California Energy Commission

# Committee Workshop on 2010-2020 Peak Demand and Energy Forecasts

## SDG&E Planning Area Forecast

First Floor, Hearing Room A

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9 a.m.




Tom Gorin
Demand Analysis Office
Electricity Supply Analysis Division

Tgorin@energy.state.ca.us / 916-654-4759

# SDG&E Forecast Overview

- Electricity consumption forecast is 6.8% lower growing to between 9% (low rate) and 11% (high rate) by 2018
  - Residential -5% (2010) : -9.5% (2018)
  - Commercial Buildings -5.6% (2010) : -7% (2018)
  - Industrial Sector -13% (2010) : -9% (2018)
  - Transportation, Communication and Utilities (TCU) Sector -10%
- Peak forecast is 2% lower in 2010 growing to between 2.5% and 4% lower by 2018
- Per capita consumption flat (low rate); declining (high rate)
- Per capita peak slightly increasing (low rate); flat (high rate)
- Load factor continues to decline

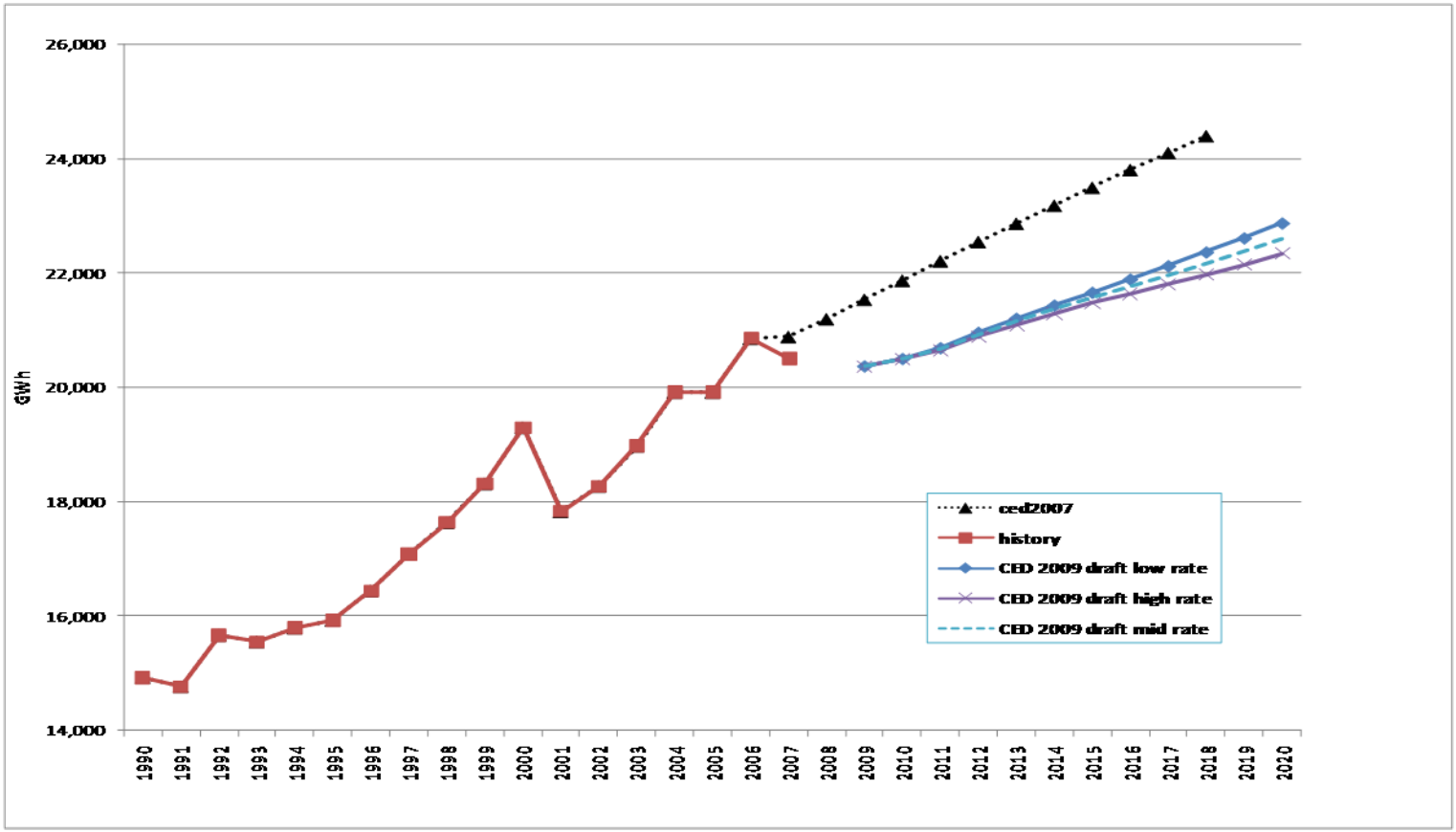
# SDG&E Planning Area Forecast Results

| 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 | 14,926 | 14,926 | 14,926 | 0.00% | 0.00% |
| 2000 | 19,294 | 19,294 | 19,294 | 0.00% | 0.00% |
| 2007 | 21,019 | 20,493 | 20,493 | -2.50% | -2.50% |
| 2010 | 21,991 | 20,502 | 20,502 | -6.77% | -6.77% |
| 2015 | 23,643 | 21,660 | 21,478 | -8.39% | -9.15% |
| 2018 | 24,567 | 22,364 | 21,979 | -8.97% | -10.54% |
| Average Annual Growth Rates | | | | | |
| 1990-2000 | 2.60% | 2.60% | 2.60% | | |
| 2000-2007 | 1.23% | 1.21% | 1.21% | | |
| 2007-2010 | 1.52% | 0.02% | 0.02% | | |
| 2010-2018 | 1.39% | 1.09% | 0.87% | | |

| 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 | 2,961 | 2,961 | 2,961 | 0.00% | 0.00% |
| 2000 | 3,471 | 3,471 | 3,471 | 0.00% | 0.00% |
| 2007 | 4,507 | 4,664 | 4,664 | 3.48% | 3.48% |
| 2010 | 4,714 | 4,621 | 4,621 | -1.97% | -1.97% |
| 2015 | 5,023 | 4,923 | 4,884 | -1.99% | -2.77% |
| 2018 | 5,247 | 5,115 | 5,032 | -2.52% | -4.10% |
| Average Annual Growth Rates | | | | | |
| 1990-2000 | 1.60% | 1.60% | 1.60% | | |
| 2000-2007 | 5.36% | 6.09% | 6.09% | | |
| 2007-2010 | 1.51% | -0.31% | -0.31% | | |
| 2010-2018 | 1.35% | 1.28% | 1.07% | | |
| Historic values are shaded | | | | | |

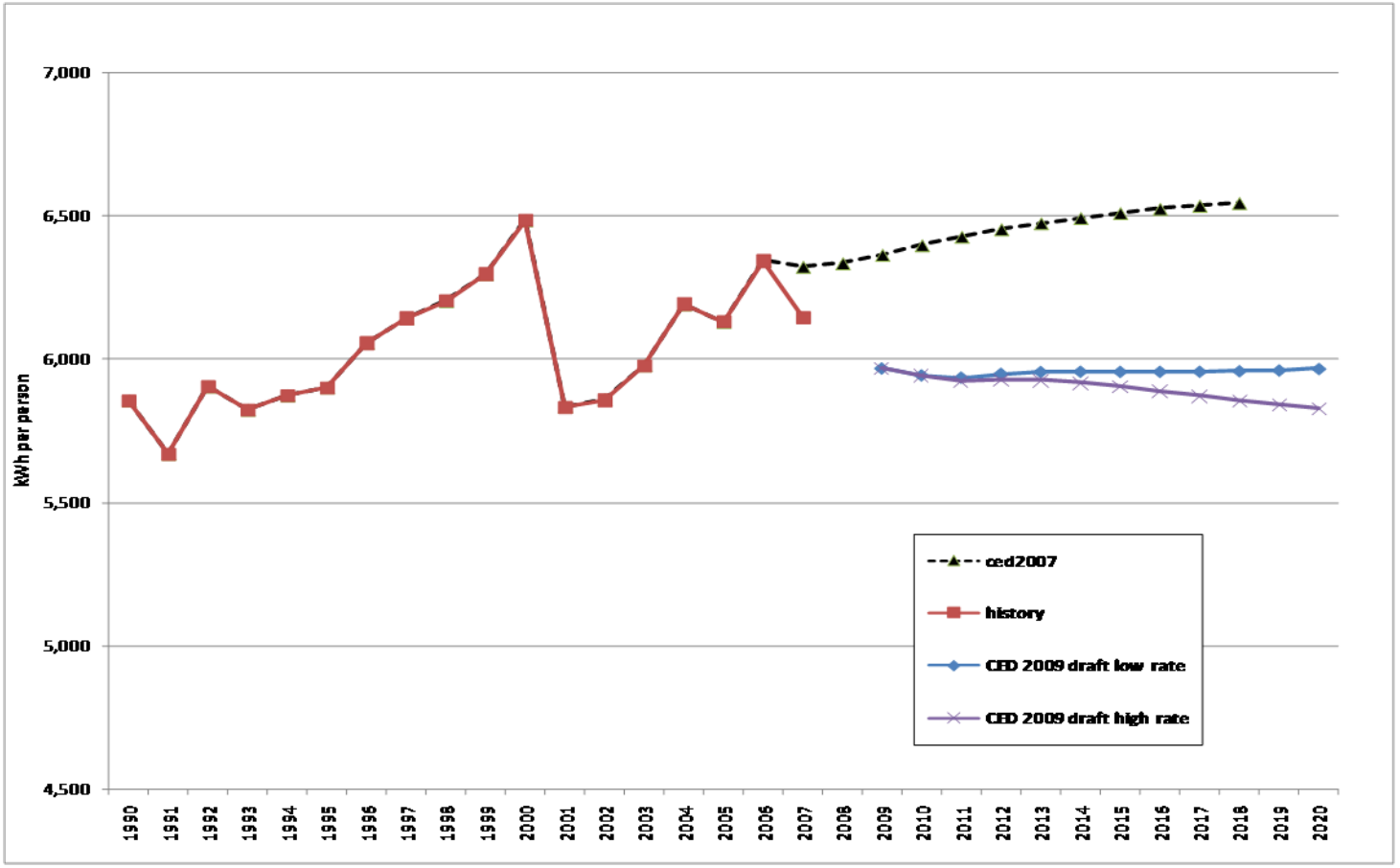
# SDG&E Electricity Consumption Forecast

