PRODUCTION AND SALES REPORT FOR 2011-2012

10/8/2012

Kinneloa Irrigation District

Prepared by Melvin L. Matthews, General Manager

Production and Sales Report for 2011-2012

SUMMARY OF PRODUCTION SOURCES, CUSTOMER SALES, RAINFALL, POWER COSTS AND LONG TERM STORAGE FOR THE WATERMASTER YEAR OF 2011-2012, JULY THROUGH JUNE

Production

The Kinneloa Irrigation District (KID) produced 967 acre-feet from our wells and tunnels during this period as shown in Figure 1. This total includes 238 acre-feet of water delivered to the City of Pasadena. The net amount of 729 acre-feet was produced for our retail customers which was 10% more than the 663 acre-feet produced for retail customers last year. Figure 1 includes data for all production sources from 1994-1995 through 2011-2012 as well as for surface water and ground water which is diverted from our system for which we receive a spreading credit. Figure 2 shows total production from the KID wells and tunnels. This year our wells produced approximately 74% of the water and the tunnels produced 26% of the water. Tunnel production level is dependent on rainfall in the current and previous years and has ranged from a high of 530 acre-feet in 2005-2006 to a low of 152 acre-feet in 2002-2003. The production for 2011-2012 was 249 acre-feet which is below the 18-year average of 285 acre feet. Figure 3 is a pie chart showing the percentage of total production by source.

Sales

Total sales to retail customers were 655 acre-feet as shown in Figure 4. The average monthly sales of water during the year from 1994 to 2011is shown in Figure 5. Peak sales are usually in the July through October period and minimum sales usually occur in December through March period. Weather conditions in a particular year can cause these periods to shift and can drastically affect the total sales for the year. This year was a relatively dry and hot year as compared to last year. Figure 6 shows an analysis of the distribution of monthly water usage per customer for the month of June in three typical years. The data shows that in 2012 18% of our customers used 10 units or less per month, 46% of our customers used between 11 and 50 units per month and 36% used more than 50 units per month. Each unit is equivalent to one hundred cubic feet or 748 gallons.

The KID has continued to promote measures to increase efficiency in water use over the past six years and the data indicates a total reduction of 20% over the five-year period for sales to our retail customers. This year was the first time in that six-year period that sales increased as compared to the previous year. We attribute the change in the trend to the weather conditions rather than customer usage patterns. Proposed rate increases in future years may provide an additional incentive for customers to further reduce water usage.

The difference between the water produced and water sold (which is the water loss for the system) was 74 acre-feet or 10.2% as shown in Figure 1. The loss is attributed to system leaks, main flushing for water quality purposes, fire flow tests, unmetered water used for construction and other purposes, normal operational procedures at KID facilities and water meter inaccuracies. A water loss of 10% is considered to be excellent by industry standards.

Rainfall

Rainfall for 2011-2012 was 11.8 inches as shown in Figures 1 and 7 as compared to 31.3 inches in the previous year and the 18-year average of 24 inches. The substantial reduction in rainfall this year has contributed to the decline in tunnel production and a sustained drought will increase the need for the KID to purchase supplemental water to meet customer demand unless there is an increase in water-use efficiency to offset the loss of production.

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Power Cost

Figure 8 shows the power cost per acre-foot of total production for 2011-2012 and for the previous 13 years. Since most of our power consumption is for pumping, it is also an approximate indirect measure of production efficiency. However, it should be noted that this indicator does not take into account the percentage of well production vs. tunnel production nor does it take into account rising electricity rates. In years of high tunnel production, less water is pumped from our wells saving us considerable power cost.

Electricity rates have increased approximately 6-7% a year for the last ten years. However, we have been able to mitigate most of the increases by participating in various time-of-use and interruptible power programs that restrict our use of power to non-peak hours in exchange for lower rates. We have also installed higher-efficiency motors when equipment has been replaced. The net effect has been to stabilize our power costs over the past five years. The 2011-2012 cost was $97 per acre-foot of total production as compared to $105 per acre-foot for the previous year. Even though we will continue to take advantage of cost-reduction programs, it will be more difficult to maintain our current cost especially considering the mandated switch to more "green" power in the years ahead.

Long Term Storage

The Raymond Basin Management Board established a long term storage program to cover situations such as prolonged drought or unusually high demand that might lead to over pumping of our water rights in the current year. This program is the equivalent of a savings account for surplus water. The KID activated our long term storage account for the first time in 2004-2005 by adding 327 acre-feet of surplus water as shown in Figure 1. The following year we added additional storage to bring the account to 848 acre-feet. Some of this storage was used in 2006-2007 to support our water sales to the City of Pasadena so the remaining storage at the end of 2006-2007 was 729 acre-feet. The net addition to our long term storage in 2007-2008 was 69 acre-feet and the total was 798 acre-feet at the end of that year. Due to declining water levels in the Raymond Basin, the Board voted to suspend the program and freeze the total at the end of the 2008-2009 year.

The result of the additions and withdrawals, as shown in Figure 9, is that we still have 790 acre-feet in the account that can be used to offset any shortages in the future but we cannot add any surplus to the account. Our current plan is to use this water only if we are unable to lease pumping rights at a reasonable cost or to acquire additional pumping rights from another Raymond Basin member. This additional water in storage is especially important to the KID now that the Raymond Basin Management Board has also required a reduction in pumping of 6% each year for five years starting in 2009-2010 for a total cumulative reduction of 30% from our adjudicated pumping rights in 2013-2014. The Board will monitor basin pumping levels to see if stabilization can be achieved without the injection of imported water or other recovery efforts.

