



California Energy Commission

Committee Workshop on 2010-2020 Peak Demand and Energy Forecasts

SMUD Service Area Forecast

Hearing Room A

June 26, 2009

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DOCKET

09-IEP-1C

DATE Jun 26 2009

RECD. Jul 03 2009



SMUD Forecast Overview

- 2010 consumption forecast is 3.4% lower growing to over 5% lower by 2018
 - Residential -7% (2010) : -11% (2018)
 - Commercial Buildings -2% (2010) : -4% (2018 low rate)
- 2010 Peak forecast is 5% lower growing over 7% lower
- Per capita consumption and peak relatively constant
- Load factor relatively constant at recent levels



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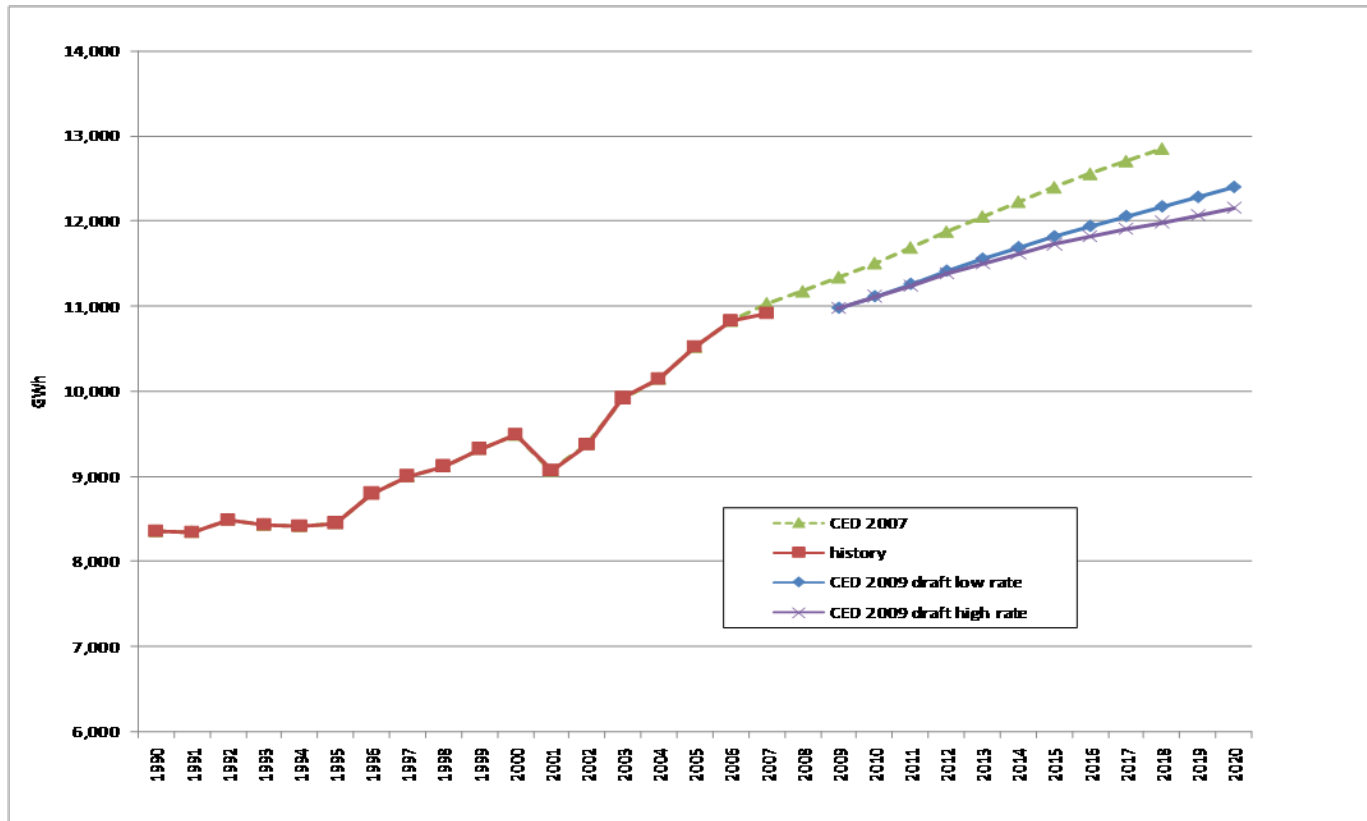
SMUD Service Area Forecast Results

Consumption (GWH)					
	CED 2007	CED 2009 Staff Draft Low Rate	CED 2009 Staff Draft High Rate	Percent Difference Staff Low Rate/CED 2007	Percent Difference Staff High Rate/CED 2007
1990	8,358	8,358	8,358	0.00%	0.00%
2000	9,491	9,491	9,491	0.00%	0.00%
2007	11,034	10,917	10,917	-1.06%	-1.06%
2010	11,506	11,114	11,114	-3.41%	-3.41%
2015	12,397	11,816	11,729	-4.69%	-5.39%
2018	12,851	12,167	11,989	-5.32%	-6.71%
Average Annual Growth Rates					
1990-2000	1.28%	1.28%	1.28%		
2000-2007	2.18%	2.84%	2.84%		
2007-2010	1.41%	0.60%	0.60%		
2010-2018	1.39%	1.14%	0.95%		
Peak (MW)					
	CED 2007	CED 2009 Staff Draft Low Rate	CED 2009 Staff Draft High Rate	Percent Difference Staff Low Rate/CED 2007	Percent Difference Staff High Rate/CED 2007
1990	2,198	2,167	2,167	-1.41%	-1.41%
2000	2,693	2,688	2,688	-0.19%	-0.19%
2007	3,136	3,092	3,092	-1.40%	-1.40%
2010	3,261	3,077	3,077	-5.64%	-5.64%
2015	3,515	3,276	3,258	-6.80%	-7.31%
2018	3,645	3,384	3,345	-7.16%	-8.23%
Average Annual Growth Rates					
1990-2000	2.05%	2.18%	2.18%		
2000-2007	3.09%	2.84%	2.84%		
2007-2010	1.31%	-0.16%	-0.16%		
2010-2018	1.40%	1.20%	1.05%		
Historic values are shaded					



SMUD Electricity Consumption Forecast

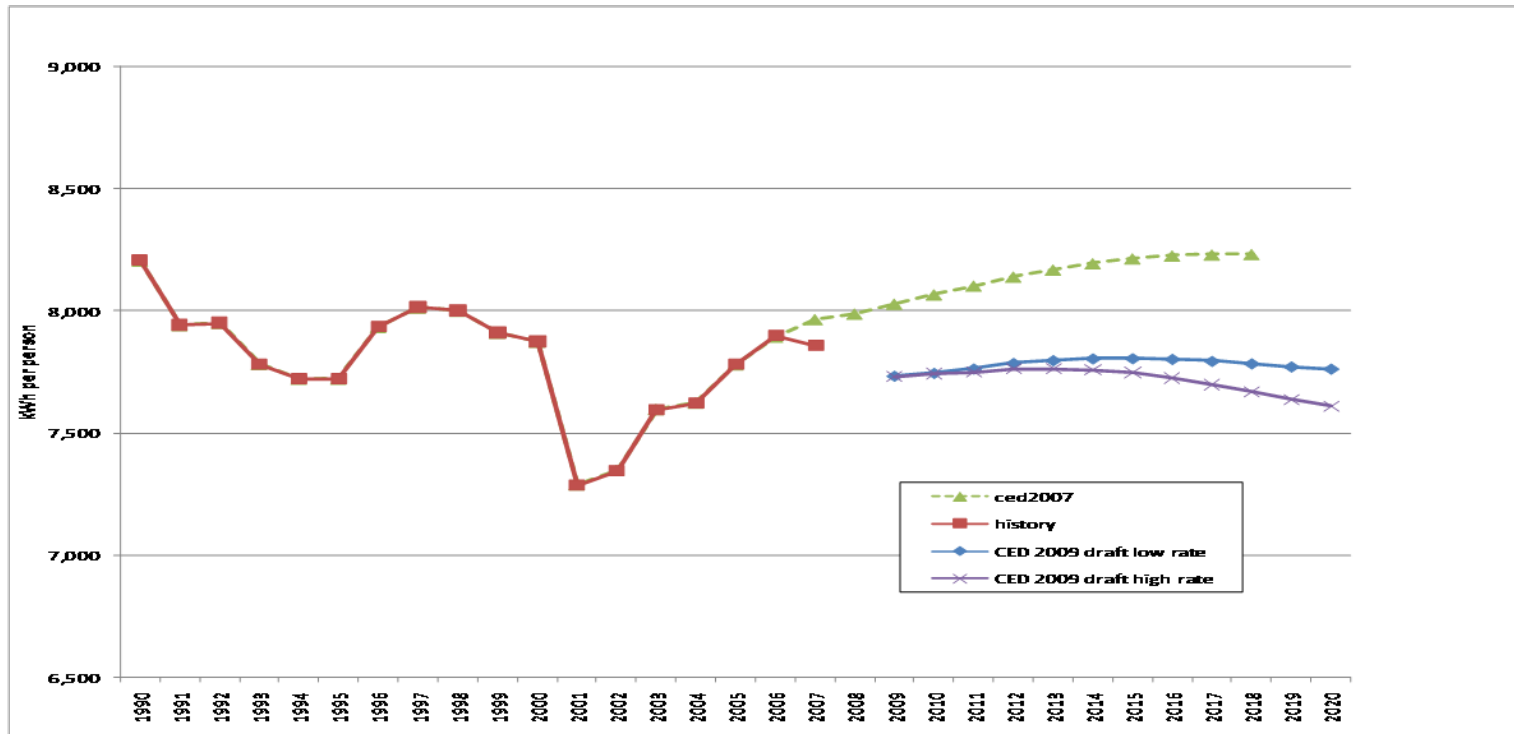
- Lower starting point , similar growth rate