- Lower starting point , similar growth rate



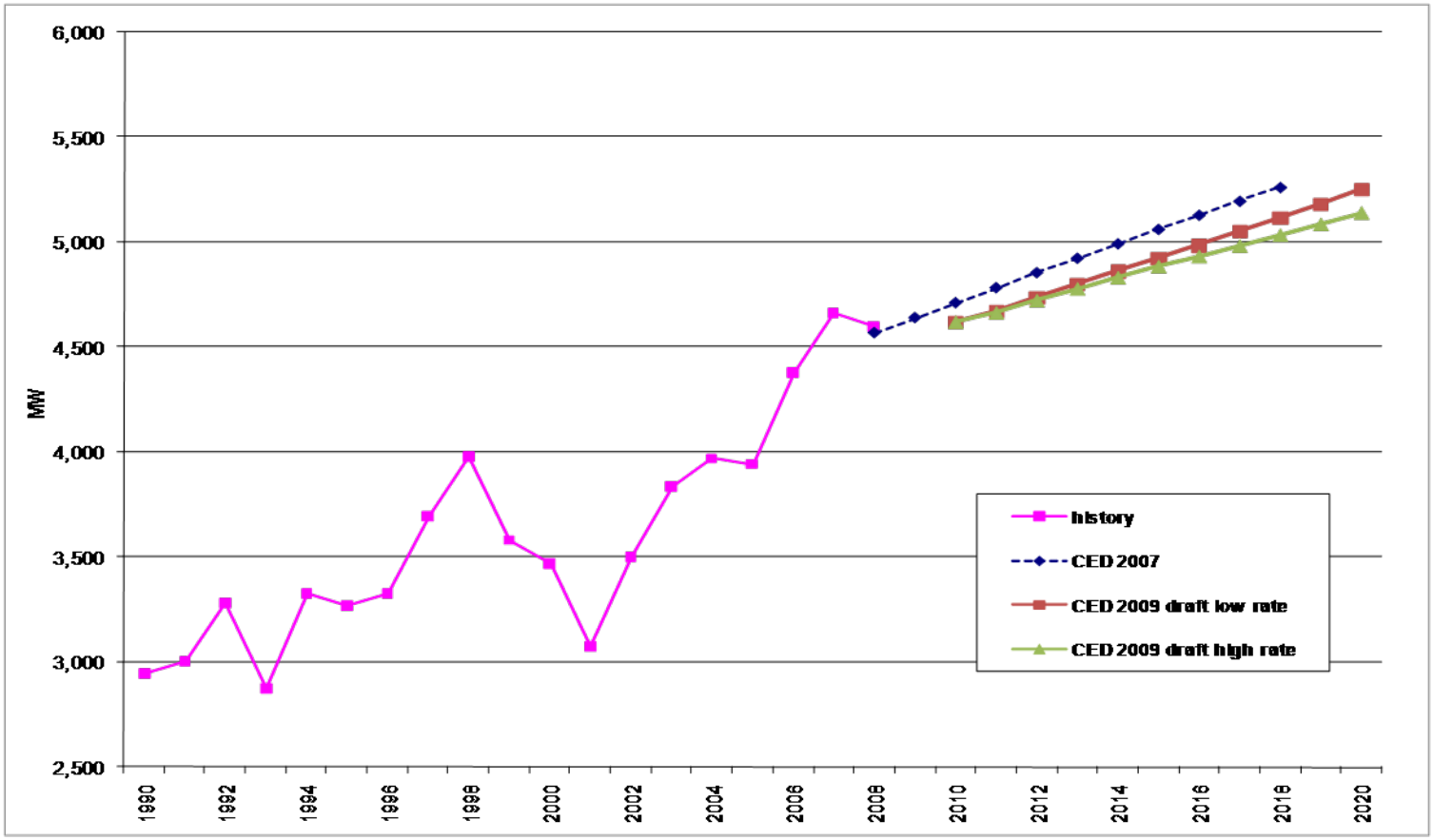
# SDG&E per Capita Consumption

- flat to declining at early 1990's level



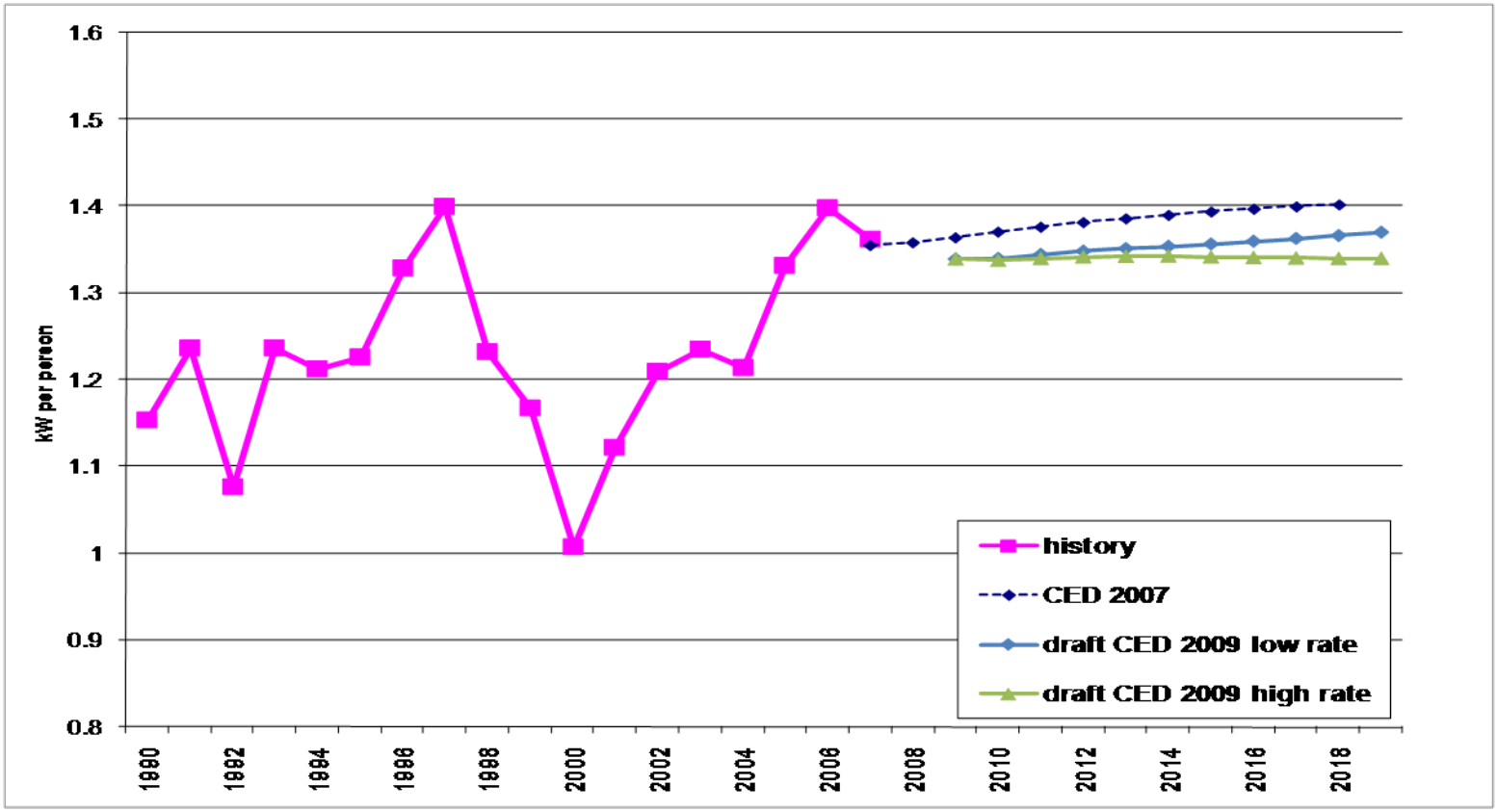
# SDG&E Planning Area Peak Forecast

- Lower starting point , similar growth rate



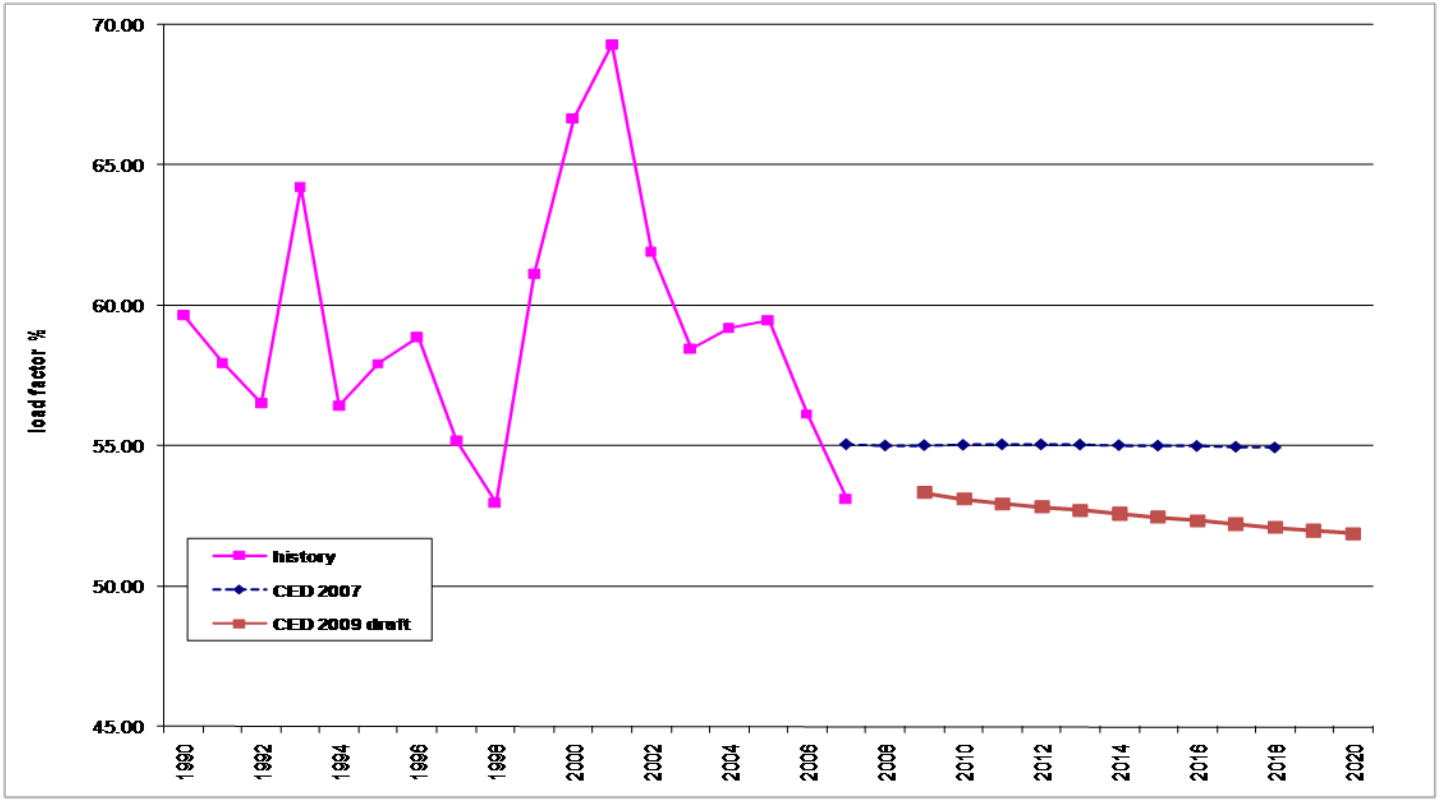
# SDG&E per Capita Peak

- at higher end of historic range



# SDG&E Planning Area Load Factor

- slower decline than recent history