Production Issues

Figure 1 shows that the Wilcox Well was used for only 9.5 acre-feet of water in 2011-2012 as compared with 272.4 acre-feet in the peak year of 1999-2000. The declining level in the Raymond Basin aquifer at this facility has caused a 50% reduction in the available operational flow rate from this well because the output needs to be restricted to prevent entrainment of air and damage to the pump. This operational necessity is inefficient from a power standpoint and relegates this well to emergency and supplemental supply uses only. This also means that we must shift the lost production to the K-3 Well which accounted for 73% of our total annual production in 2011-2012. A continued decline in basin levels could also affect the K-3 Well in future years and our continued dependence on a single production source presents a challenge to achieving a reasonable level of production reliability.

As mentioned above, the court-ordered adjudication of pumping rights in the Raymond Basin no longer matches the natural replenishment rate and the Raymond Basin Management Board has not yet developed an external replenishment source. The Raymond Basin Management Board and the water agencies that pump from the basin are aware of the difficulties we will all face if the current trend continues. We are collectively addressing the problem through engineering studies and consideration of additional water resources and conservation measures that could be used in-lieu of pumping from the basin in order to stabilize the level. All water agencies in the area except for the KID purchase imported supplemental water from the Metropolitan Water District through its wholesale distributor, Foothill Municipal Water District. The KID has not needed to purchase imported water except for occasional emergency or facility maintenance purposes because our local tunnel water, adjudicated pumping rights and available leases have been sufficient to meet customer demand. However, our independence from imported water is not assured unless we are able to continue to lease unused pumping rights from other water agencies in the area. We used these leases to help establish our long term storage account and will continue to do so in future years to supplement our local supply. The condition of the basin as well as a possible reduction in the availability of imported water is presenting a serious challenge to the KID and other water agencies in the area.

We will continue our conservation efforts as part of the long term solution which will include other water resources such as imported replenishment water when available and the increased use of recycled water for landscape irrigation. The KID will continue to work with the Foothill Municipal Water District to develop a long term plan for supplemental water in case our ground water pumping rights are permanently reduced and leased pumping rights are no longer available.

Respectfully submitted to the Board of Directors,

Melvin L. Matthews

Melvin L. Matthews
General Manager

Figure 1
Data for Watermaster Year (July through June)

Production in Acre-Feet Source	1994-1995	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012
Wilcox Well	93.2	119.6	170.2	165.4	209.6	272.4	216.9	203.7	213.7	148.9	60.2	37.2	70.2	5.6	5.6	7.3	7.1	9.5
K-3 Well	285.3	238.3	263.8	330.9	567.3	562.5	425.2	514.3	457.1	551.0	319.3	423.5	860.1	543.9	611.2	610.6	580.2	708.0
Total Well	378.5	357.9	434.0	496.3	776.9	834.9	642.1	718.0	670.8	699.9	379.5	460.7	930.3	549.5	616.7	617.8	587.3	717.5
Holly Tunnel	71.3	217.0	177.2	146.6	143.1	132.6	111.1	86.0	57.6	59.8	125.6	171.9	131.0	107.6	89.2	80.1	98.8	94.3
House Tunnel	37.8	43.9	35.4	33.1	41.1	31.5	26.2	21.5	16.7	12.7	12.6	44.9	26.5	20.6	12.8	13.8	14.5	15.7
Eucalyptus Tunnel	56.5	64.9	62.6	58.7	62.4	54.0	44.3	38.6	29.5	41.5	50.0	50.4	44.6	43.2	39.1	37.4	39.8	40.5
Delores Tunnel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	126.5	223.3	83.6	63.7	40.2	44.8	98.5	57.7
Far Mesa Tunnel	73.6	69.1	67.7	68.3	78.9	74.1	56.7	52.0	47.7	45.6	68.2	39.6	13.1	48.6	42.9	38.9	41.2	41.2
Total Tunnel	239.2	394.9	342.9	306.7	325.5	292.2	238.3	198.1	151.5	162.0	382.9	530.1	298.8	283.7	224.2	215.0	292.8	249.3
Total Production	**617.7**	**752.8**	**776.9**	**803.0**	**1102.4**	**1127.1**	**880.4**	**916.1**	**822.3**	**861.9**	**762.5**	**990.8**	**1229.0**	**833.2**	**840.9**	**832.9**	**880.0**	**966.8**
Deliveries from Pasadena	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.5	0.0	0.0	18.8	0.0	0.0	1.5	0.0	0.0	1.2
Deliveries to Pasadena	0.0	0.0	0.0	-139.5	-325.8	-222.9	-64.1	-87.3	-61.7	0.0	0.0	-160.6	-321.8	0.0	-42.4	-105.1	-217.4	-239.0
Net Import/Export	0.0	0.0	0.0	-139.5	-325.8	-222.9	-64.1	-87.3	-30.2	0.0	0.0	-141.8	-321.8	0.0	-40.9	-105.1	-217.4	-237.8
Total Production for Retail Custo	**617.7**	**752.8**	**776.9**	**663.5**	**776.6**	**904.2**	**816.3**	**828.8**	**792.1**	**861.9**	**762.5**	**849.0**	**907.2**	**833.2**	**800.0**	**727.8**	**662.7**	**729.1**