SMUD per Capita Consumption

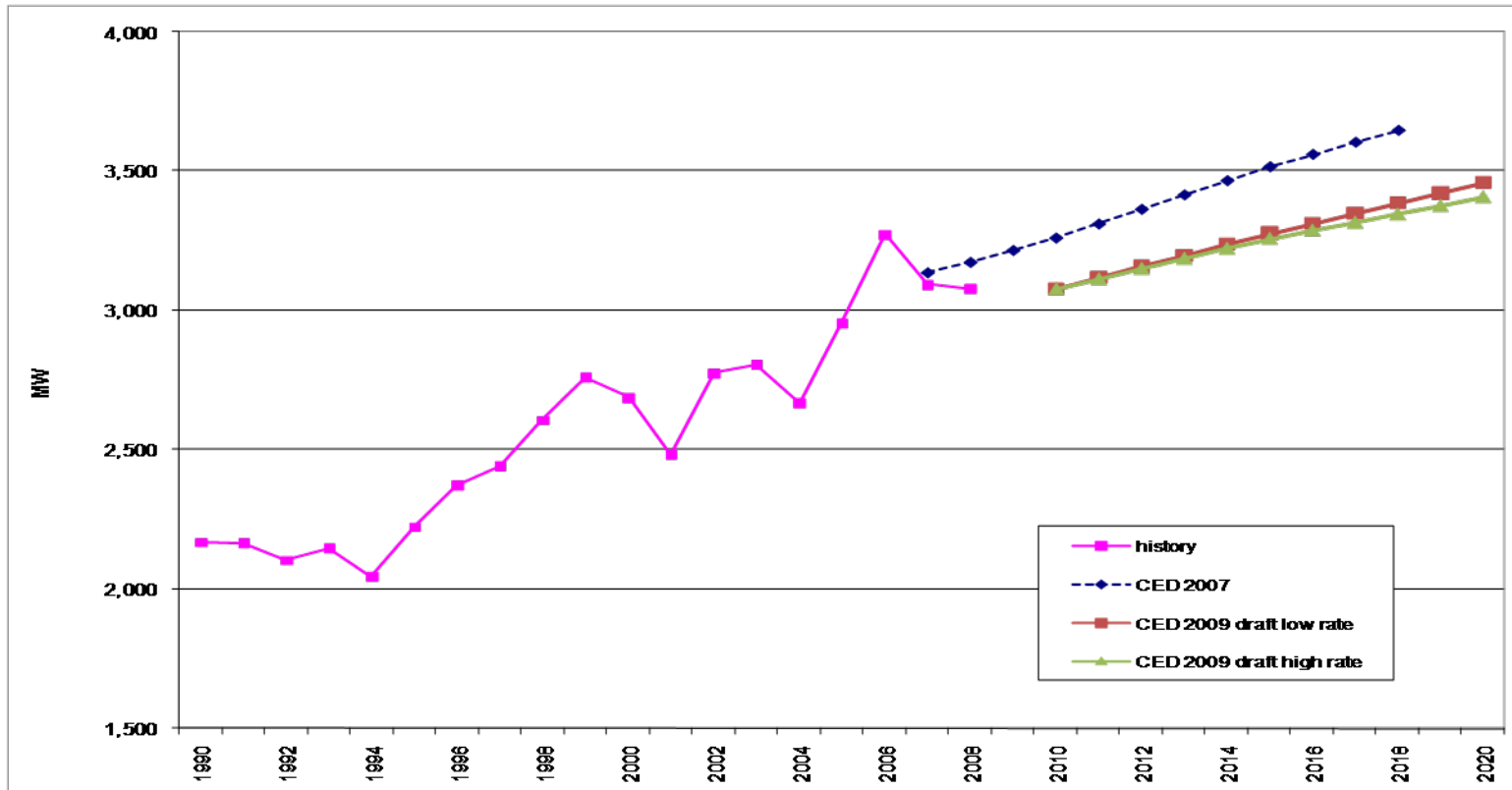
- Constant to declining growth within historic range





SMUD Planning Area Peak Forecast

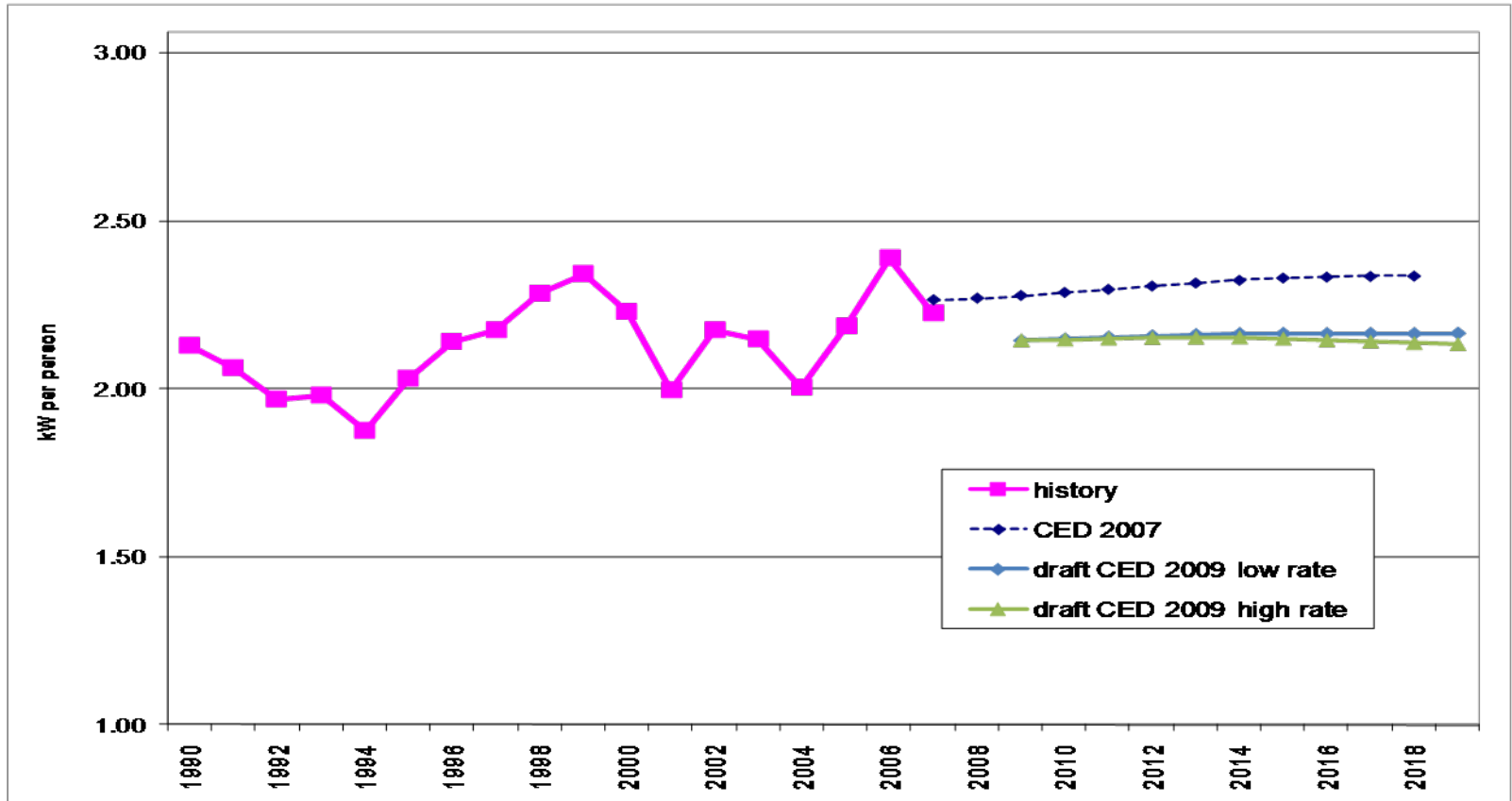
- Lower starting point , similar growth rate