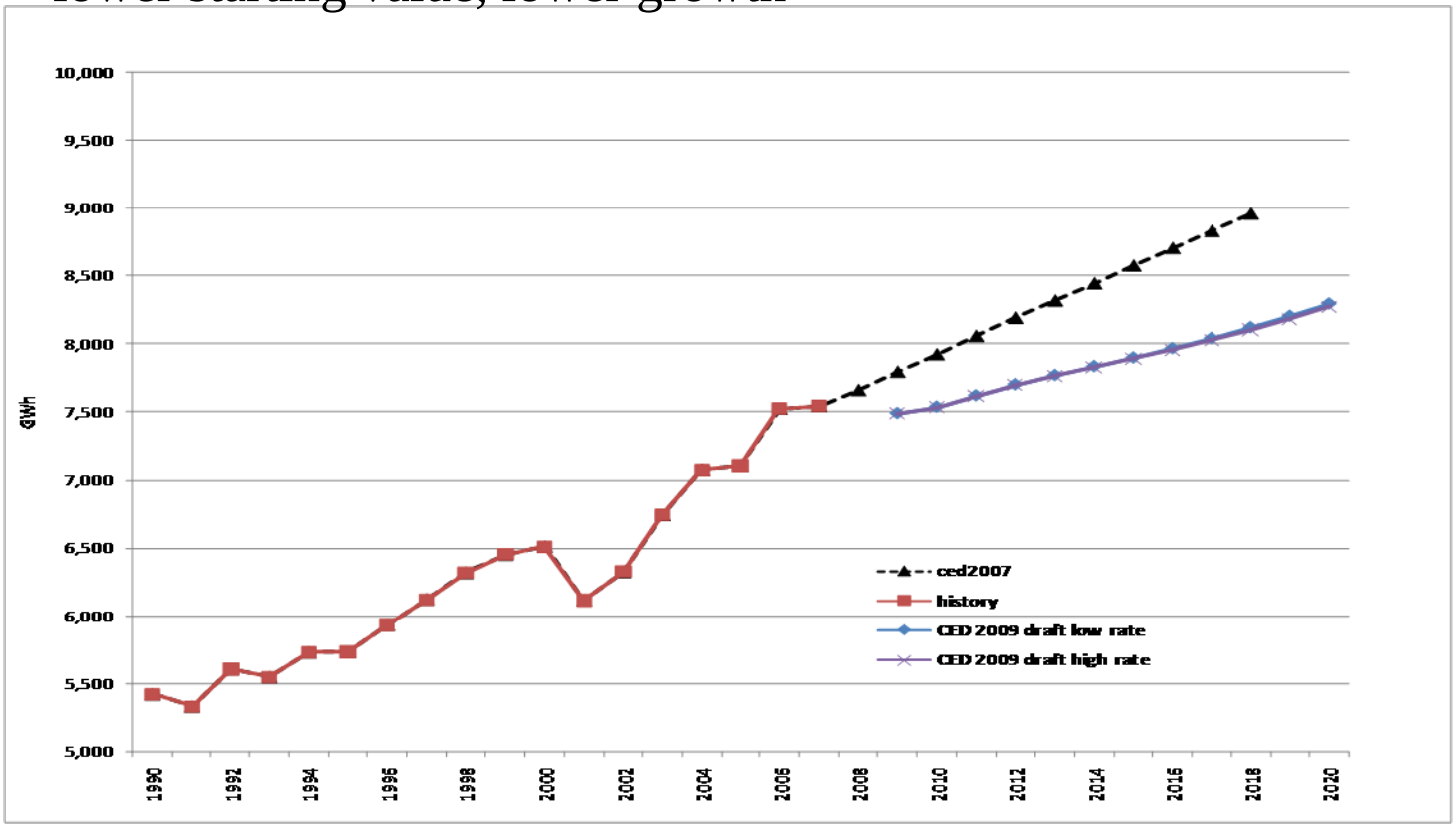


# Residential Consumption

- Draft forecast is 4.9% lower in 2010 (Difference grows to 9.5% by 2018)
- Lower household income projections
  - -5% (2010) : -7%  (2018)
- Lighting savings from CFL's (as a result of currently committed DSM programs) reduces total use per household approximately 4% by 2011 and beyond from 2004 levels.
- Additional lighting savings reductions above 2011 levels will be treated as uncommitted savings.