Diversions in Acre-Feet Source	1994-1995	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012
Holly Tunnel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
House Tunnel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	0.0	25.6	0.0	0.0	0.0	4.2	0.0	0.0	0.0
Kinneloa Canyon	140.7	50.2	54.3	56.8	48.6	52.1	33.4	28.9	12.2	9.5	31.2	40.4	45.4	27.2	21.4	21.2	37.8	37.8
Eucalyptus Tunnel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Brown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.9	16.7	0.0	0.0	0.0	0.0	0.0	0.0
Eaton Wash Sub Total	**140.7**	**50.2**	**54.3**	**56.8**	**48.6**	**52.1**	**33.4**	**28.9**	**38.0**	**9.5**	**81.7**	**57.2**	**45.4**	**27.2**	**25.6**	**21.2**	**37.8**	**37.8**
Delores Tunnel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41.4	31.1	21.5	44.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Tunnel	35.8	37.2	39.2	39.2	38.9	37.7	38.1	38.0	36.0	35.3	46.8	44.7	37.4	36.0	34.3	33.8	39.8	38.4
Far Mesa Tunnel	0.0	0.0	0.0	0.0	0.0	0.0	4.6	0.0	0.0	0.0	0.0	30.2	42.5	0.0	0.0	0.0	0.0	0.0
Glen Wash	429.3	396.3	262.5	321.3	359.1	174.8	156.7	52.7	26.7	28.1	933.9	161.4	74.0	56.7	59.0	45.1	188.0	88.7
Tent Tunnel	5.1	5.5	5.4	5.3	5.8	3.4	2.4	2.3	2.1	2.0	3.2	3.5	2.9	2.5	2.1	2.0	1.8	2.8
Pasadena Glen Sub Total	470.2	439.0	307.1	365.8	403.8	215.9	201.8	134.4	95.9	86.9	1028.5	239.8	156.7	95.2	95.4	80.8	229.6	129.9
Sierra Madre Villa DB Outflow	-256.7	-32.8	-7.2	-33.7	0.0	0.0	0.0	0.0	0.0	0.0	-459.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Pasadena Glen Sub Total	**213.5**	**406.2**	**299.9**	**332.1**	**403.8**	**215.9**	**201.8**	**134.4**	**95.9**	**86.9**	**568.8**	**239.8**	**156.7**	**95.2**	**95.4**	**80.8**	**229.6**	**129.9**
Total Diverted	**354.2**	**456.4**	**354.2**	**388.9**	**452.4**	**268.0**	**235.2**	**163.3**	**133.9**	**96.4**	**650.5**	**297.0**	**202.1**	**122.4**	**121.0**	**102.1**	**267.4**	**167.7**

Other Data	1994-1995	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012
Rainfall (inches)	43.61	22.64	22.80	52.29	14.46	18.82	20.04	7.86	24.48	10.12	58.00	21.79	5.81	24.61	16.10	23.63	31.34	11.77
Water Sales (Acre-Feet)	584.3	668.8	679.9	600.4	666.3	782.9	710.9	739.1	717.7	772.6	672.6	785.8	847.3	754.1	729.7	771.0	590.8	654.9
Water Loss (Acre-Feet)	33.4	84.0	97.0	63.1	110.3	121.3	105.4	89.7	74.4	89.3	89.8	63.2	59.9	79.0	70.3	61.9	71.8	74.2
Water Loss (%)	5.4	11.2	12.5	9.5	14.2	13.4	12.9	10.8	9.4	10.4	11.8	7.4	6.6	9.5	8.8	8.5	10.8	10.2
RBMB Long Term Storage Account (Acre-Feet)											326.9	847.9	728.6	797.9	790.0	790.0	790.0	790.0
Power ($)					86,488	97,064	77,780	111,676	111,062	100,410	87,537	82,476	112,924	89,011	92,204	92,700	92,700	93,964
Power ($ per Acre-Foot of Total Production)					78	86	88	122	135	116	115	83	92	107	110	111	105	97