SMUD per Capita Peak

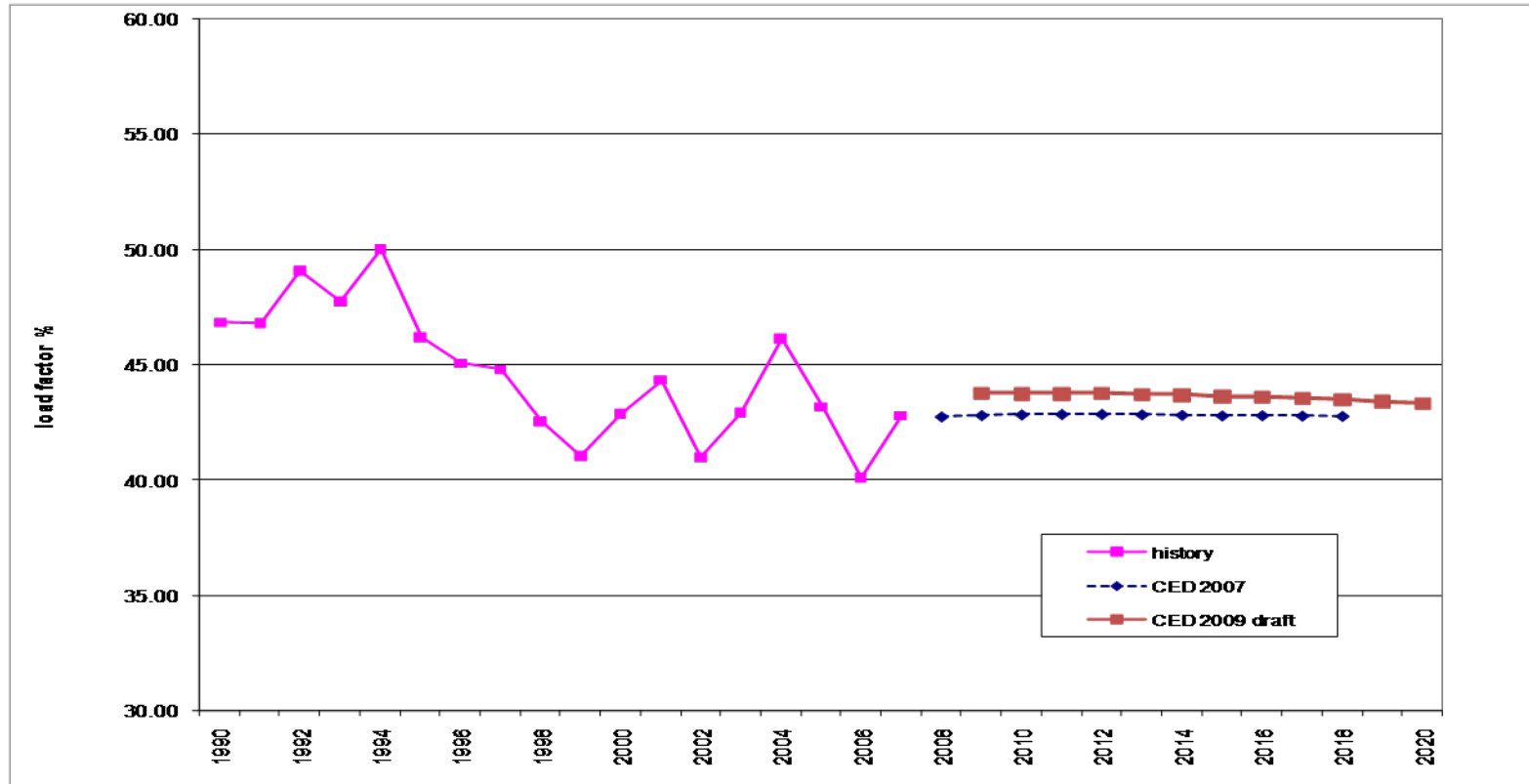
- Constant in historic range





SMUD Planning Area Load Factor

- Constant at slightly improved level





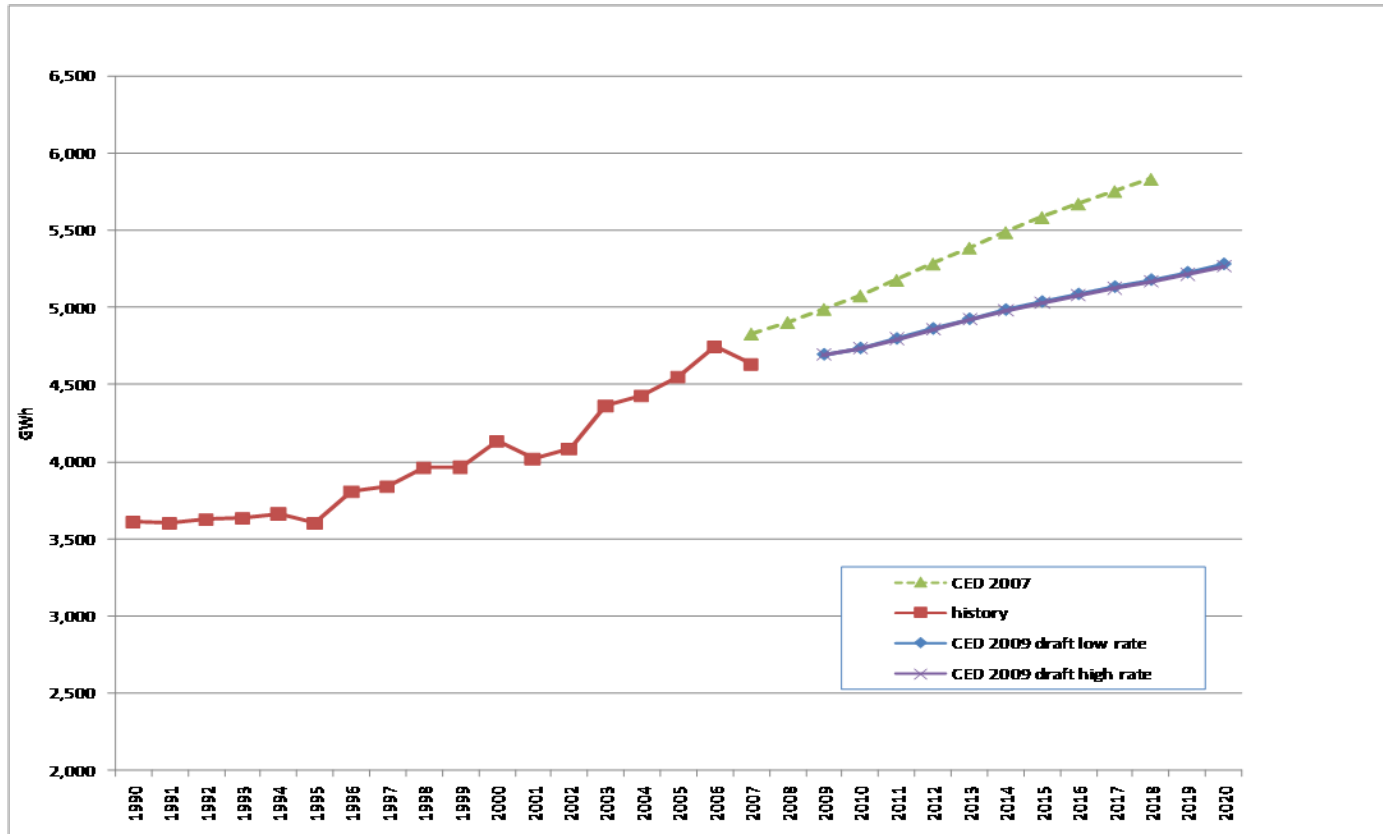
SMUD Residential

- Consumption starts from lower point; grows at lower rate
-7% (2010) : -11% (2018)
- Use per Household flat
- Person per household now constant
- Lower household income -15% (2010) : -23% (2020)
- Committed CFL savings lowers use per household
- Additional lighting savings reductions above 2011 levels will be treated as uncommitted savings
- Peak 7% lower (2010) : 10% lower (2018)



SMUD Residential Consumption

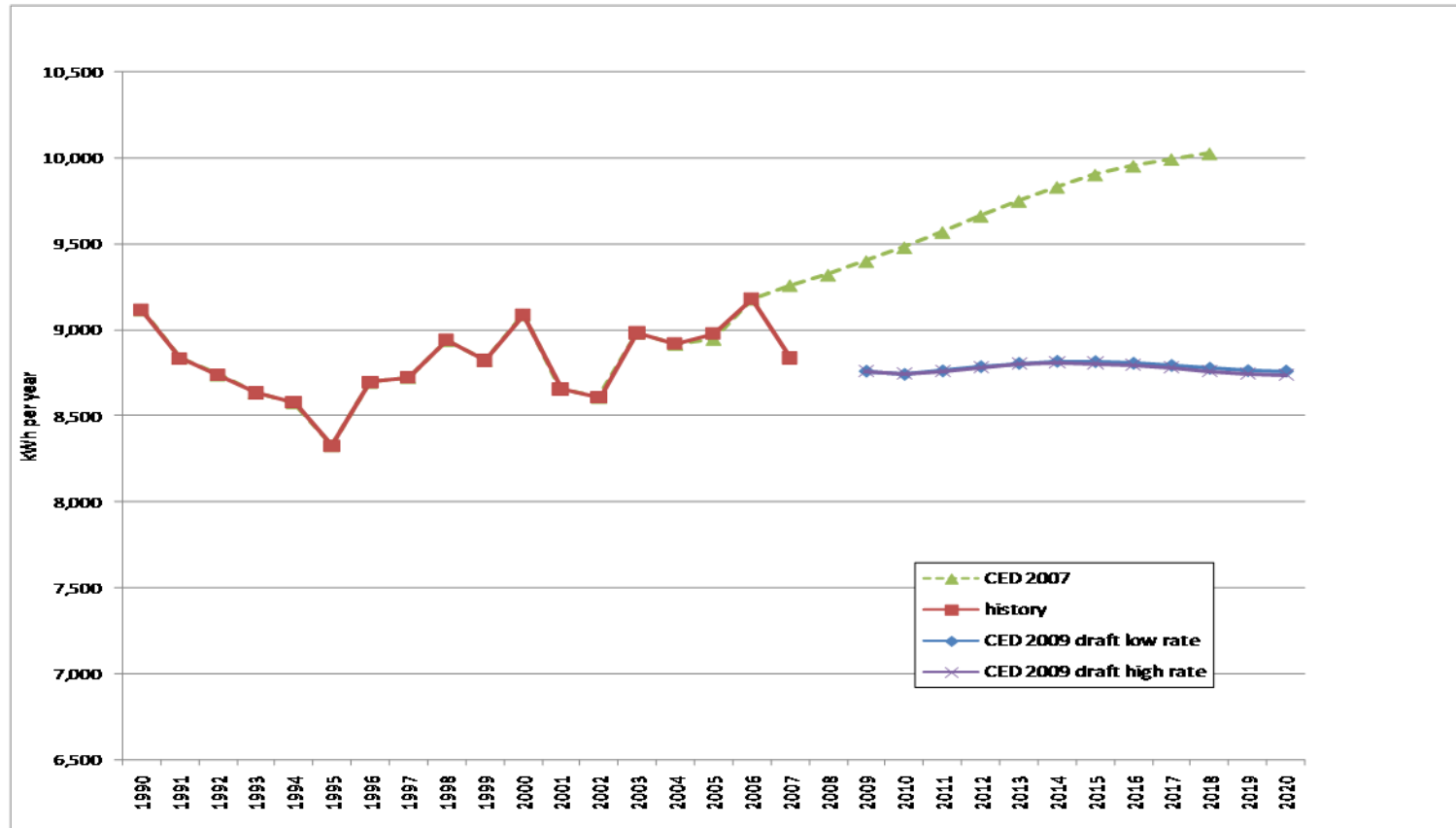
- Lower starting point , lower growth rate