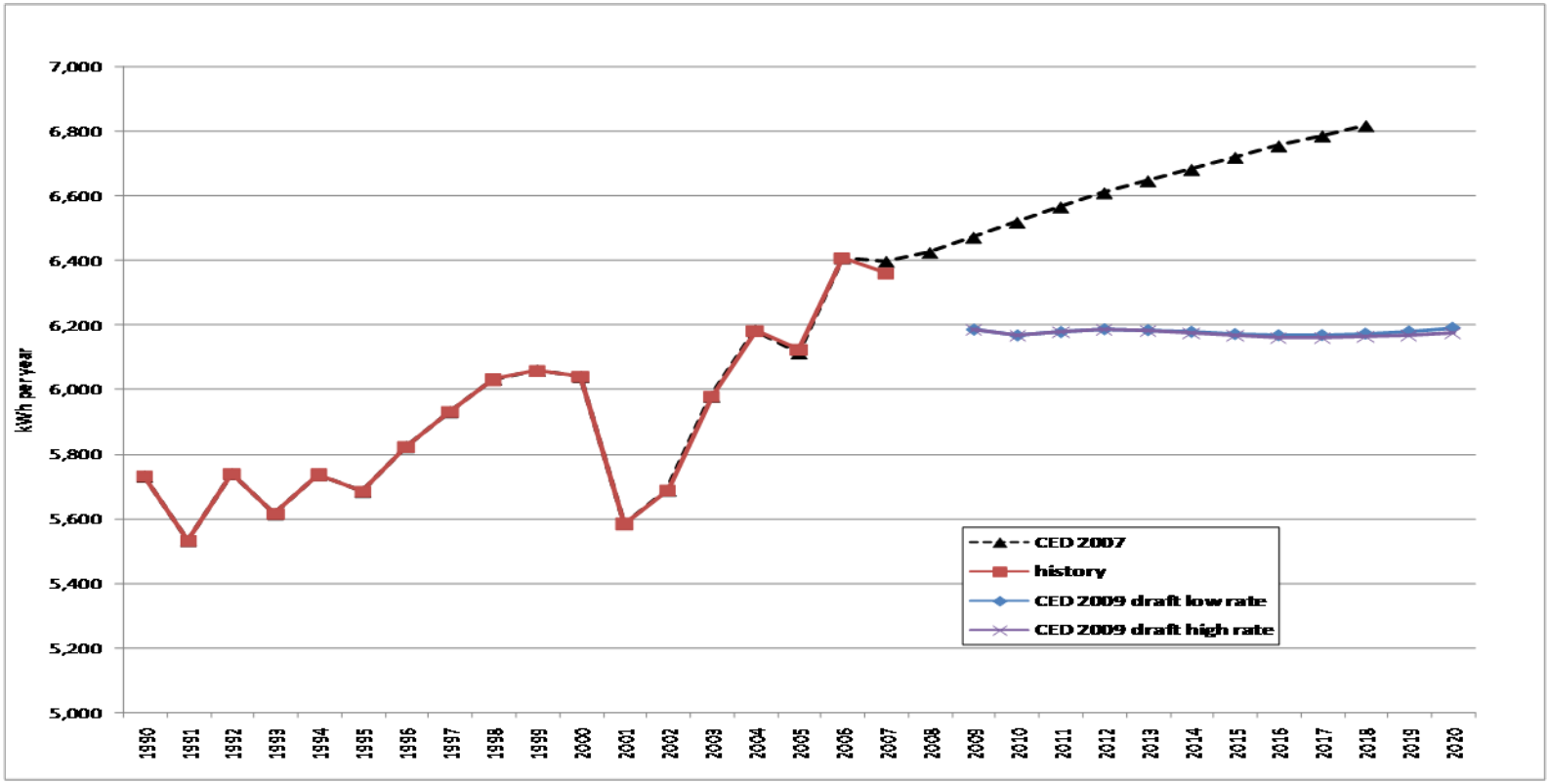
# SDG&E Residential Consumption

- lower starting value, lower growth



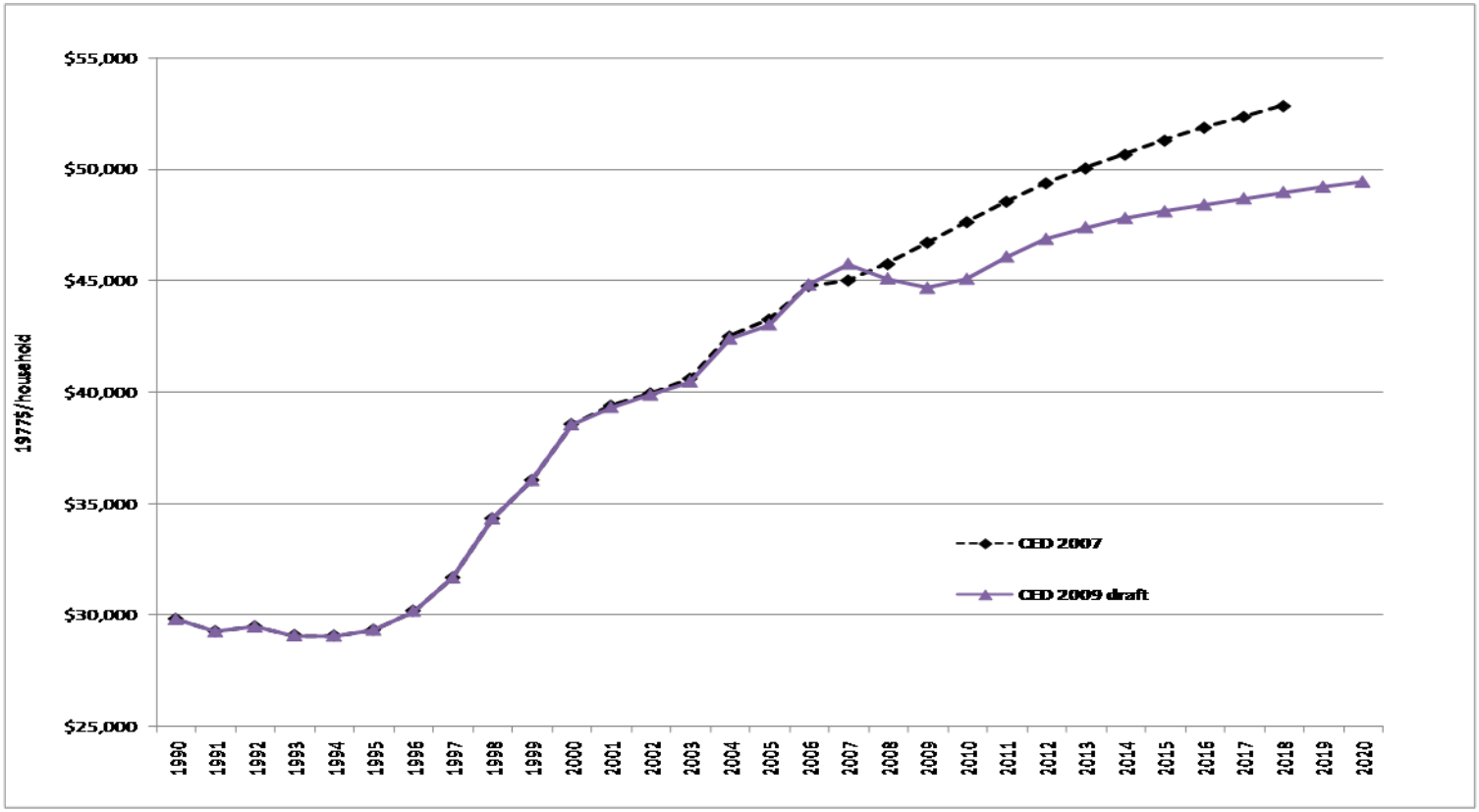
# SDG&E Residential Use per Household

- flat over forecast period



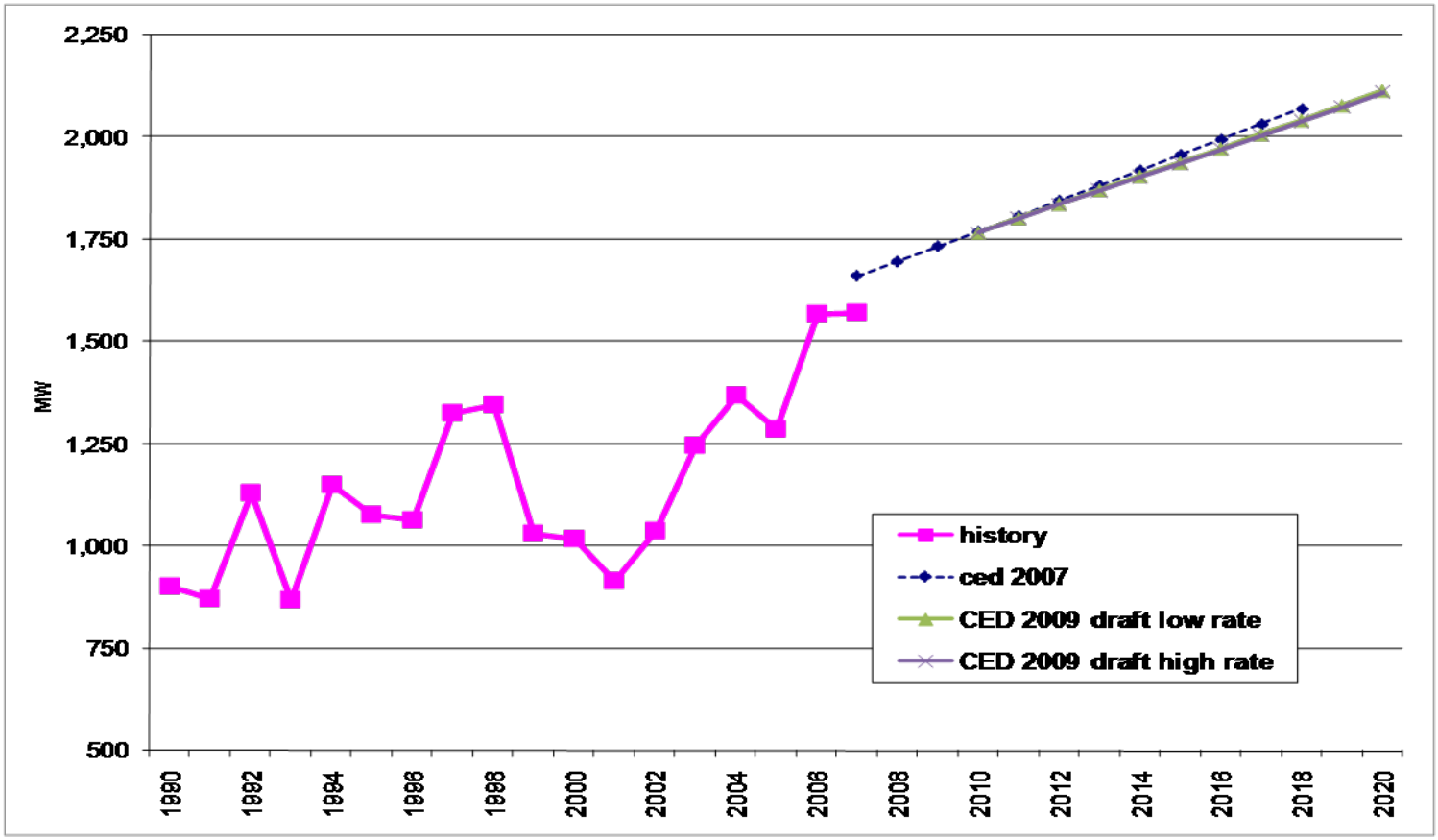
# SDG&E Household Income

- after recovery, slower growth



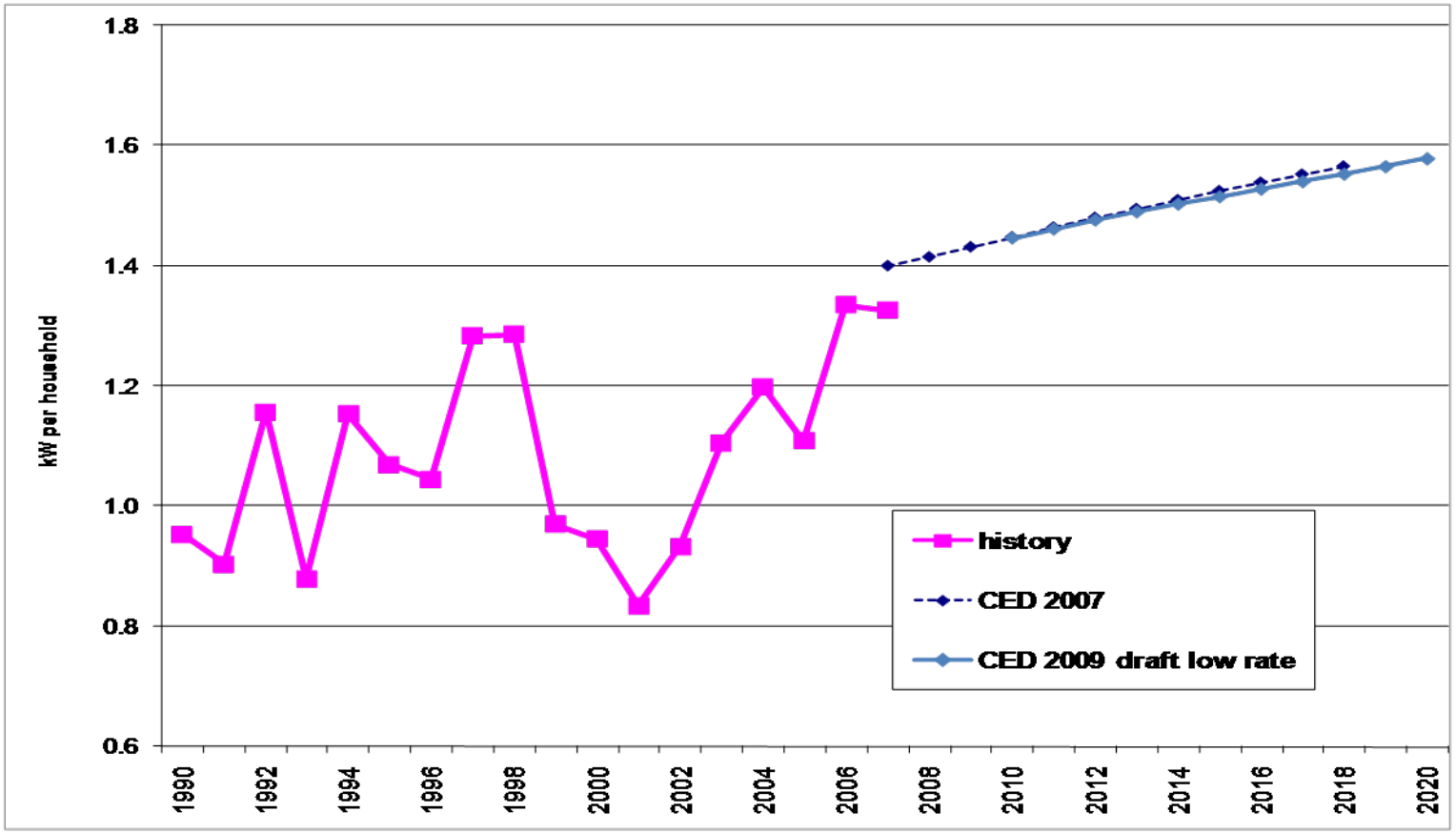
# SDG&E Residential Peak

- slightly lower by end of forecast



# SDG&E Residential Peak Use per Household

- slightly lower by end of forecast