Figure 2
Total Production
July through June

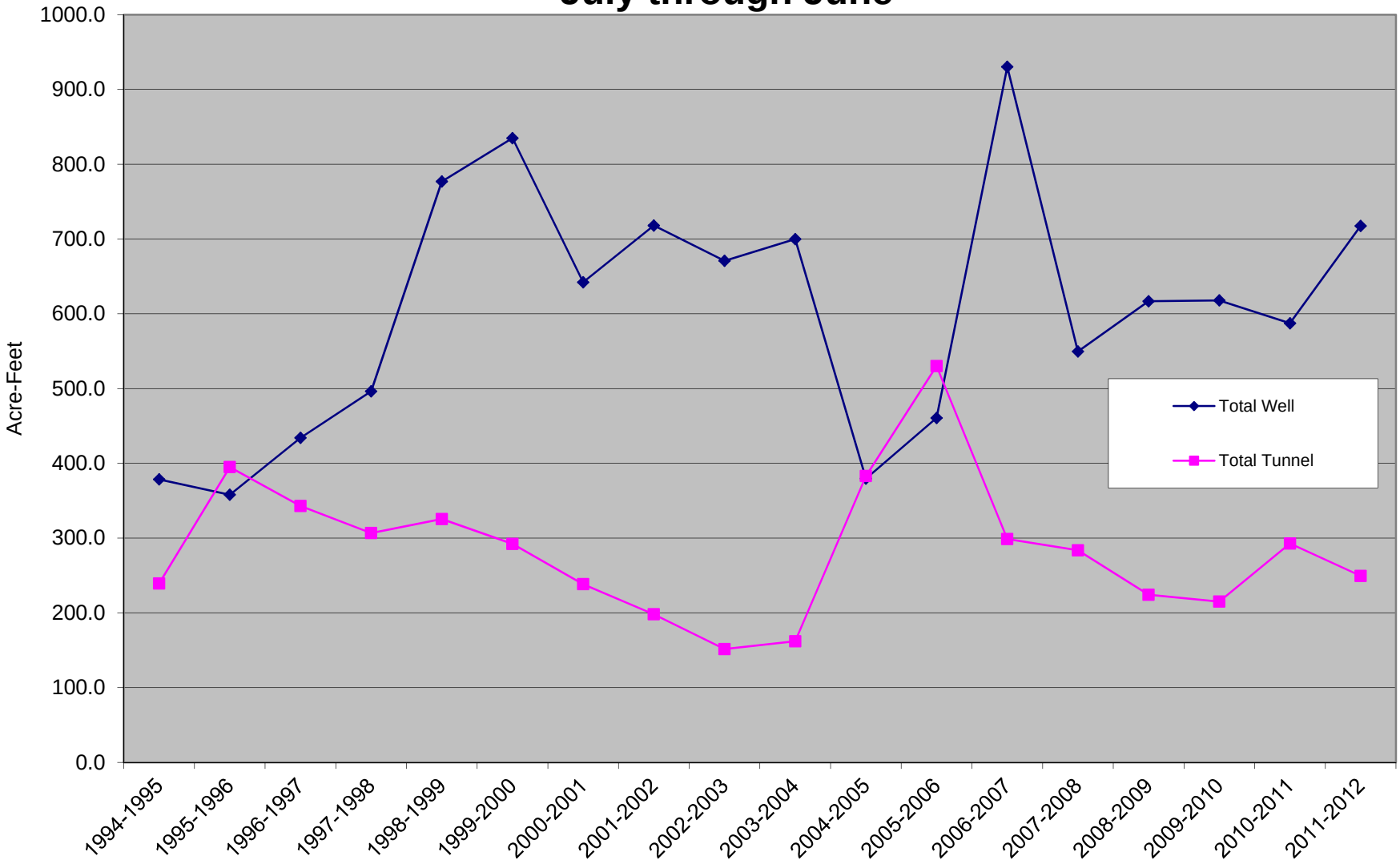


Figure 3
2011-2012 Production Sources