SMUD Residential Use per Household

- Constant at historic levels

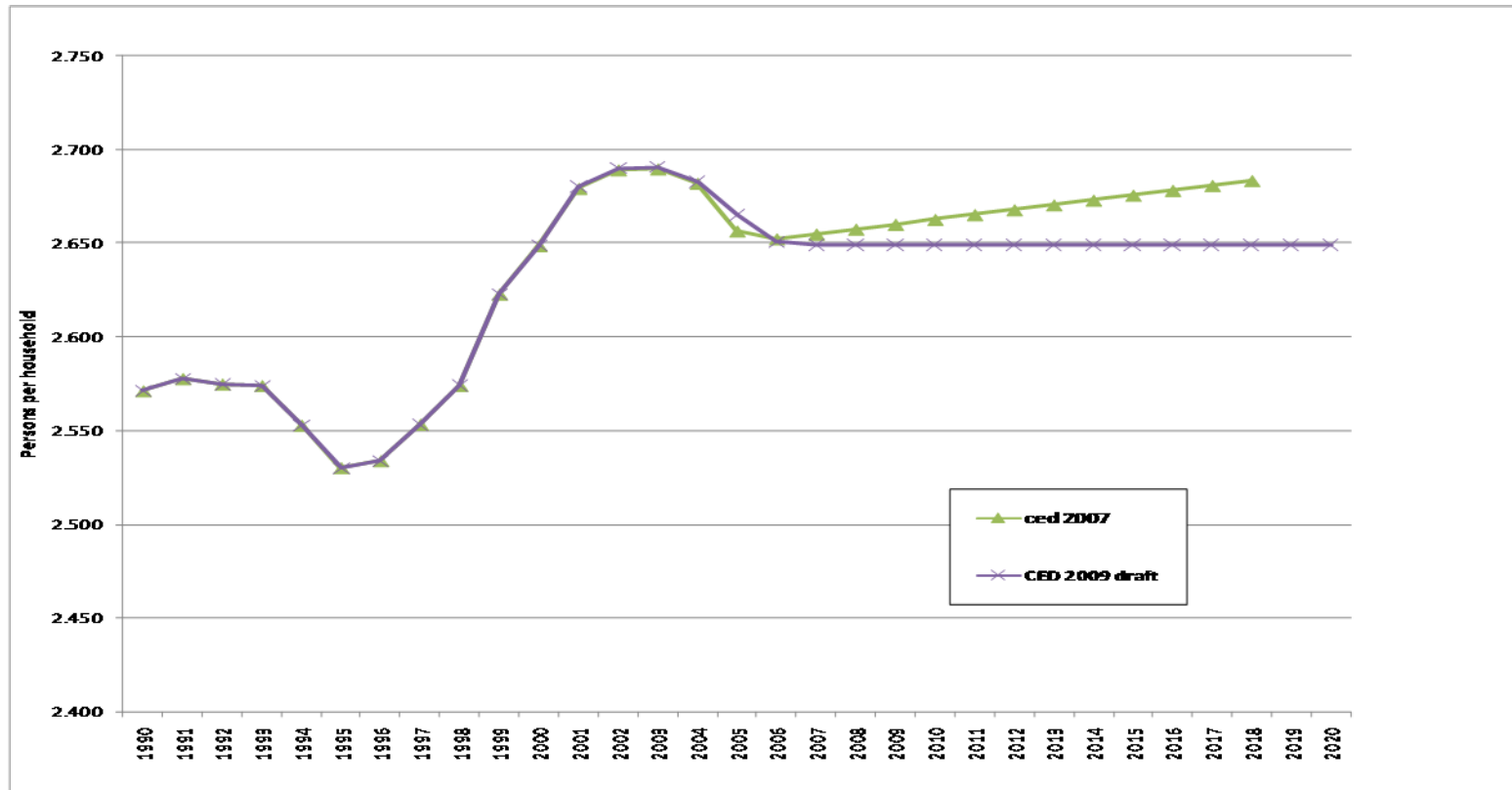




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SMUD Persons per Household

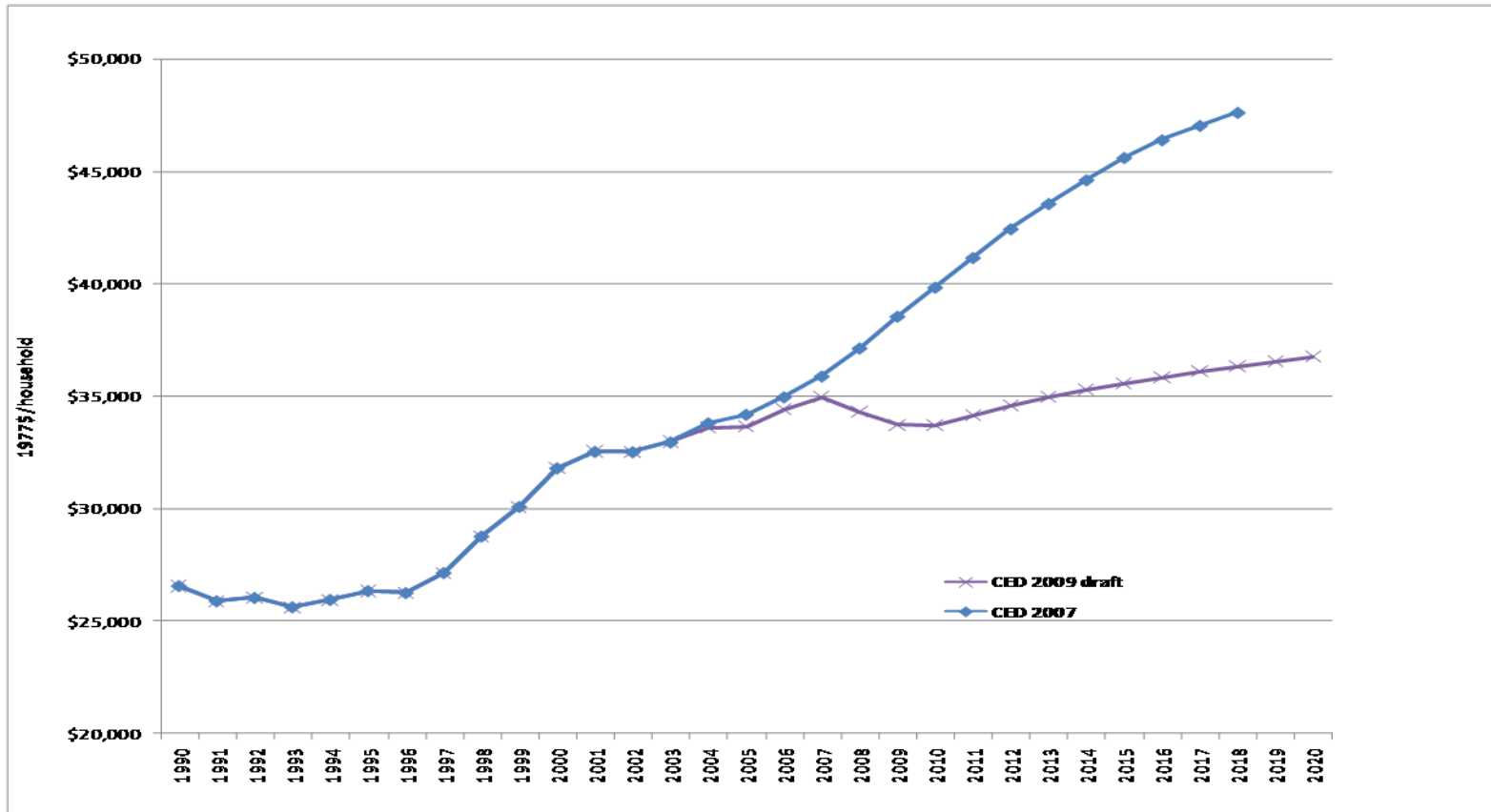
- Now projected to be flat





SMUD Household Income

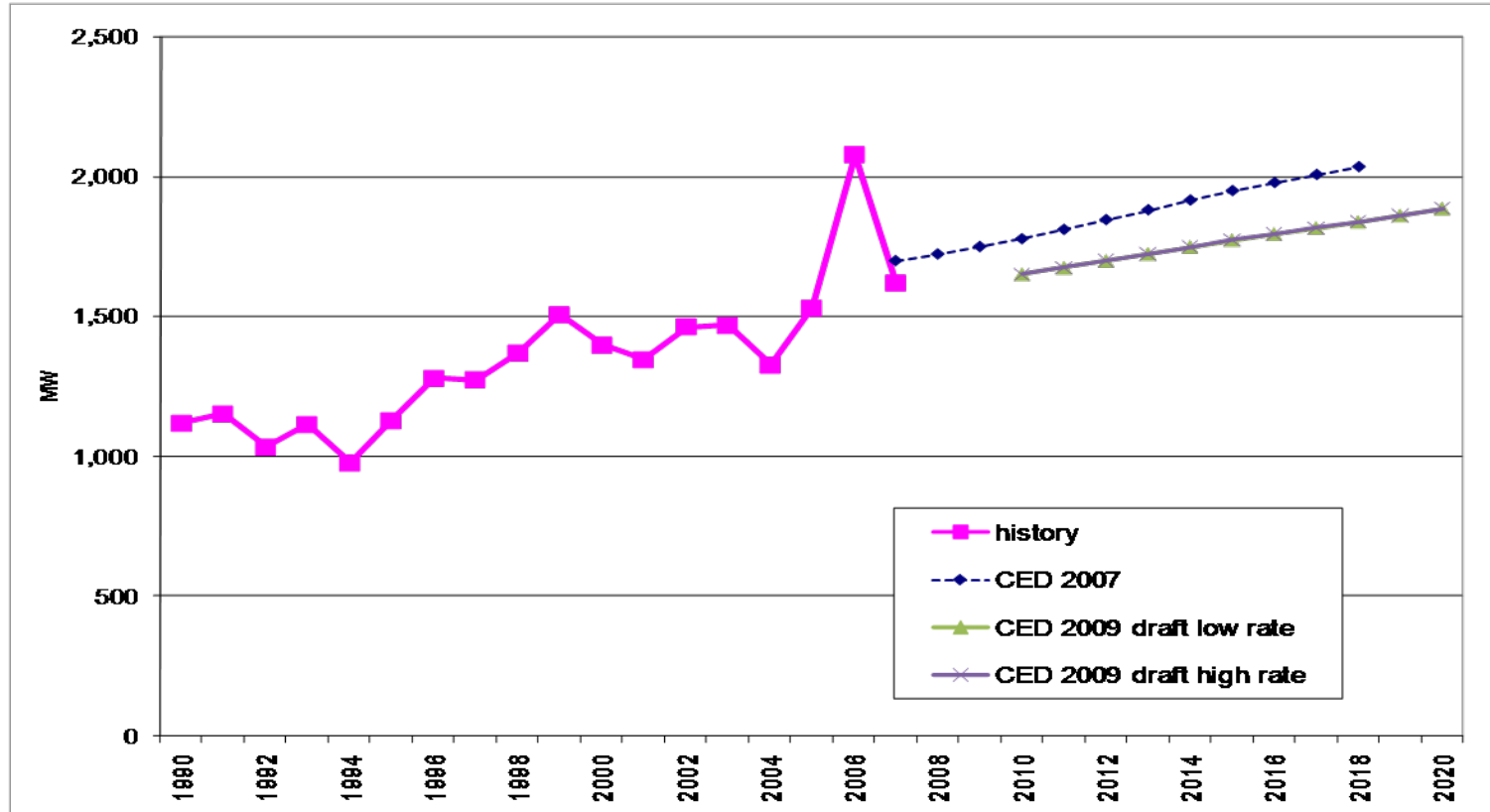
- Difference caused by both income and household size





SMUD Residential Peak

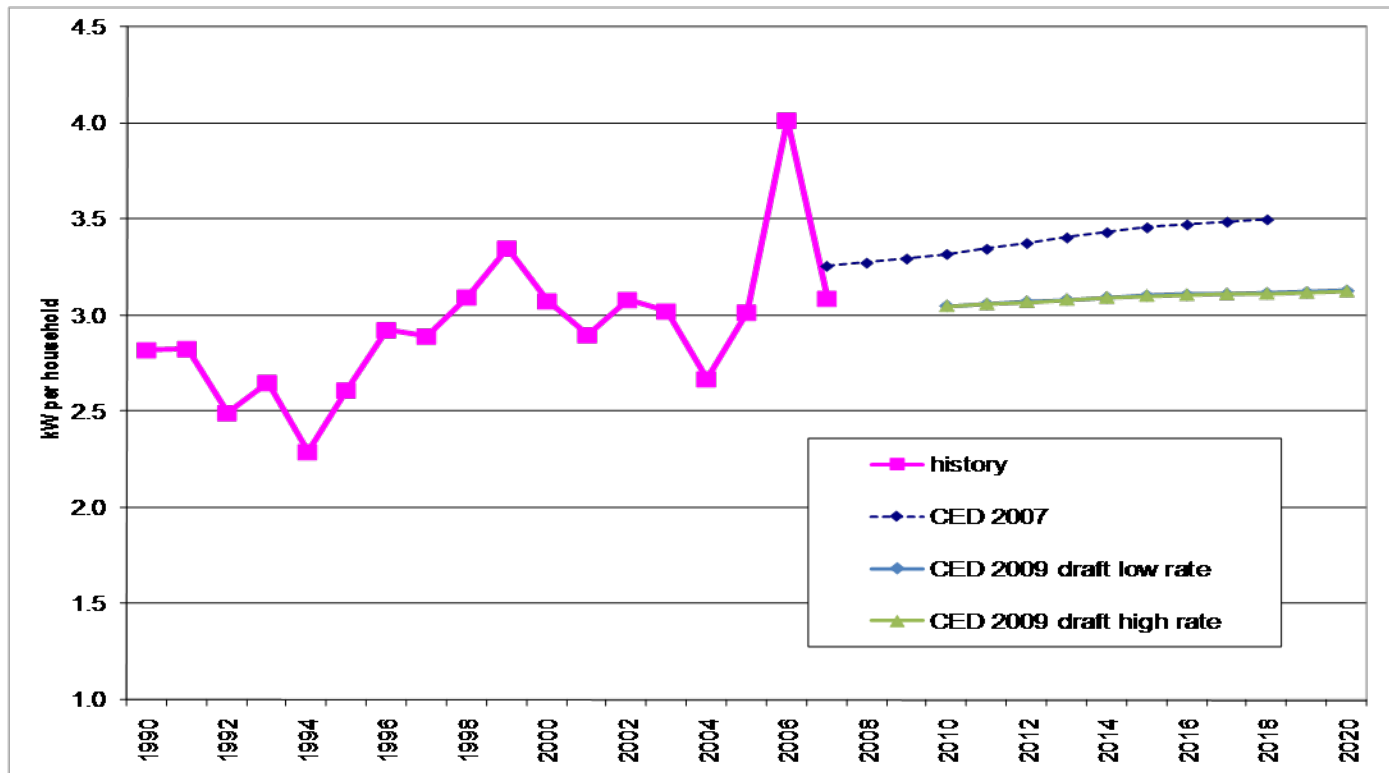
- Lower starting point , similar growth rate





