

**Senate Committee on Business & Commerce
Interim Study Charge on Drought and Electric Generation
Carolyn Brittin, Texas Water Development Board
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2012 State Water Plan Summary

Planning Process:

- TWC §16.051 (State Water Plan); TWC §16.053 (Regional Water Plans); and TWC §16.054 (Local Water Plans)
- Comprised of 16 approved Regional Water Plans
- 50-year planning horizon
- Baseline conditions-Drought of Record
- 5-year planning cycle
- Plan for irrigated agriculture, municipal, electrical power generation, manufacturing, mining, and livestock water uses
- Plan for about 3,000 individual water user groups

2012 Draft State Water Plan

- Population – 25.4 million to 46.3 million (82% increase)
- Water Demand – 18 million acre-feet to 22 million acre-feet (22% increase); municipal greatest increase (4.9 to 8.4 million acre-feet); irrigated agriculture declines and is projected to be about equal to municipal demand by 2060 (10 million acre-feet to 8.4 million acre-feet); manufacturing, electric power generation, and livestock increase slightly; and mining projected to remain relatively constant
- Water Supplies – decrease from about 17 million acre-feet in 2010 to about 15.3 million acre-feet in 2060
- Water Supply Needs – immediate need of 3.6 million acre-feet growing to 8.3 million acre-feet in 2060; 86% of the current need is irrigation and about 9% for municipal needs; by 2060, irrigation makes up 45% of the projected water supply needs with municipal comprising 41% of the needs.
- Recommended Water Management Strategies – 562 unique water supply projects designed to meet needs for additional water supplies would provide for about 2 million acre-feet in 2010 and 9 million acre-feet in 2060; 34% from conservation and reuse, 17% from new reservoirs, and about 34% from other surface water strategies.
- State Water Plan Capital Costs – by 2060, if all recommended strategies are implemented, capital costs are projected to be \$53 billion; \$53 billion is only to develop new water supplies, delivery to a water supply system, and some treatment
- Socio-Economic Impact of Not Meeting Water Supply Needs – Texas businesses and workers could lose almost \$12 billion in income in 2010 and about \$116 billion in 2060; losses to state and local business taxes could amount to \$1.1

billion in 2010 and \$9.89 billion in 2060; lost jobs could total 115,000 in 2010 and 1.1 million in 2060; projected population could be reduced by about 1.4 million people by 2060.

- Other Water Related Infrastructure Capital Costs – by 2060, estimate capital costs of water treatment and distribution is about \$88.9 billion; wastewater treatment and collection is about \$81.7 billion; and flood control is about \$7.5 billion
- Total Water Related Capital Costs - \$231 billion by 2060

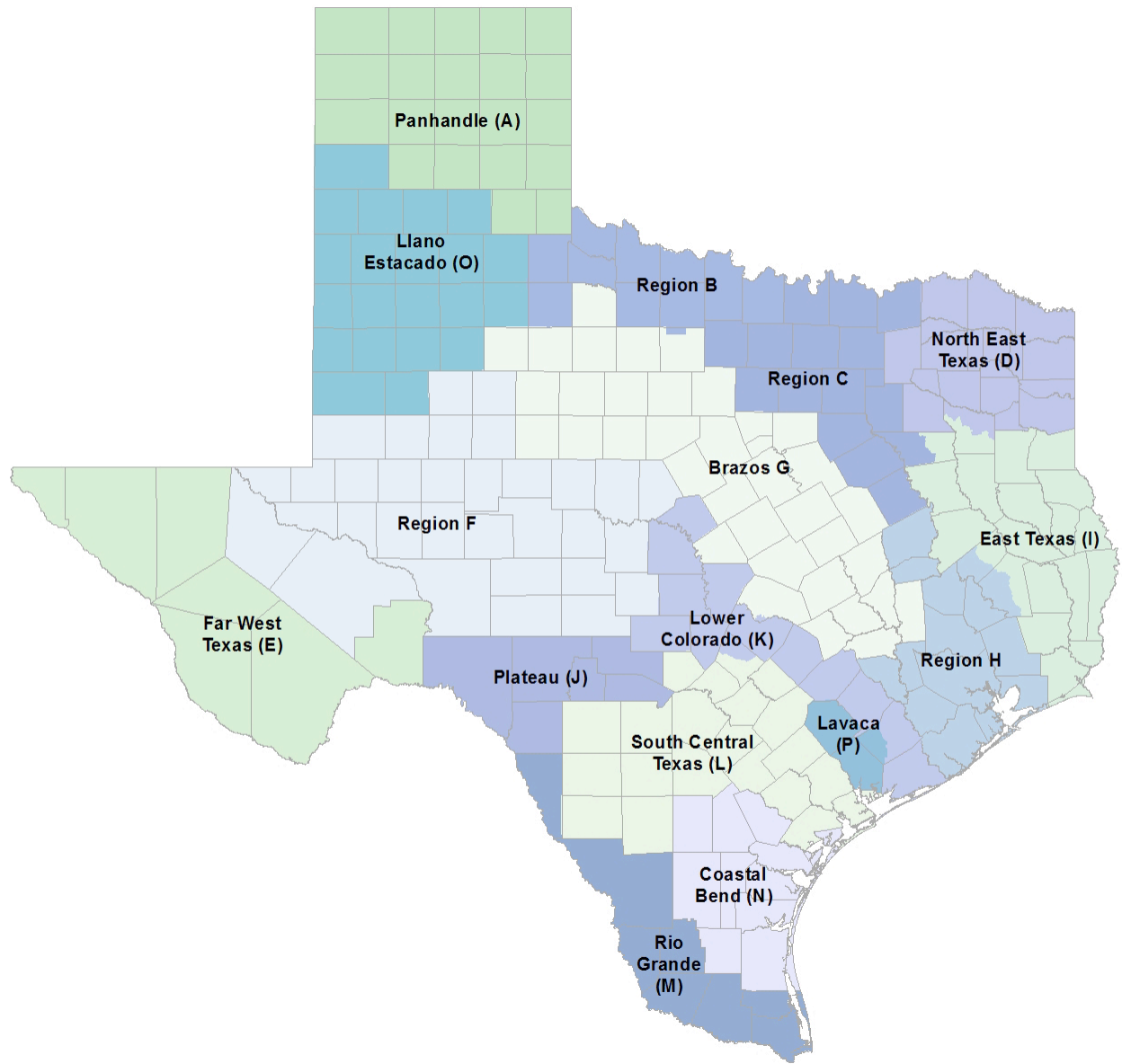
The planning process begins with the development of projected water demands under drought of record. The electric generation category consists of the water that is consumed through evaporation in coal, natural gas and nuclear power plants where water is required for cooling purposes, but not the water which passes through hydroelectric plants that then remains available for other uses.