July through June

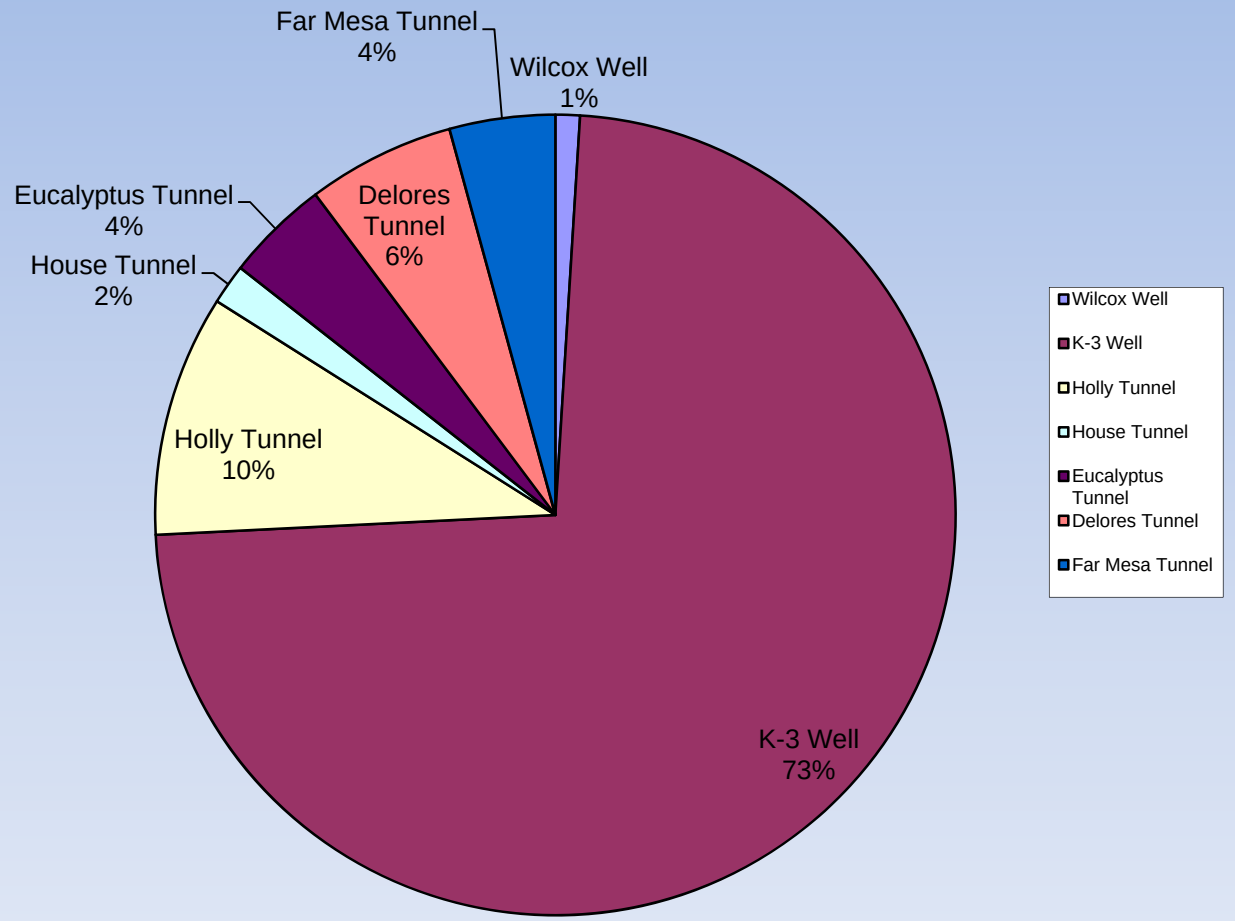
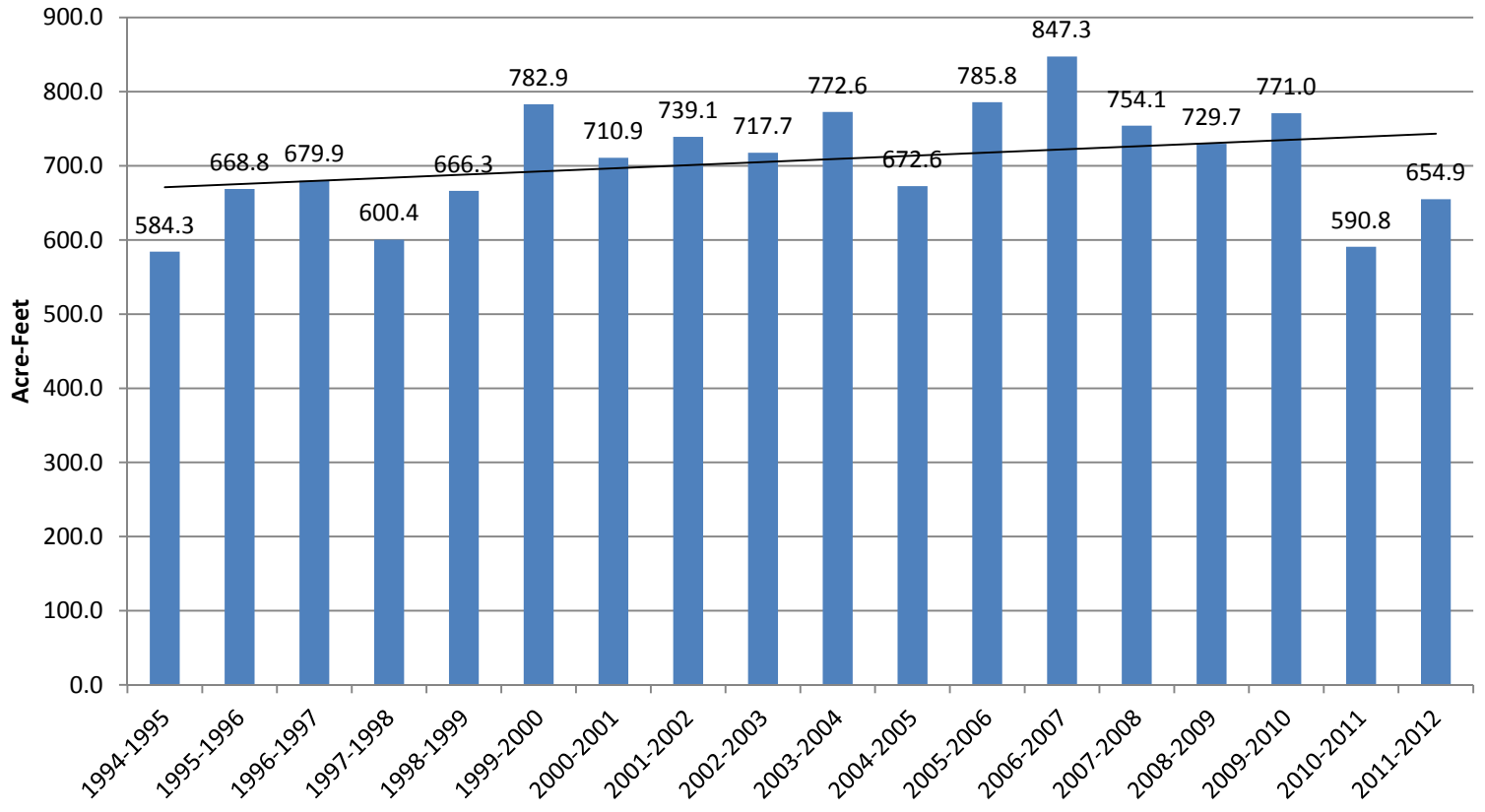