SMUD Residential Peak Use per Household

- Constant at historic range





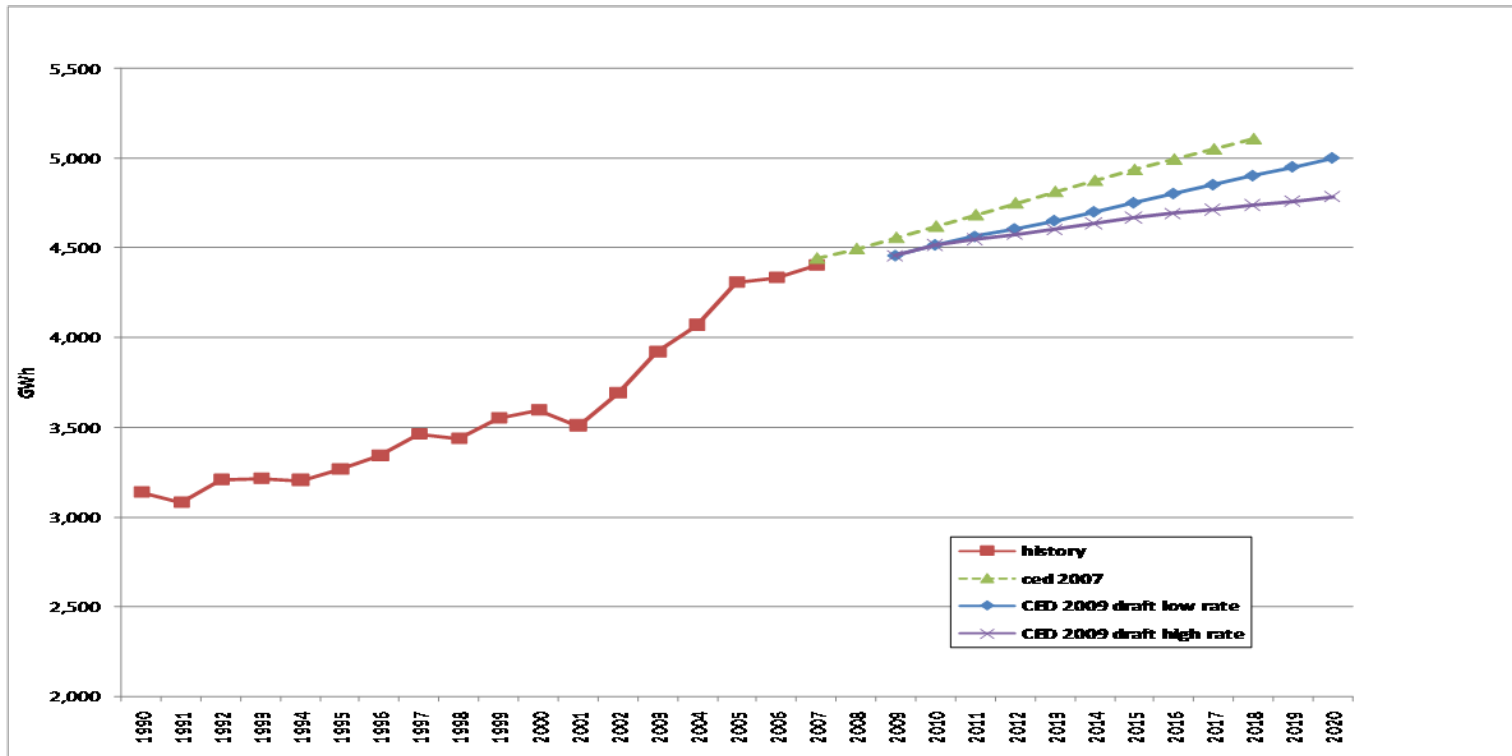
SMUD Commercial Building Sector

- Consumption starts from lower point; grows at lower rate
-2% (2010) : -4% (2018 low rate) -7% (2018 high rate)
- Lower starting point than CED 2007
- Slightly more projected floor space
- Increased compliance (75%) with 2005 lighting standards reduces consumption 4% by end of forecast
- Use per square foot continues decline
- Peak forecast results mirror consumption forecast



SMUD Commercial Building Consumption

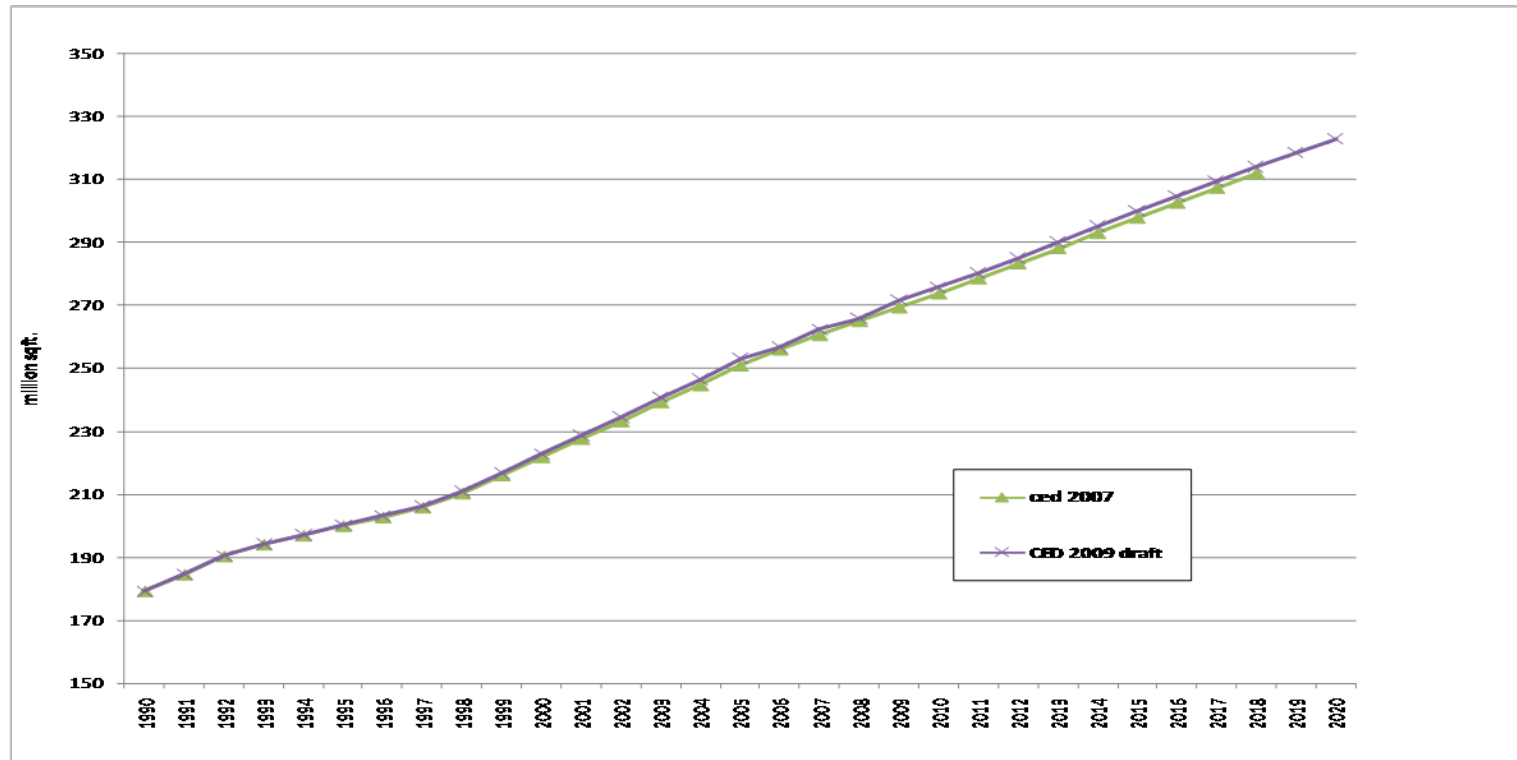
- Lower starting point , similar growth rate