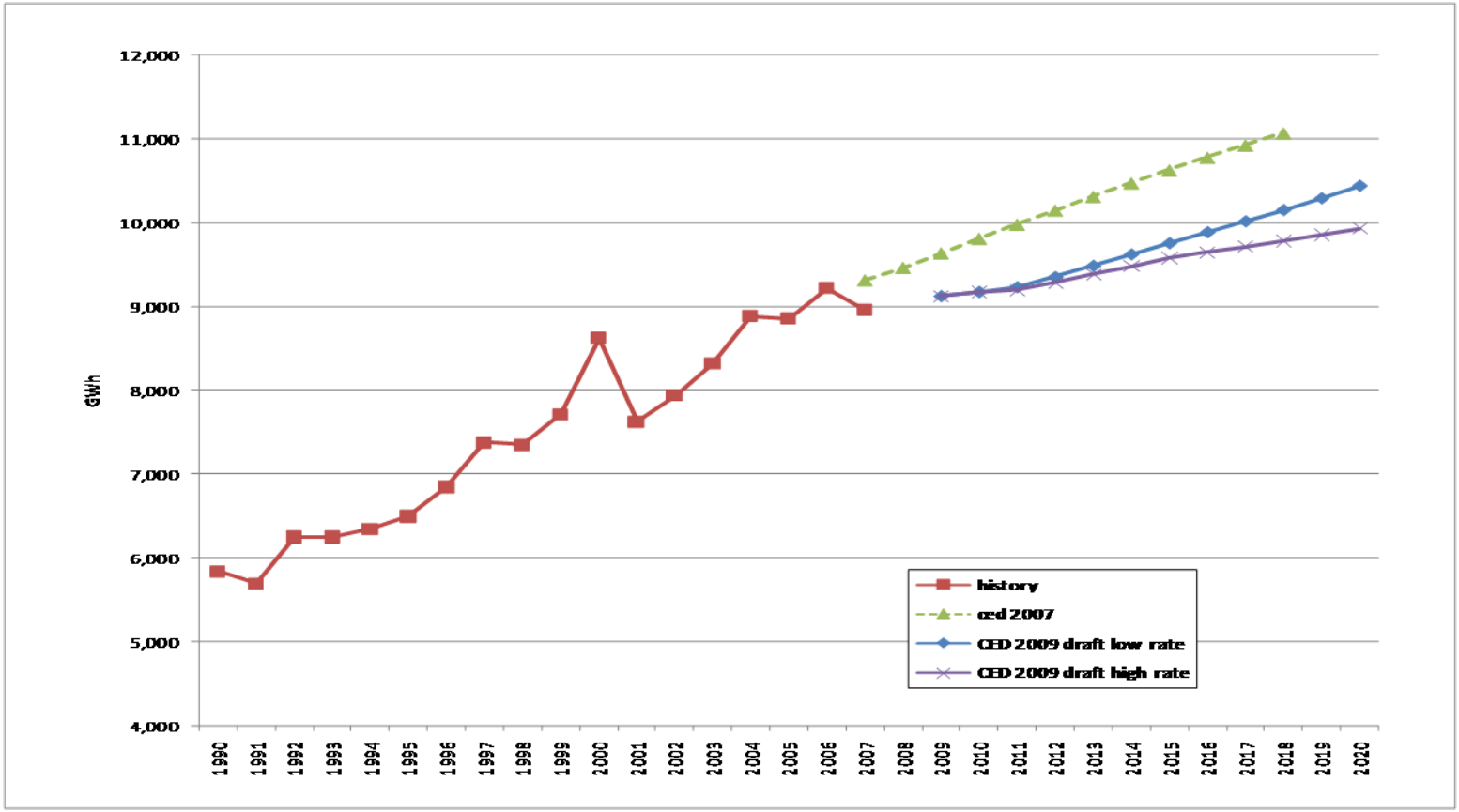


# Commercial Building Sector

- 5.6% lower forecast in 2010, difference increases to between 7.3% (low rate) and 10.6% (high rate) by 2018.
- Lower starting point than CED 2007.
- Less overall projected floor space.
- Greater decay of existing floor space leads to a greater percentage of newer buildings which are more efficient.
- Increased compliance (75%) with 2005 lighting standards reduces consumption 4% by end of forecast.