Figure 4
Annual Water Sales
July through June



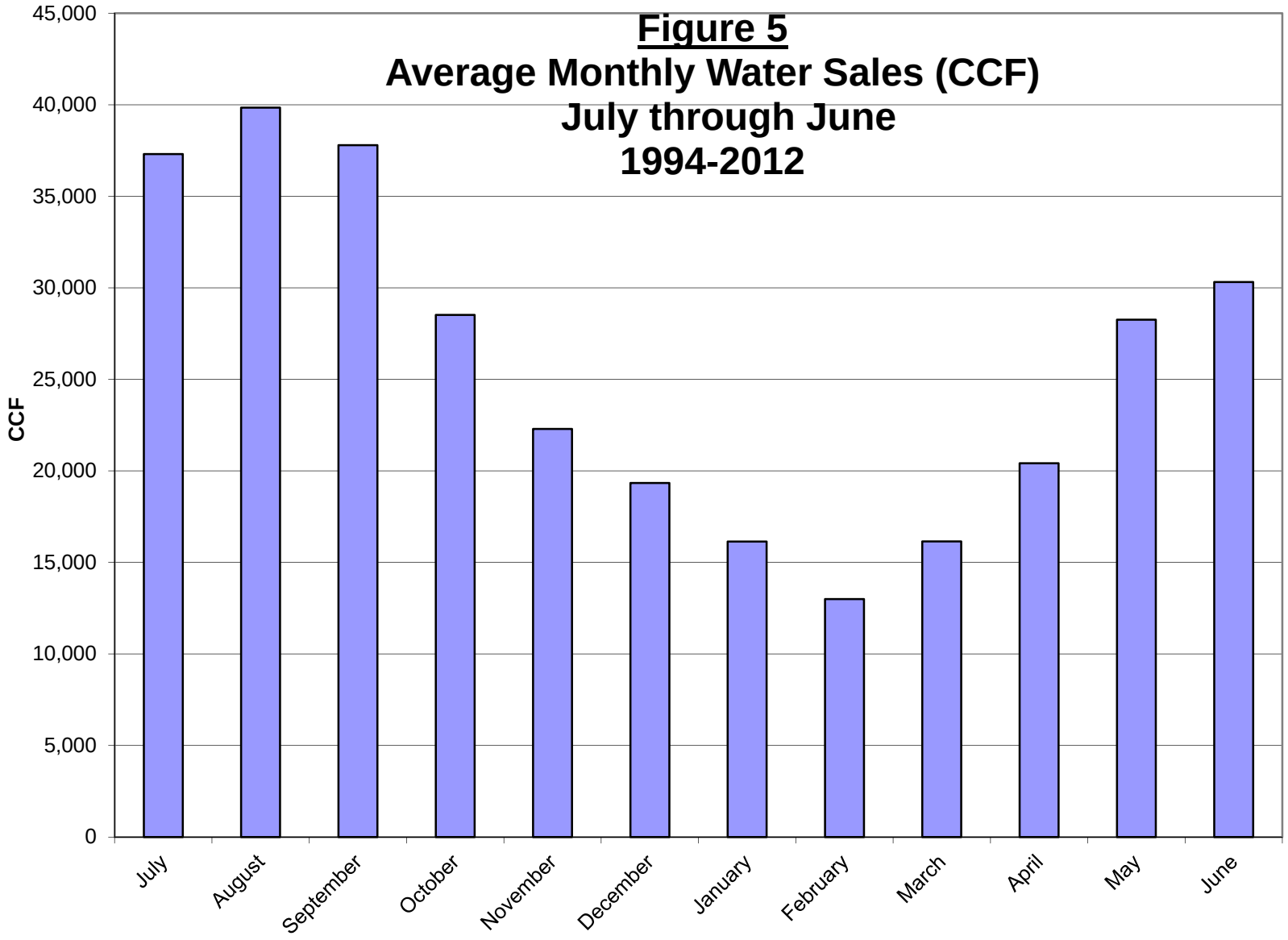


Figure 5
Average Monthly Water Sales (CCF)
July through June
1994-2012
CCF
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
July
August
September
October
November
December
January
February
March
April
May
June