SMUD Commercial Floor Space

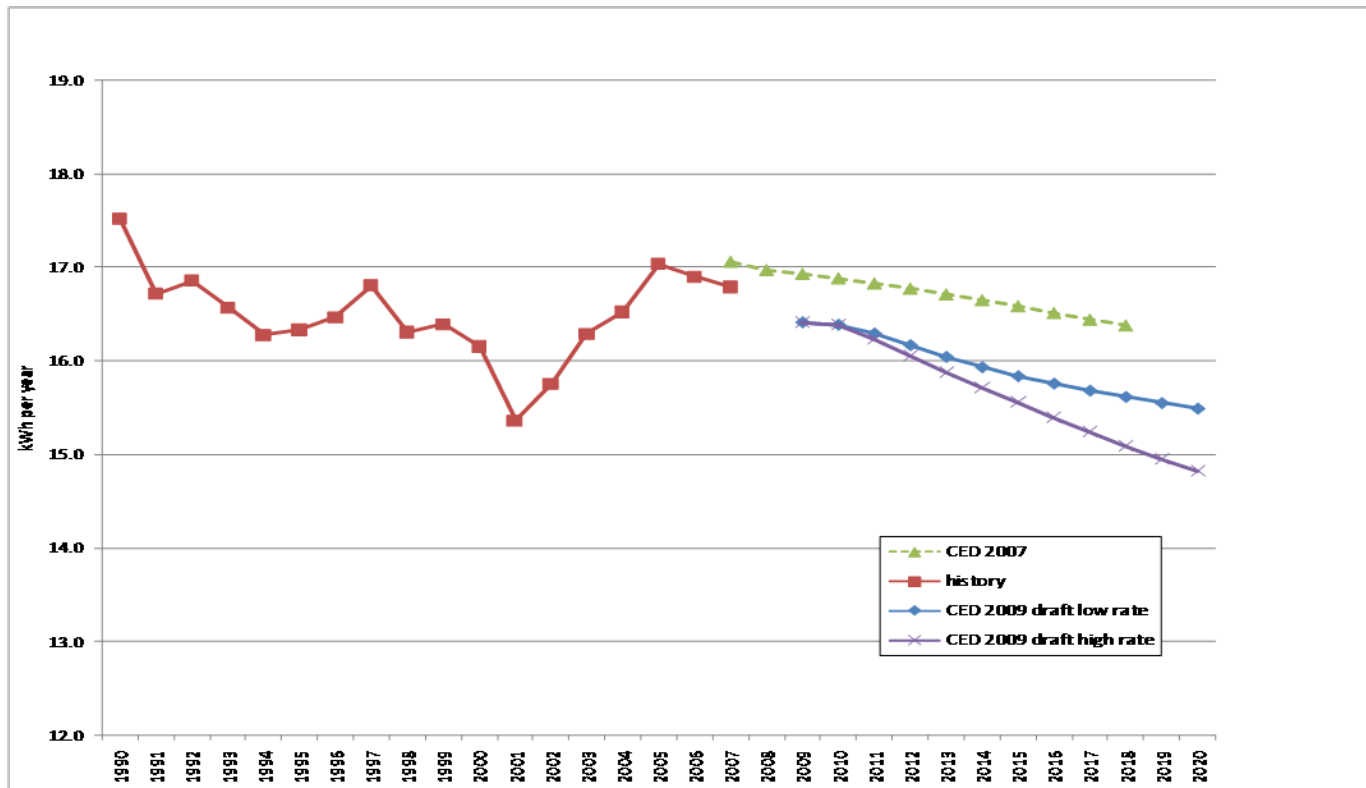
- Slight increase in overall floor space





SMUD Commercial kWh per Square Foot

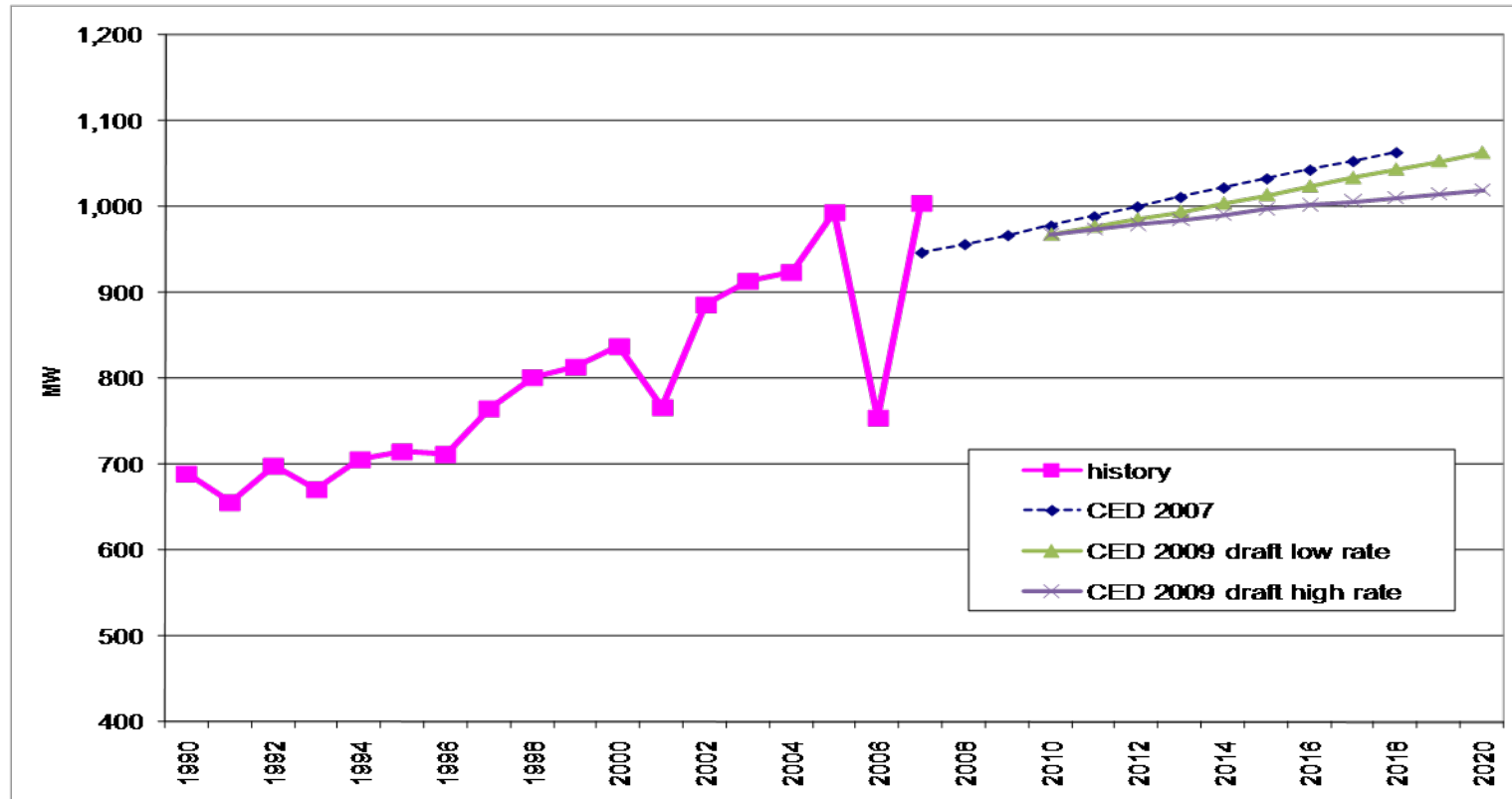
- Lower starting point , similar growth rate (low rate case)





SMUD Commercial Building Sector Peak

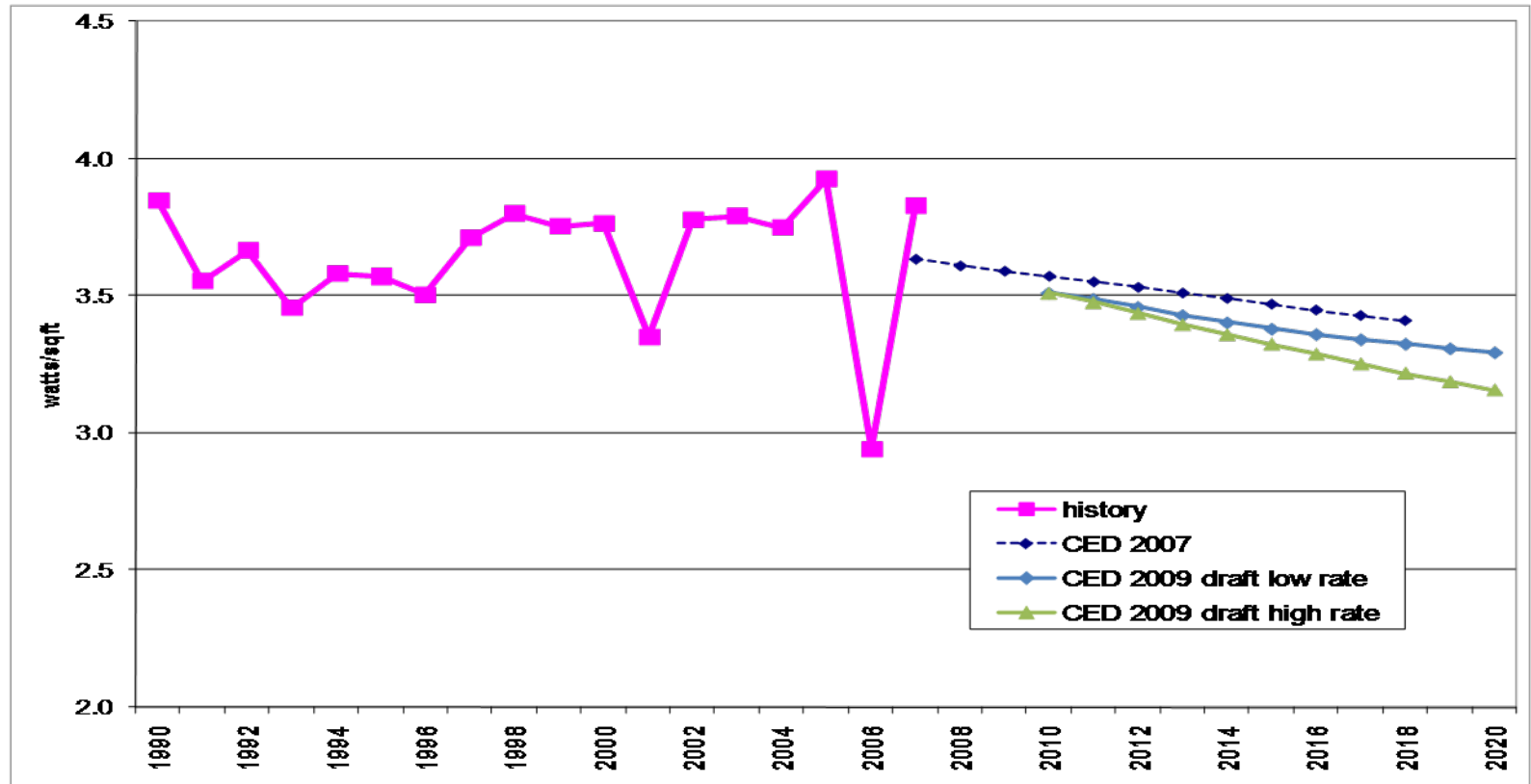
- Lower starting point , similar growth rate