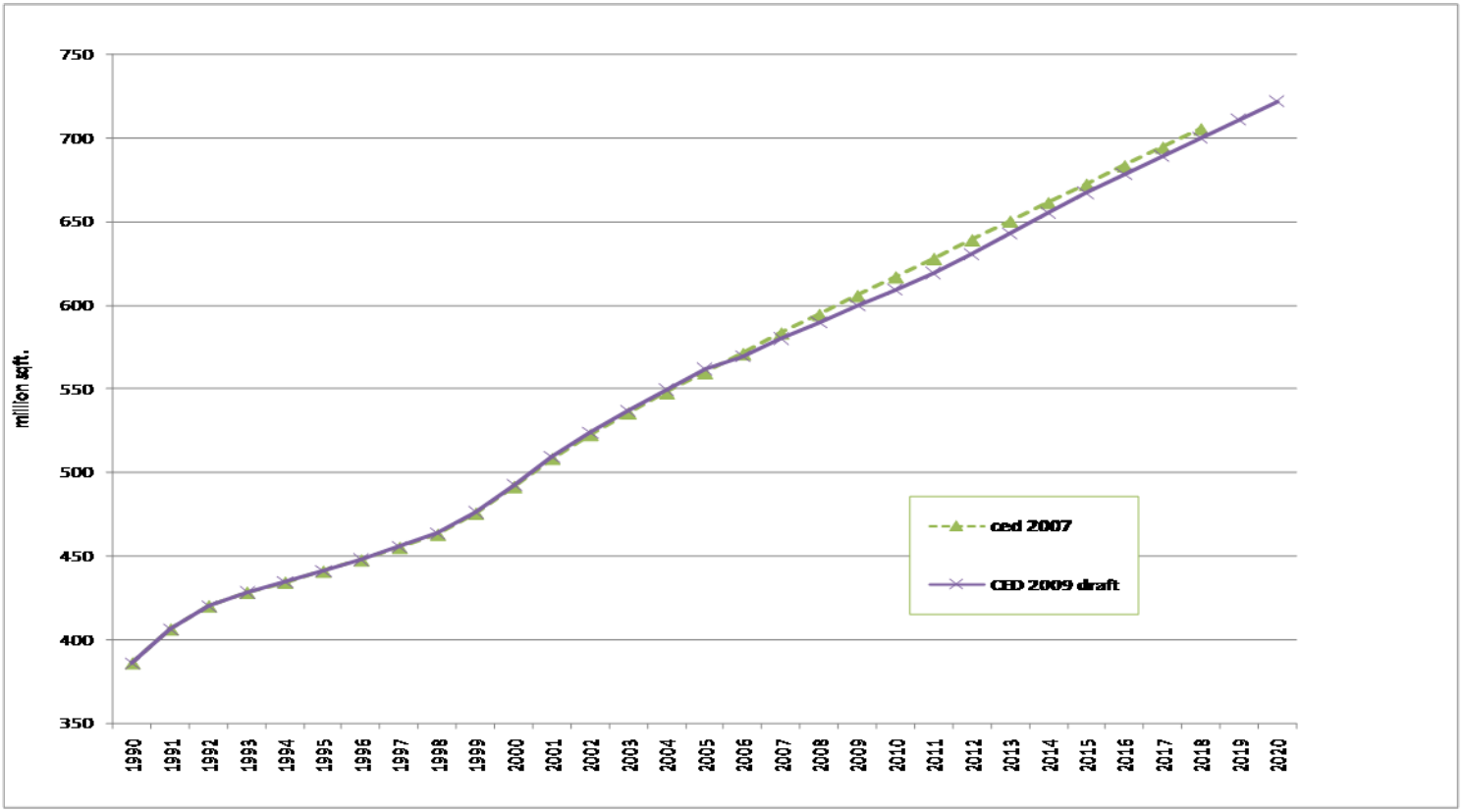
# SDG&E Commercial Building Consumption

- lower starting point, similar to lower growth rate



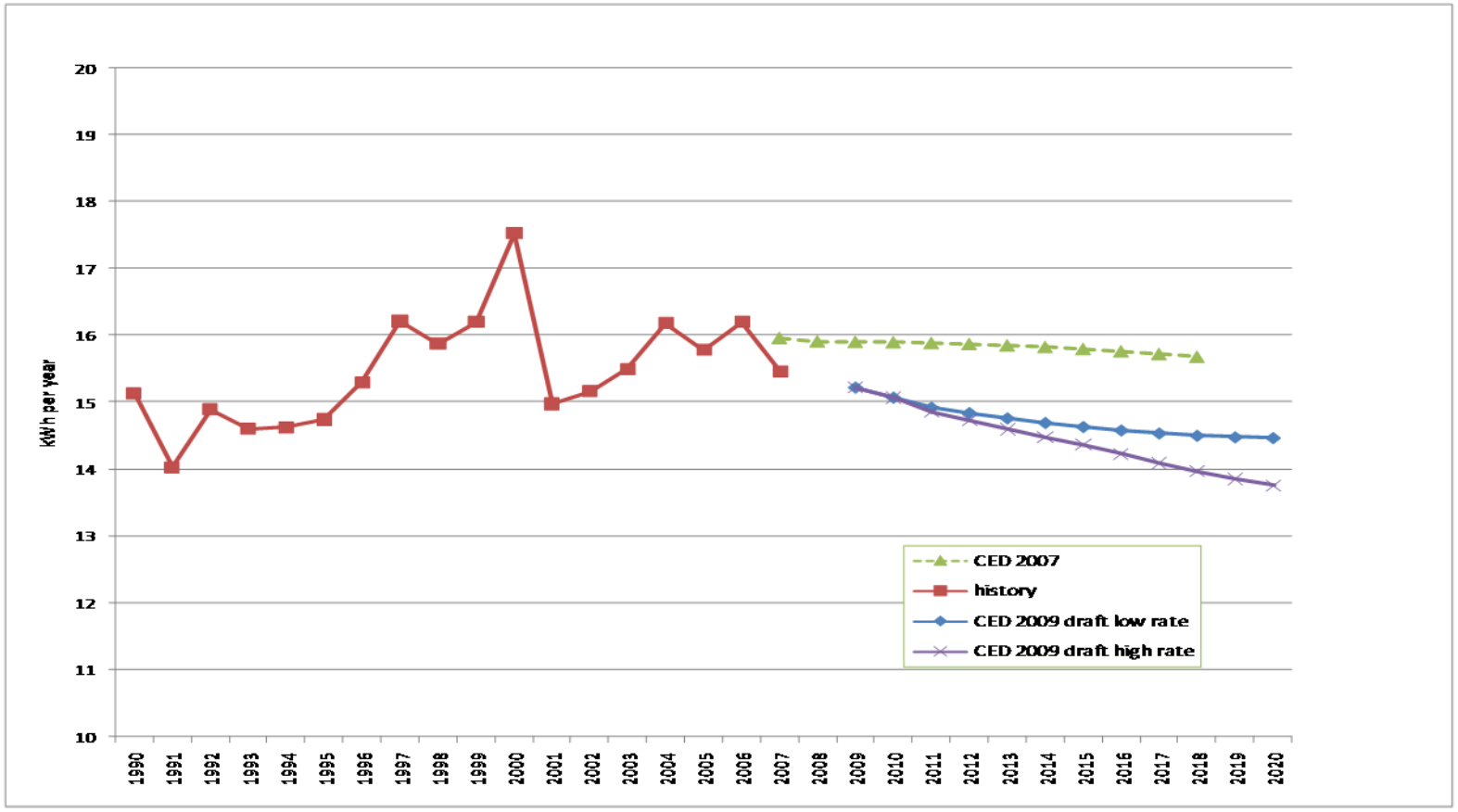
# SDG&E Commercial Floor Space

- slightly less floor space



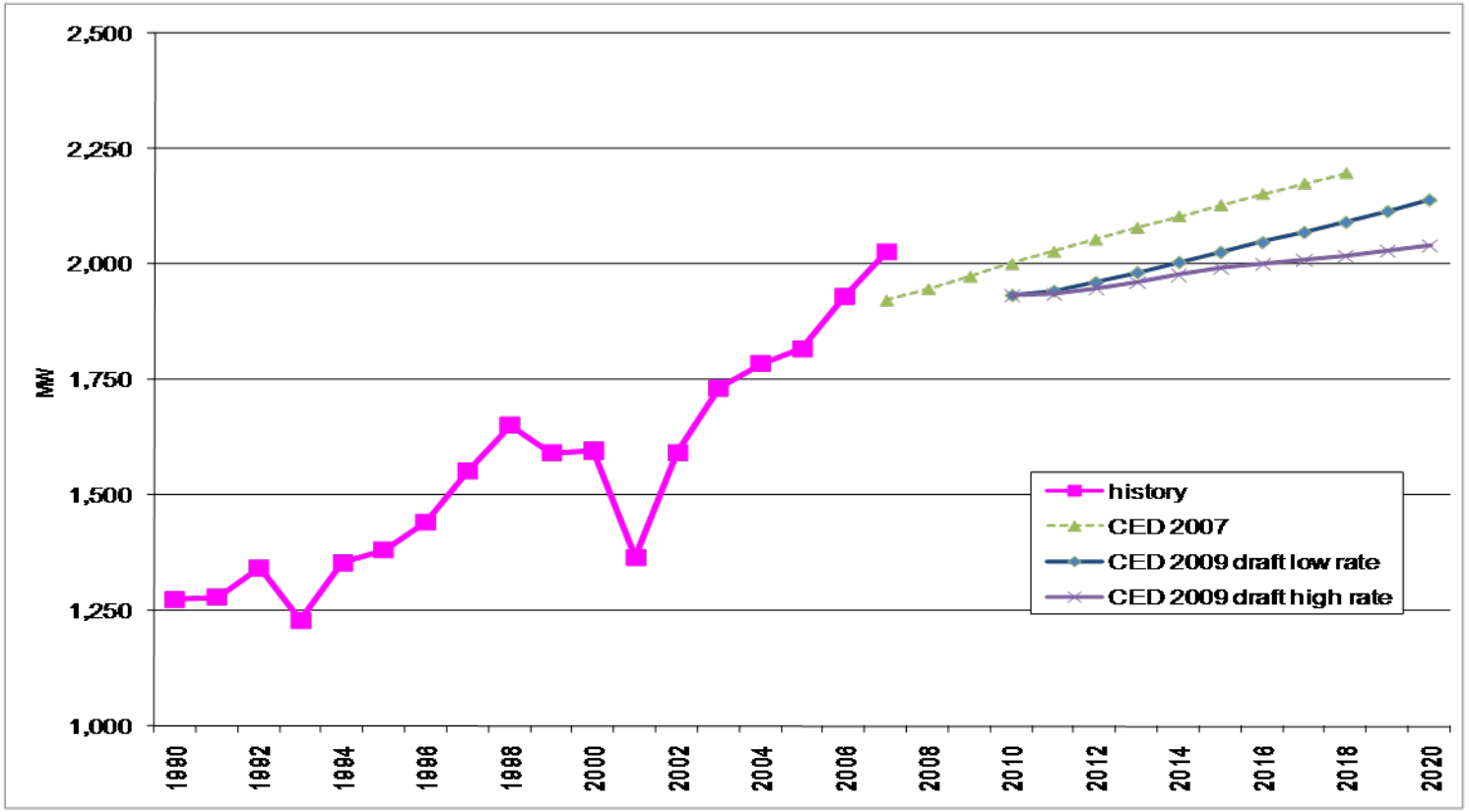
# SDG&E Commercial kWh per Square Foot

- declining to early 1990's levels



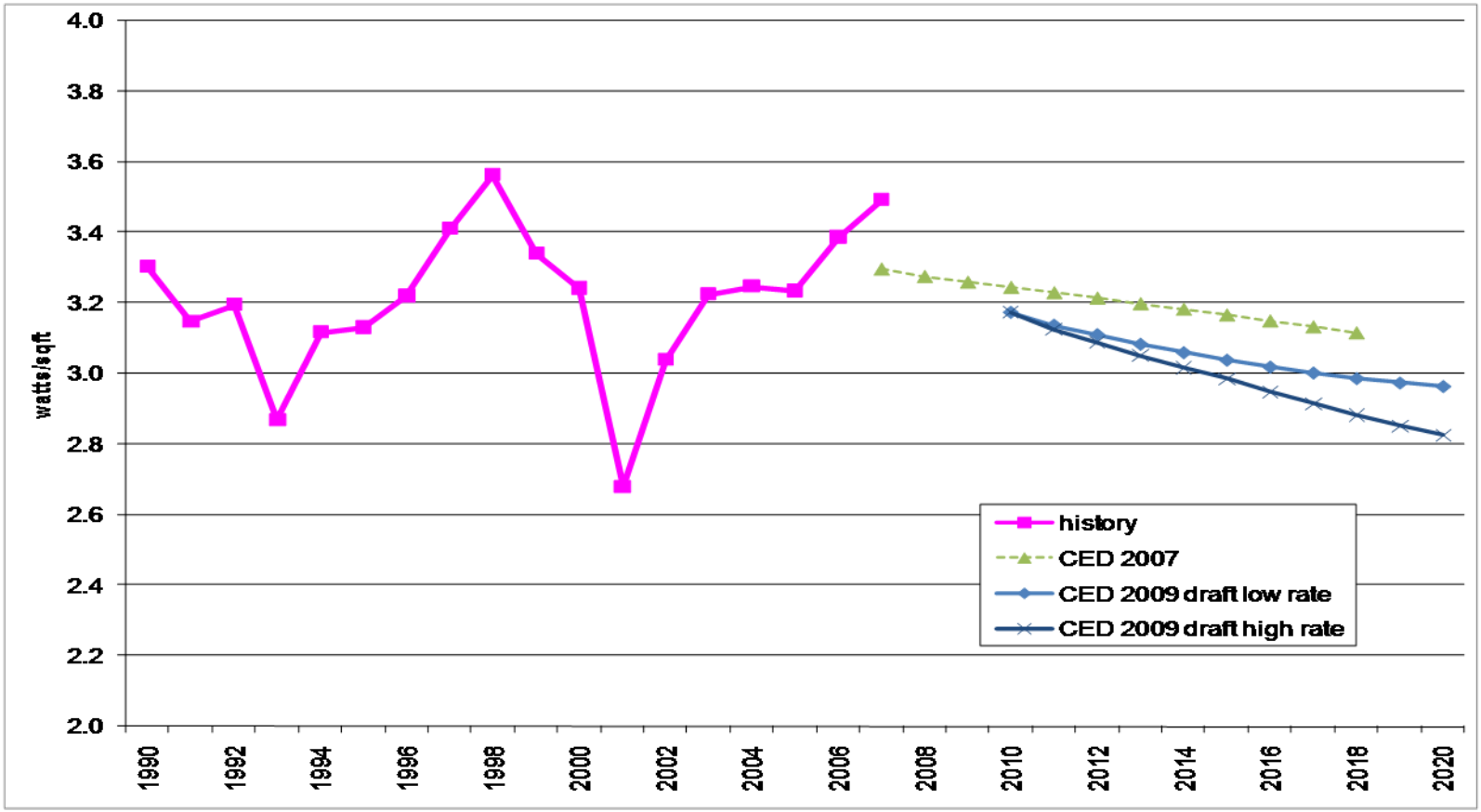
# SDG&E Commercial Building Sector Peak

- lower starting point, similar growth rate



# SDG&E Commercial Peak per Square Foot

- decline caused by efficiency factors