Figure 6
Water Usage per Customer

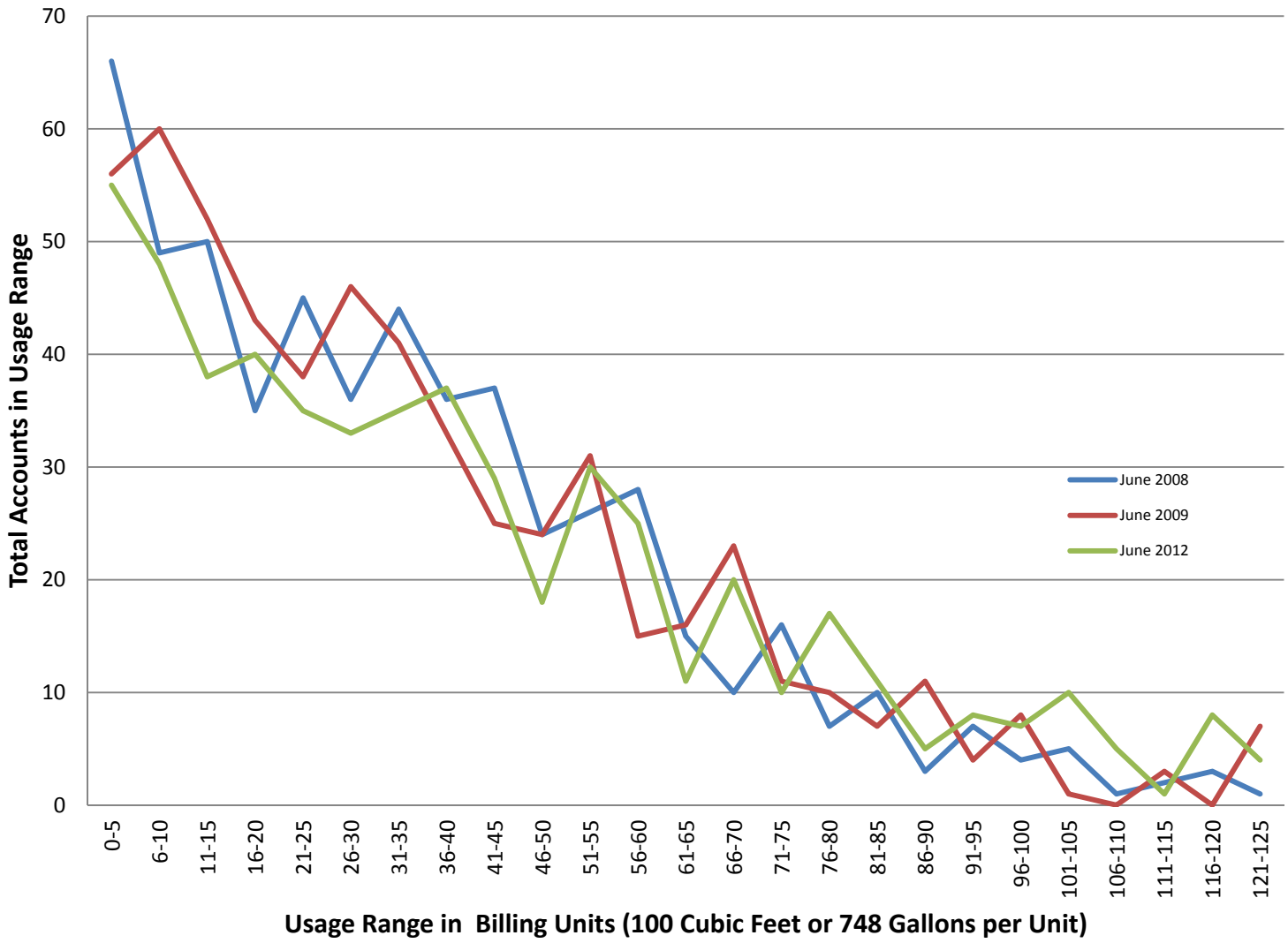


Figure 7
Rainfall
July through June

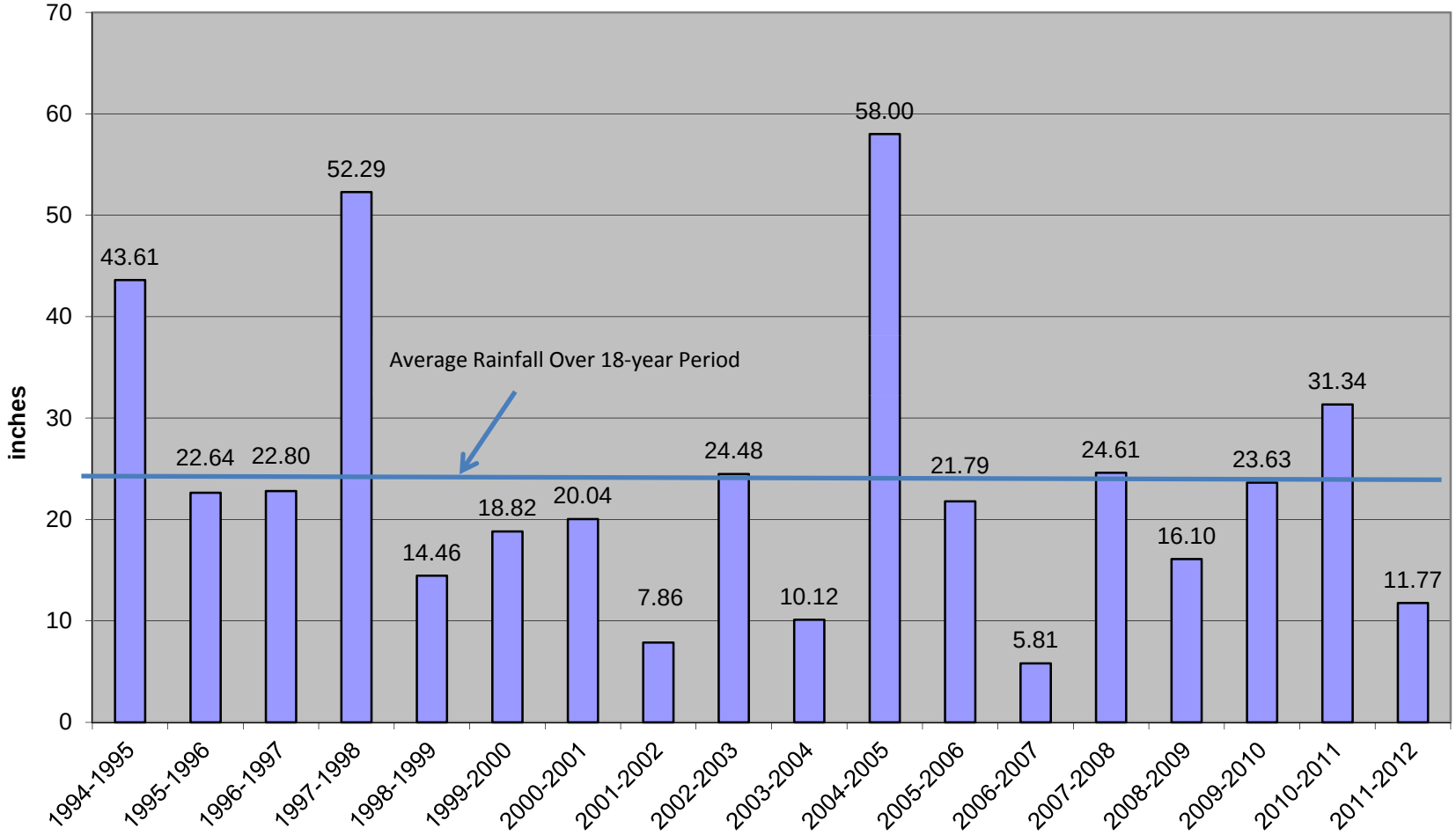