SMUD Commercial Peak per Square Foot

- Lower starting point , similar growth rate





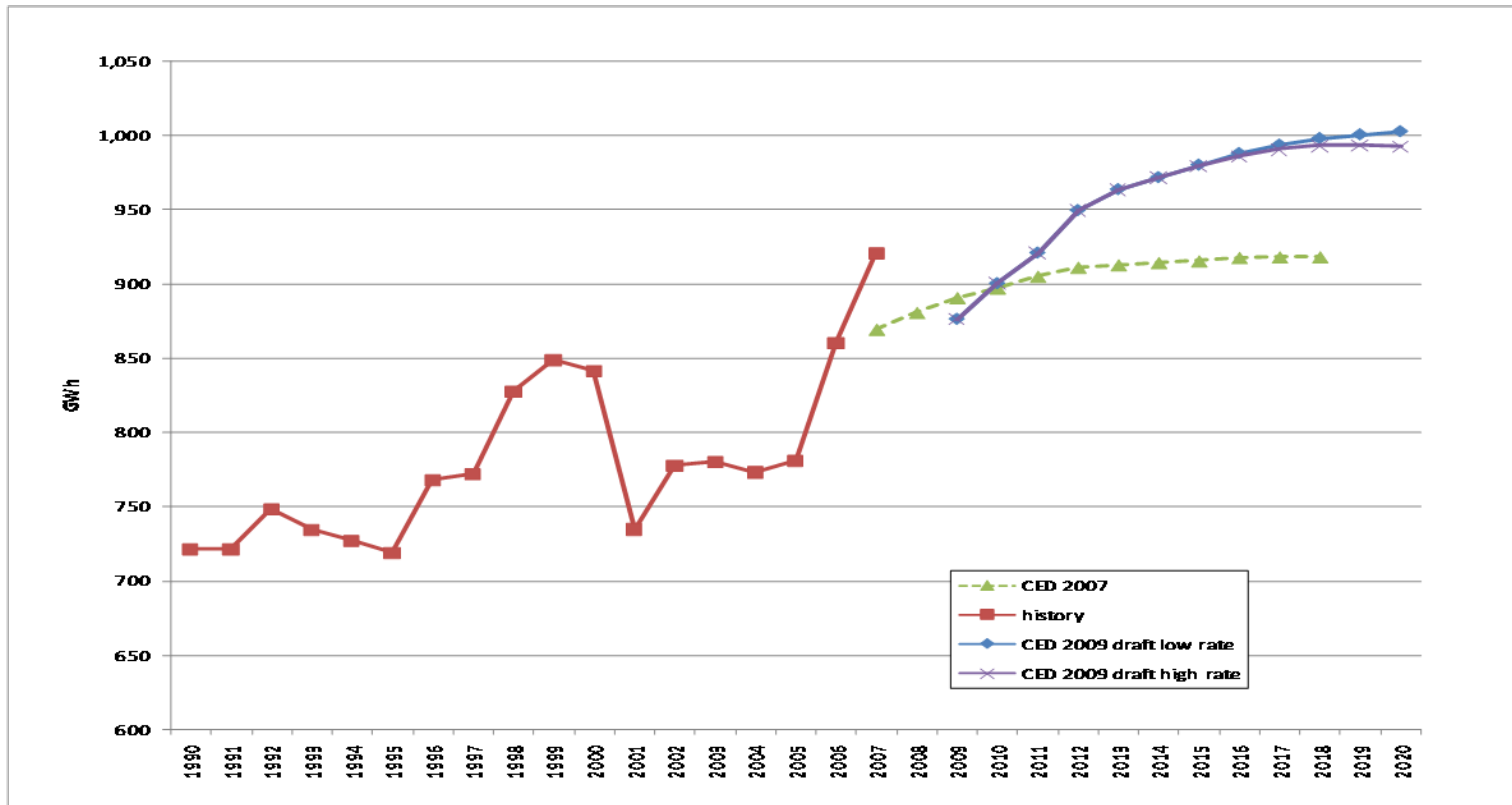
SMUD Industrial Sector

- Consumption starts slightly lower
- Increases in early years
- Levels out to 8% higher by 2018
- Peak follows similar pattern



SMUD Industrial Sector Consumption

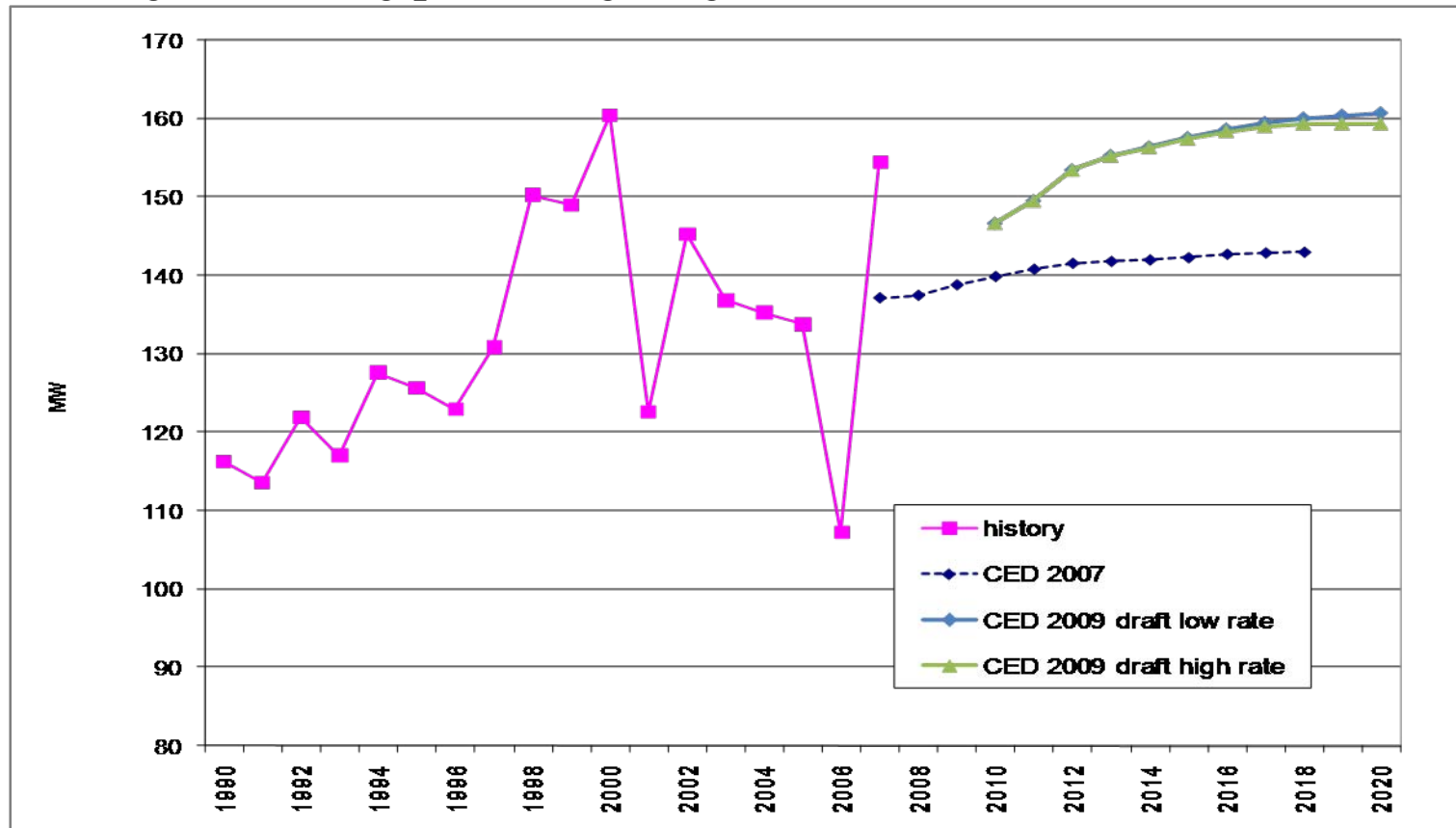
- Lower starting point , higher growth rate





SMUD Industrial Sector Peak

- Higher starting point , higher growth rate





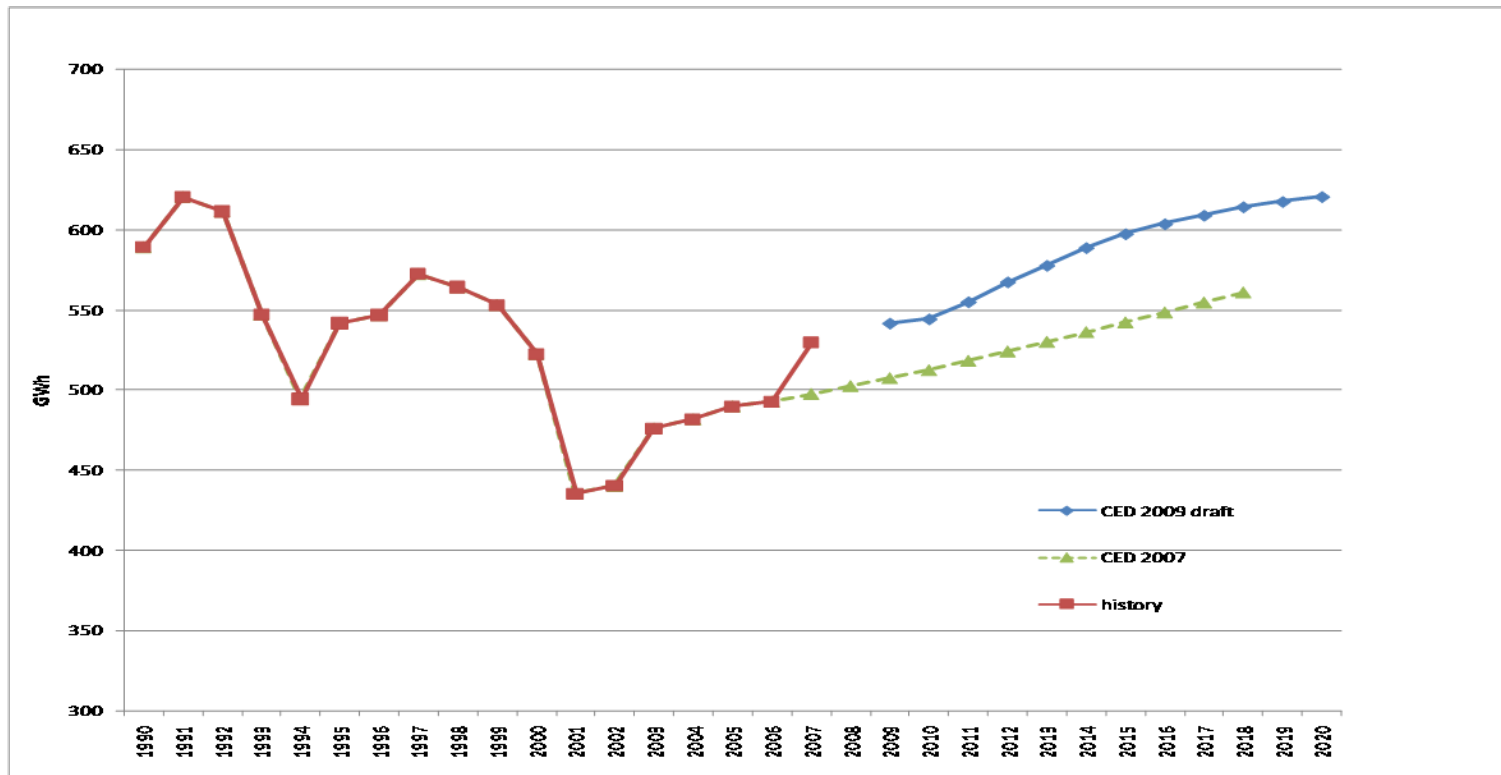
SMUD Other Sectors

- Remaining sectors comprise 9% of total consumption:
 - 5% Transportation, communications and utilities (higher starting point)
 - 2% Agriculture and Water Pumping
 - 1% Mining, Oil Extraction and Construction
 - 1% Streetlighting
- Other sectors comprise only 3% of peak.