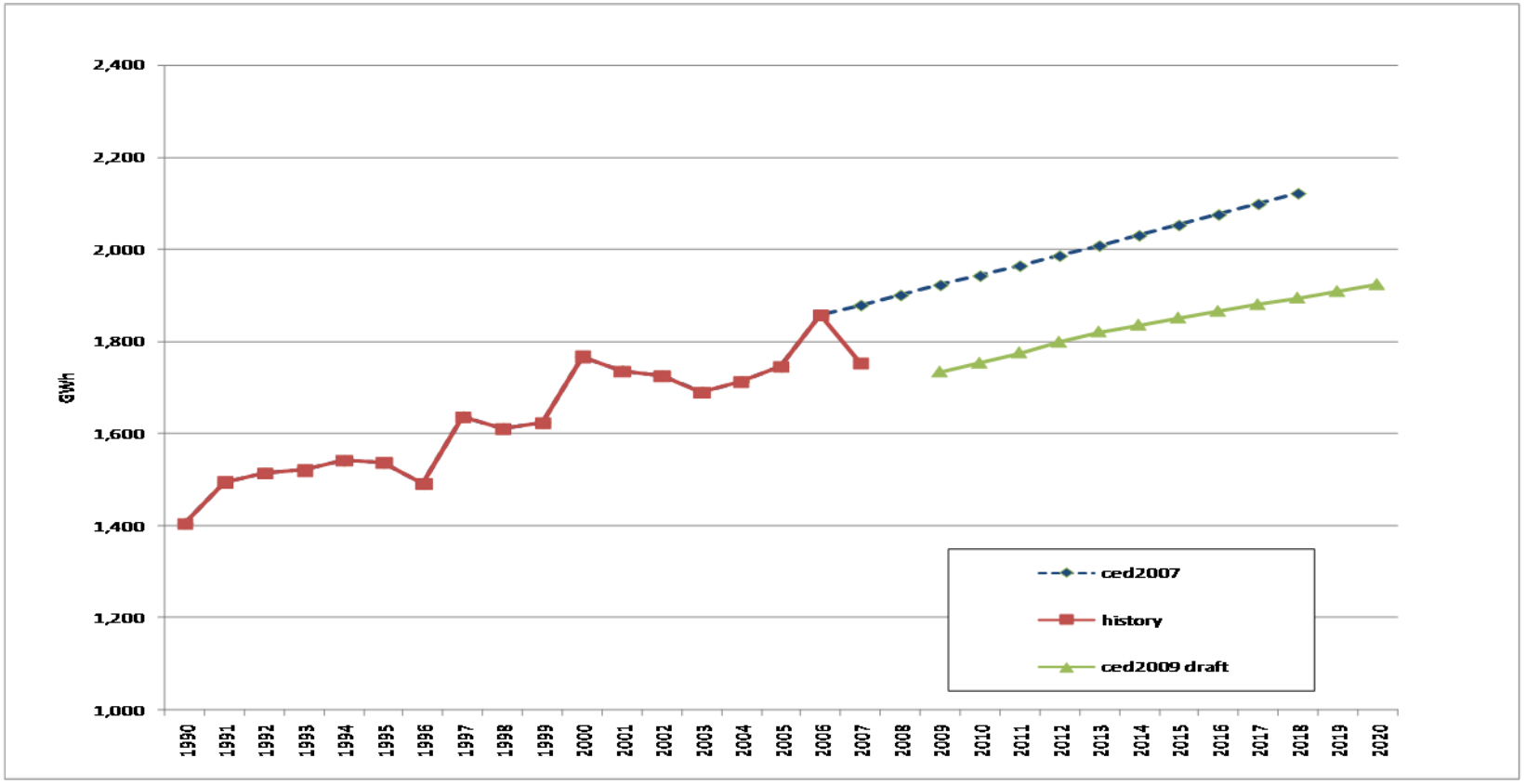


# Other Sectors

- Remaining sectors comprise 18% of total consumption:
  - 8% Transportation, communications and utilities (lower starting point)
  - 7% Industrial (lower starting point and short term economic drivers)
  - 1% Agriculture and Water Pumping
  - 1% Mining, Oil Extraction and Construction
  - 1% Streetlighting
- Other sectors comprise only 13% of peak.

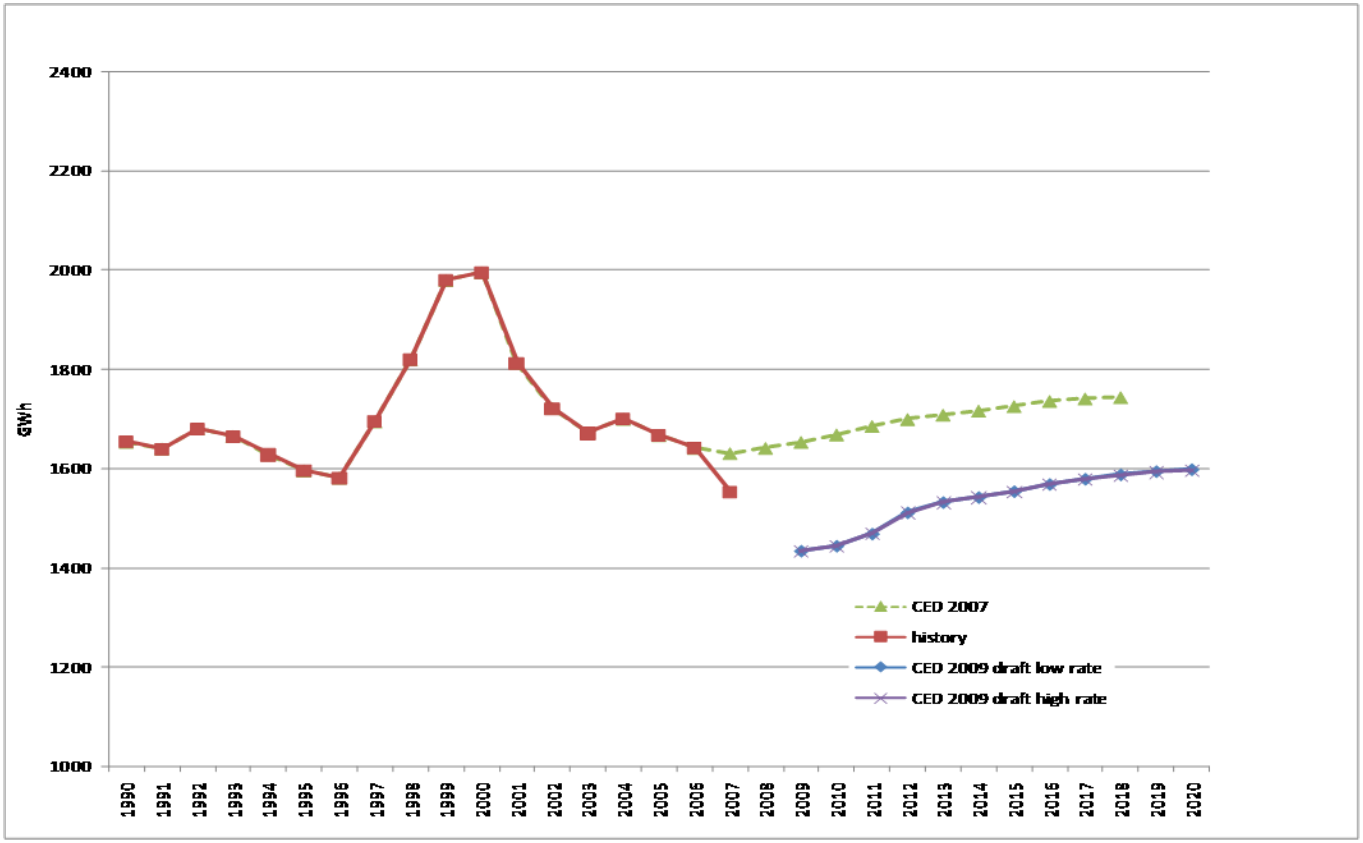
# SDG&E Transportation, Communications and Utilities Sector Consumption