Figure 8
Power Cost in Dollars per Acre-Foot of Total Production

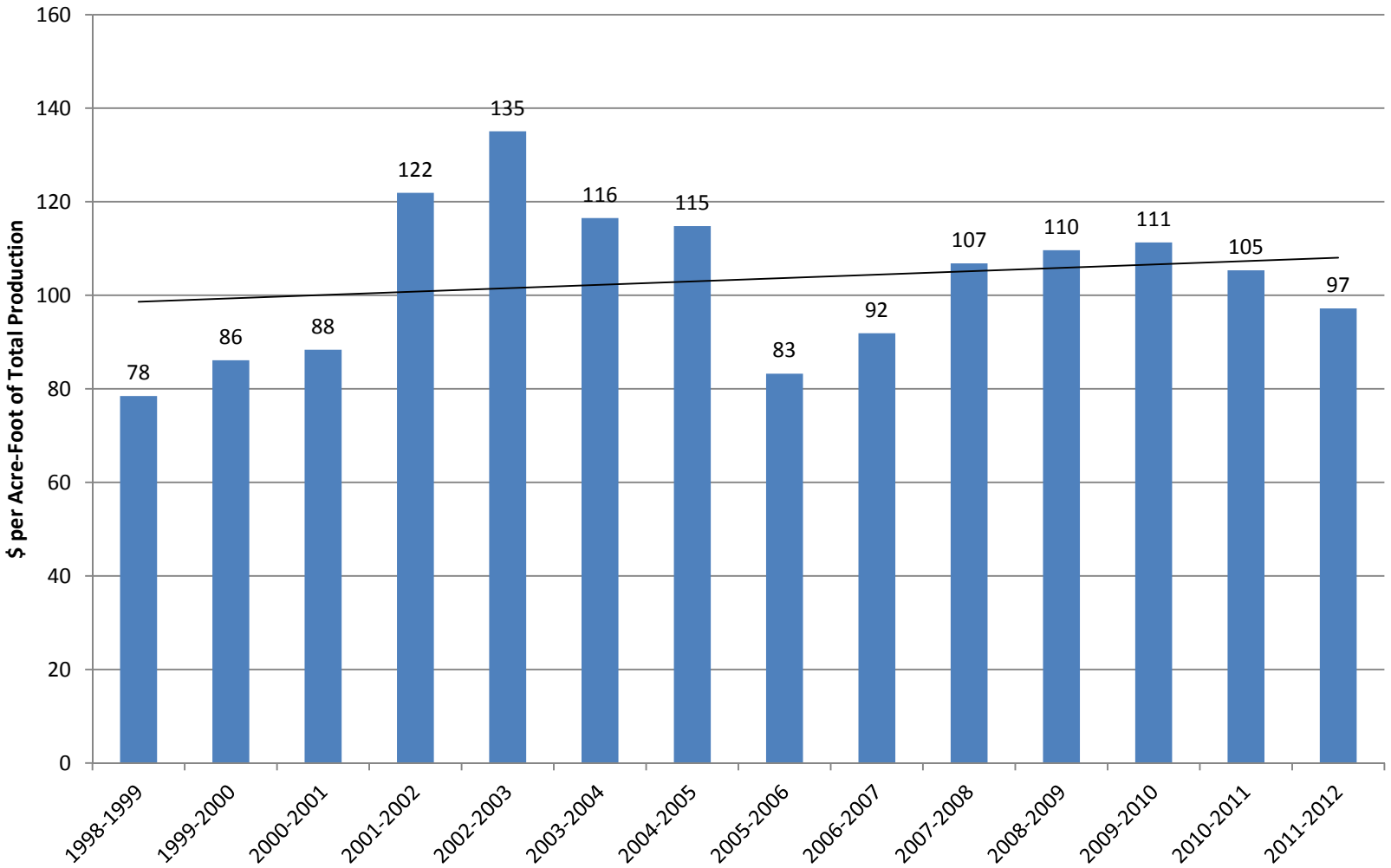


Figure 9
Long Term Storage