SMUD Transportation, Communications and Utilities Sector Consumption

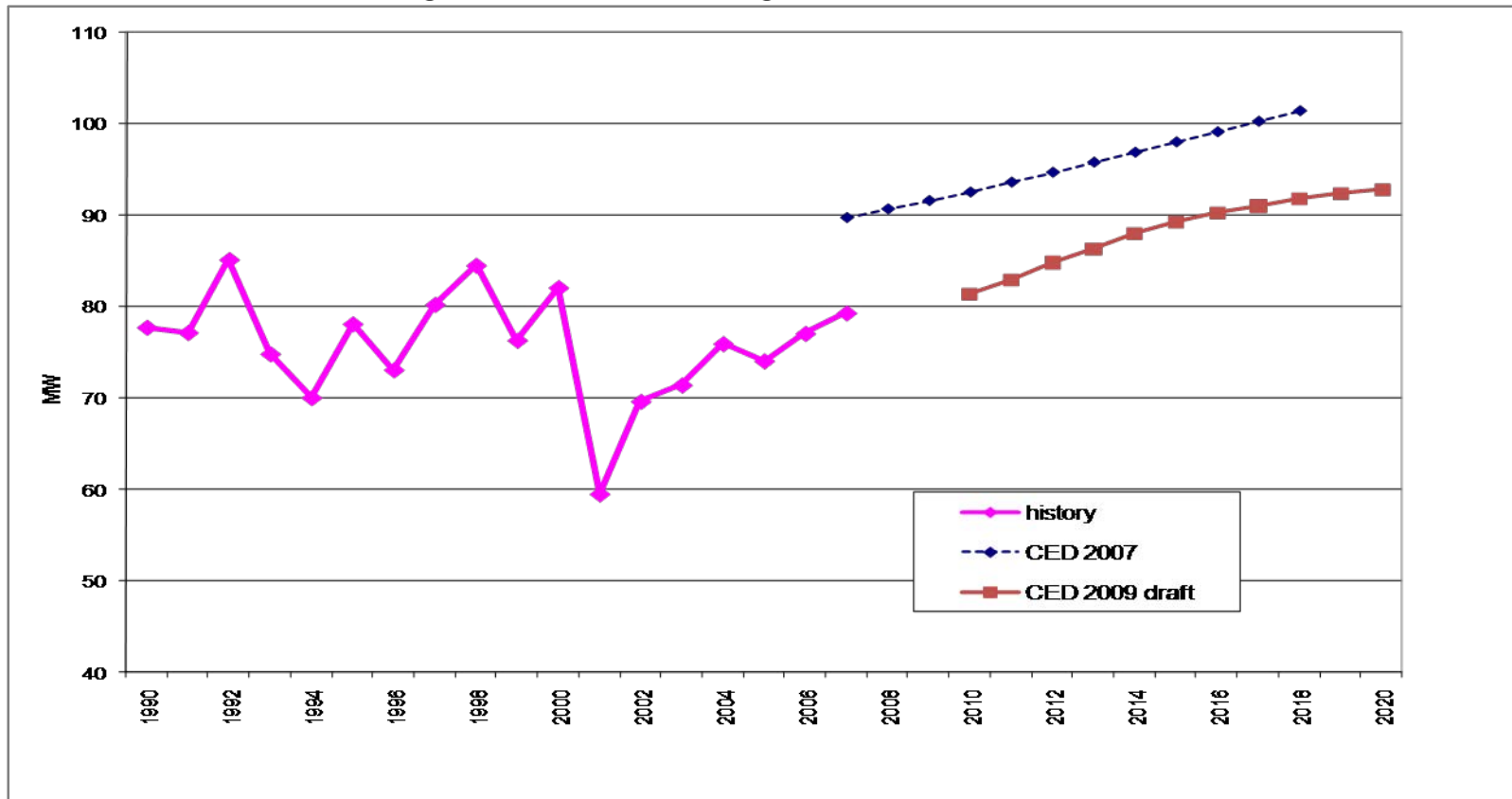
- Higher starting value and growth rate





SMUD Other Sectors Peak

- Lower starting value , similar growth rate





SMUD Savings Estimates by Program Category

	1990	1998	2003	2008	2011	2015	2020
Residential Energy Savings (GWH)							
Building Standards	504	624	725	749	788	847	924
Appliance Standards	172	381	538	661	713	778	850
Utility and Public Agency Programs	208	259	255	252	217	145	112
Naturally Occurring Savings	29	36	42	61	112	188	295
Total Residential Savings	912	1301	1560	1723	1830	1959	2181
Commercial Energy Savings (GWH)							
Building Standards	70	142	232	323	386	471	578
Appliance Standards	38	83	120	162	186	218	258
Utility and Public Agency Programs*	6	55	55	56	56	56	52
Naturally Occurring Savings	632	591	773	800	872	973	1149
Total Commercial Savings	747	871	1180	1341	1500	1718	2037
Total Energy Savings	1659	2172	2741	3064	3330	3676	4218

Source: California Energy Commission, 2009

*Commercial programs also include agricultural program savings.



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SMUD Peak Savings Estimates by Program Category

	1990	1998	2003	2008	2011	2015	2020
Residential Energy Savings (MW)							
Building Standards	156	216	244	266	279	303	335
Appliance Standards	53	132	181	235	252	278	308
Utility and Public Agency Programs	64	90	86	89	77	52	41
Naturally Occurring Savings	9	13	14	22	40	67	107
Total Residential Savings	282	450	526	612	648	700	791
Commercial Energy Savings (MW)							
Building Standards	15	33	54	71	83	100	123
Appliance Standards	8	19	28	35	40	47	55
Utility and Public Agency Programs*	1	13	13	12	12	12	11
Naturally Occurring Savings	139	138	180	175	187	208	244
Total Commercial Savings	164	203	275	293	321	367	433
Total Energy Savings	447	653	800	905	970	1067	1224

Source: California Energy Commission, 2009

*Commercial programs also include agricultural program savings.



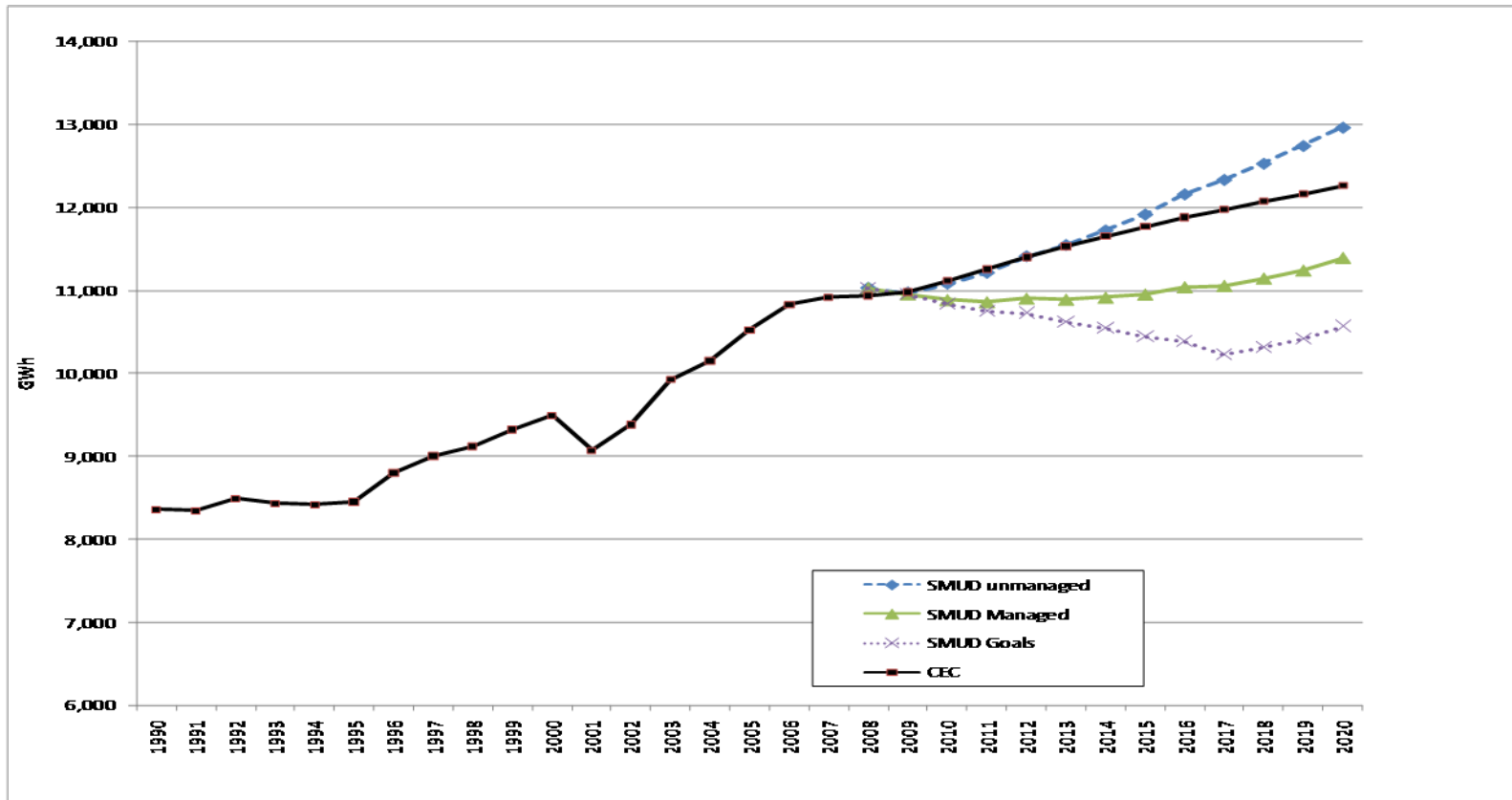
Comparison to SMUD Forecast

- SMUD “unmanaged” forecast is based on current history
 - No additional historic DSM increment
- Future saving are “committed” and “uncommitted” savings are subtracted from results
- This is opposite of IOU forecasting methods
- SMUD unmanaged sales forecast is higher after 2014
- SMUD managed sales is lower over entire period
- SMUD “Goals” forecast declines until 2017
- SMUD unmanaged peak forecast is slightly higher
- “Managed” and “Goals” peak are much lower



SMUD Forecast Comparison

- Committed savings and goals are subtracted from unmanaged





SMUD Peak Forecast Comparison

- Committed savings and goals are subtracted from unmanaged

