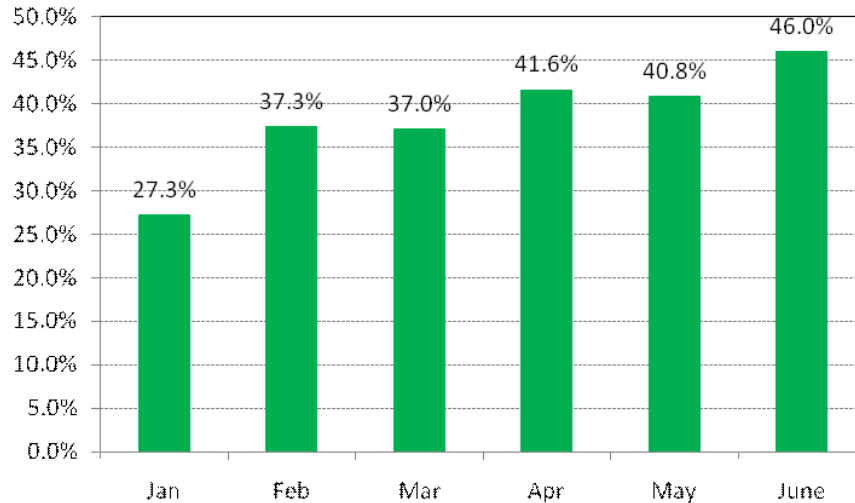


Figure 4 – Monthly ERCOT Wind Generation Capacity Factor

In addition to wind generation capacity that is installed and operating, there are a substantial number of renewable generation projects in various stages of study by ERCOT as part of the Generation Interconnection Process as shown in Figure 5 below.

Project Description	Capacity (MW)		
	Wind	Solar	Biomass
Projects with Interconnect Agreement/Public Letter	5,149	90	100
Projects Under Full Interconnect Study	27,971	734	50
Confidential Projects	4,292	740	0
Total	37,412	1,564	150

Figure 5 – New Renewable Generation Capacity Under Study in ERCOT

There are 18 wind generation projects, 2 solar generation projects and 1 biomass project with Interconnect Agreements or public letters. In addition, there are 101 wind generation projects undergoing full interconnect studies. There are 10 solar projects and 1 biomass project undergoing full interconnect studies.

For the 6-month period ending June 30, 2011, three wind generation resources totaling 630 MW and two solar generation resources totaling 90 MW signed Generation Interconnection Agreements.

Emerging Technologies Implementation Plan
Quarterly Update for the Period Ending June 30, 2011

The annual actual and forecast ERCOT installed wind generating capacities are shown in Figure 6 below.

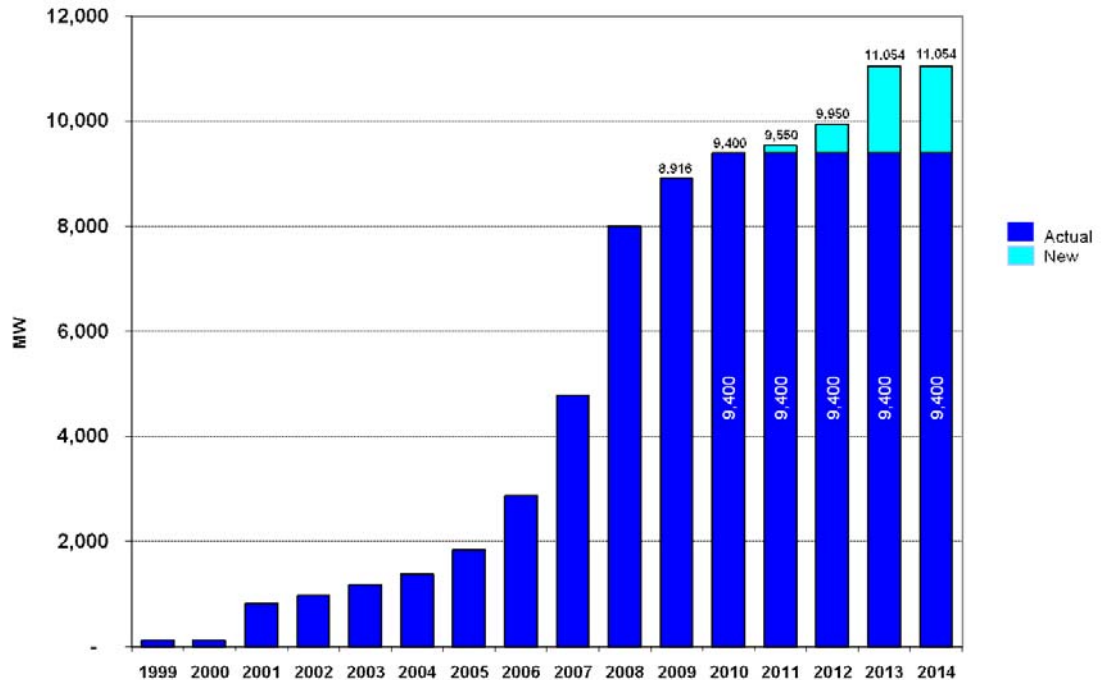


Figure 6 – ERCOT Installed Wind Generating Capacity (End of Year)

Note: “New” in Figure 6 above represents wind generators with a Signed Generation Interconnect Agreement and a planned in-service date in the year shown.

4.1.1.2. Status of other Emerging Technologies in ERCOT

There are currently two operational storage facilities in ERCOT, totaling 5MW capacity.

2. Approved NPRRs During the Quarter Directly Related to Emerging Technologies

- **NPRR317 Approved** - Clarification of Entity Responsible for Hydro Responsive Testing
- **NPRR352 Approved** - Real-Time HSL Telemetry for WGRs

3. Significant Events During the Quarter

2.1.3.1. Solar Workshop

On April 25, 2011, a Solar Workshop, sponsored by the Emerging Technologies Working Group (ETWG) of the ERCOT Wholesale Market Subcommittee (WMS), was held at the ERCOT offices. During the full day meeting, the following topics were discussed:

- summary of bills on solar energy introduced in the 2011 Texas legislative session;
- planning and operations standards for solar generation;
- utility-scale solar photovoltaic (PV) project experience;
- PV grid integration with AMSC SolarTie[®] Solution;
- Current status and challenges of solar energy forecasting;
- grid integration features of SMA inverters;
- standards and recommended practices for managing intermittency in solar power forecasting

Over 100 people attended the workshop, including representatives from solar developers, solar manufacturers, local universities, consultants, consumer advocates, ERCOT market participants (independent generators, transmission service providers, municipal utilities, electric cooperatives, and power marketers), and Public Utility Commission of Texas staff.

2.2.3.2. Wind Generation Record

On June 19, 2011, at 10:26 PM, ERCOT set a record for instantaneous wind generation of 7,355 MW (which represented 77.6% of installed wind generation capacity and 14.6% of the ERCOT load at the time). This broke the previous instantaneous wind generation record of 7,227 MW set on December 10, 2010.