Projected demands are compared to projected existing supplies for each water user within each water use category. If supplies are not expected to meet demands, specific water management strategies are recommended to meet needs. Such strategies may consist of conservation of existing supplies, reuse, new reservoir and groundwater development, conveyance facilities to move available or newly developed water supplies to areas of need, and others. In some cases, however, there may be no feasible strategies that could be implemented to meet a specific need.

Water is projected to be used for power plant cooling purposes in 14 of the state's planning regions. Annual demand is projected to increase from 733,179 acre-feet in the current decade to 1.6 million acre-feet in 2060. The greatest demands are found in the Brazos G Region (roughly corresponding to the Brazos River basin), Region H (Houston and surrounding counties), and the Lower Colorado Region.

In 13 of these 14 regions, projected existing supplies will be insufficient to meet demands under drought of record conditions. Water needs would be expected to increase from 63 thousand acre-feet per year in the current decade up to 615 thousand acre-feet per year in 2060. As much as 38% of the state's capacity for this form of electric generation could be threatened by water shortages under serious drought conditions.

These needs could be met through the implementation of recommended water management strategies. These strategies are estimated to have a total capital cost of \$2.3 billion between now and 2060.



Regional Water Planning Areas

2012 State Water Plan Demands and Needs for Steam-Electric Power Generation									
				2010	2020	2030	2040	2050	2060
REGION A									
	Water Demand (acre-feet)			25,139	26,996	29,116	30,907	33,163	37,415
	Water Needs (excess of supply)			75	99	117	128	136	154
REGION B									
	Water Demand (acre-feet)			13,360	17,360	21,360	21,360	21,360	21,360
	Water Needs (excess of supply)			-	3,800	8,529	9,258	9,987	10,715
REGION C									
	Water Demand (acre-feet)			40,813	64,625	98,088	107,394	116,058	126,428
	Water Needs (excess of supply)			-	13,217	29,696	34,835	40,997	51,323
REGION D									
	Water Demand (acre-feet)			89,038	96,492	112,809	132,703	156,951	186,509
	Water Needs (excess of supply)			8,639	12,366	15,437	27,396	50,829	77,469
REGION E									
	Water Demand (acre-feet)			3,131	6,937	8,111	9,541	11,284	13,410
	Water Needs (excess of supply)			-	3,806	4,980	6,410	8,153	10,279
REGION F									
	Water Demand (acre-feet)			18,138	19,995	22,380	25,324	28,954	33,418
	Water Needs (excess of supply)			7,095	9,840	11,380	13,294	16,347	20,573
	Water Needs Not met by Strategies			1,219	3,969	5,512	7,441	10,608	14,935
REGION G									
	Water Demand (acre-feet)			168,193	221,696	254,803	271,271	300,859	319,884
	Water Needs (excess of supply)			38,542	71,483	82,891	93,599	117,616	132,872
	Water Needs Not met by Strategies			36,086	-	-	-	-	-
REGION H									
	Water Demand (acre-feet)			91,231	112,334	131,332	154,491	182,720	217,132
	Water Needs (excess of supply)			3,203	12,609	18,058	24,726	34,976	55,972
REGION I									
	Water Demand (acre-feet)			44,985	80,989	94,515	111,006	131,108	155,611
	Water Needs (excess of supply)			3,588	25,922	33,615	43,053	62,778	85,212
	Water Needs Not met by Strategies			2,588	-	-	-	-	-
REGION K									
	Water Demand (acre-feet)			146,167	201,353	210,713	258,126	263,715	270,732
	Water Needs (excess of supply)			193	53,005	53,175	76,430	81,930	89,042
REGION L									
	Water Demand (acre-feet)			46,560	104,781	110,537	116,068	121,601	128,340
	Water Needs (excess of supply)			2,054	50,962	50,991	51,021	51,657	52,018
REGION M									
	Water Demand (acre-feet)			13,463	16,864	19,716	23,192	27,430	32,598
	Water Needs (excess of supply)			-	1,980	4,374	7,291	11,214	16,382

REGION N								
	Water Demand (acre-feet)		7,316	14,312	16,733	19,683	23,280	27,664
	Water Needs (excess of supply)		-	1,982	4,755	7,459	10,187	13,183
REGION O								
	Water Demand (acre-feet)		25,645	25,821	30,188	35,511	42,000	49,910
	Water Needs (excess of supply)							
TOTAL								
	Water Demand (acre-feet)		733,179	1,010,555	1,160,401	1,316,577	1,460,483	1,620,411
	Water Needs (excess of supply)		63,389	261,071	317,998	394,900	496,807	615,194
	Water Needs Not met by Strategies		39,893	3,969	5,512	7,441	10,608	14,935