- lower starting value, similar growth



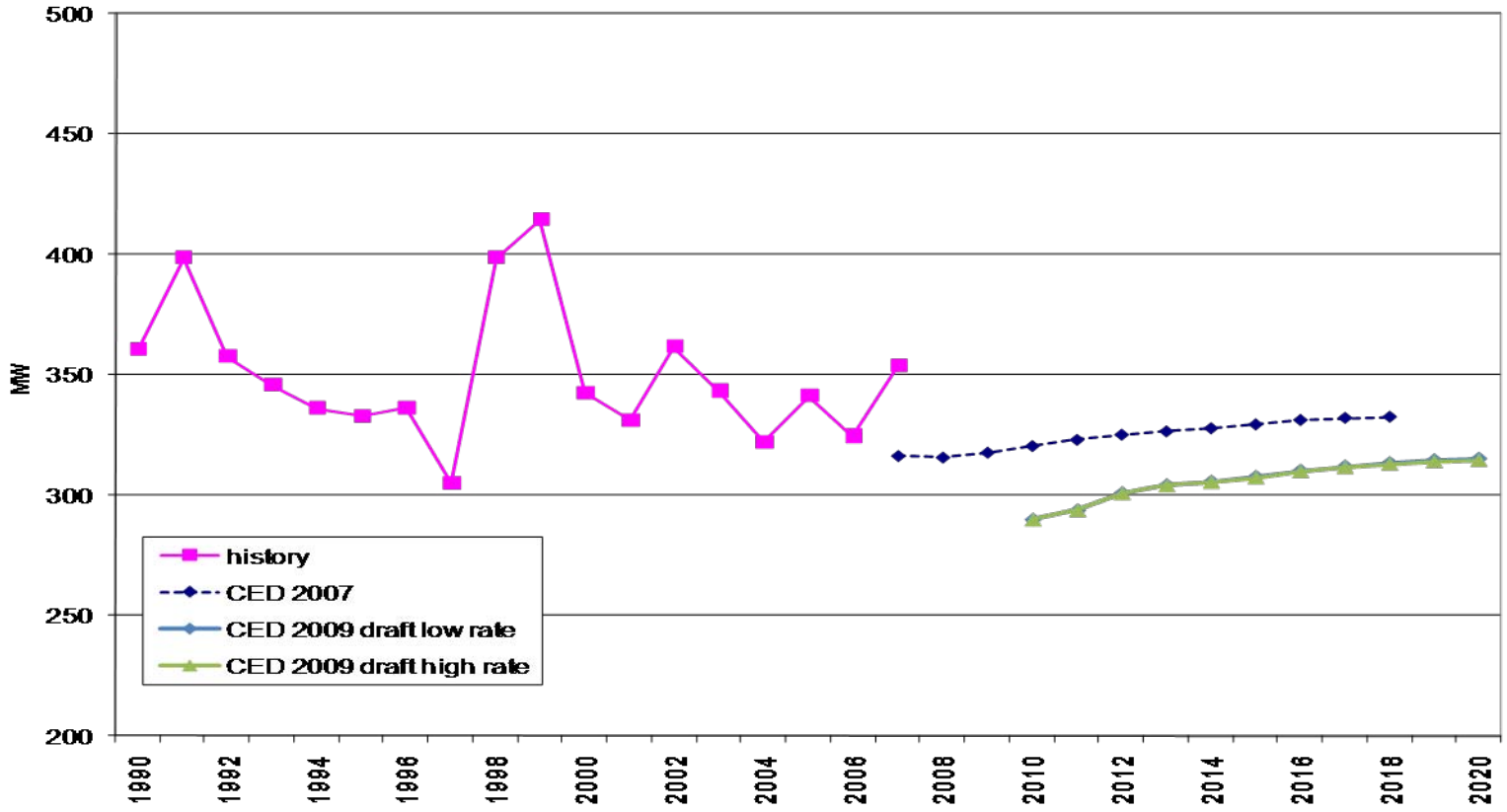
# SDG&E Industrial Sector Consumption

- lower starting value, higher midterm growth



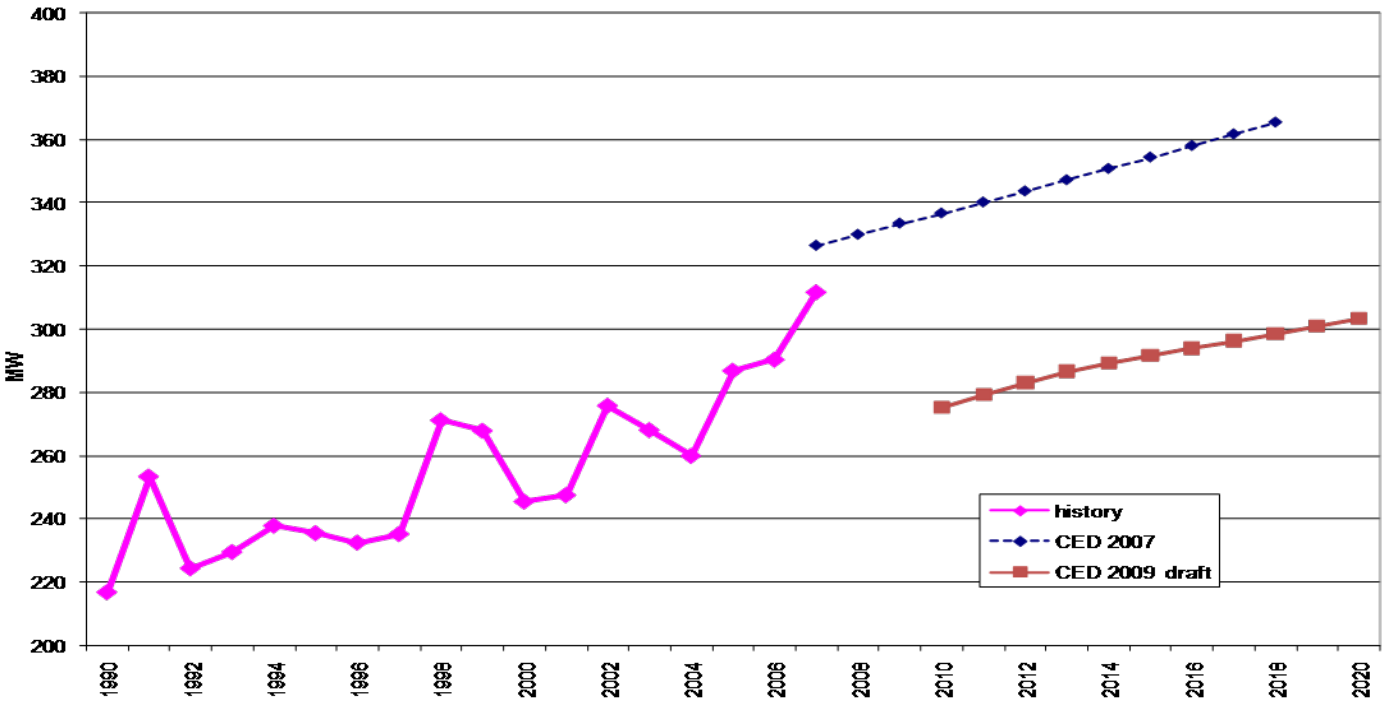
# SDG&E Industrial Sector Peak

- lower starting value, higher midterm growth



# SDG&E Other Sectors Peak

- lower starting value, similar growth rate



# Efficiency Savings and Self Generation

- Efficiency savings are presented by program.
- 2009-2011 utility program estimates are based on current CPUC filings.
- Self generation forecast is based on recent installation patterns.
- Some irregularities in historic reporting of peak results.

# SDG&E Consumption Savings Estimates by Program Category

| | 1990 | 1998 | 2003 | 2008 | 2011 | 2015 | 2020 |
|---|---|---|---|---|---|---|---|
| Residential Energy Savings (GWH) | | | | | | | |
| Building Standards | 110 | 173 | 211 | 226 | 265 | 315 | 379 |
| Appliance Standards | 270 | 558 | 760 | 899 | 970 | 1058 | 1161 |
| Utility and Public Agency Programs | 27 | 61 | 180 | 570 | 690 | 514 | 198 |
| Naturally Occurring Savings | 168 | 264 | 300 | 300 | 301 | 439 | 691 |
| Total Residential Savings | 575 | 1057 | 1451 | 1994 | 2225 | 2326 | 2430 |
| Commercial Energy Savings (GWH) | | | | | | | |
| Building Standards | 147 | 297 | 503 | 685 | 807 | 1004 | 1245 |
| Appliance Standards | 93 | 191 | 296 | 395 | 454 | 541 | 646 |
| Utility and Public Agency Programs* | 68 | 268 | 307 | 326 | 432 | 371 | 265 |
| Naturally Occurring Savings | 612 | 530 | 652 | 612 | 637 | 738 | 967 |
| Total Commercial Savings | 919 | 1286 | 1757 | 2017 | 2330 | 2654 | 3123 |
| Total Energy Savings | 1494 | 2343 | 3208 | 4011 | 4554 | 4980 | 5553 |

Source: California Energy Commission, 2009

*Commercial programs also include agricultural program savings.

# SDG&E Peak Savings Estimates by Program Category

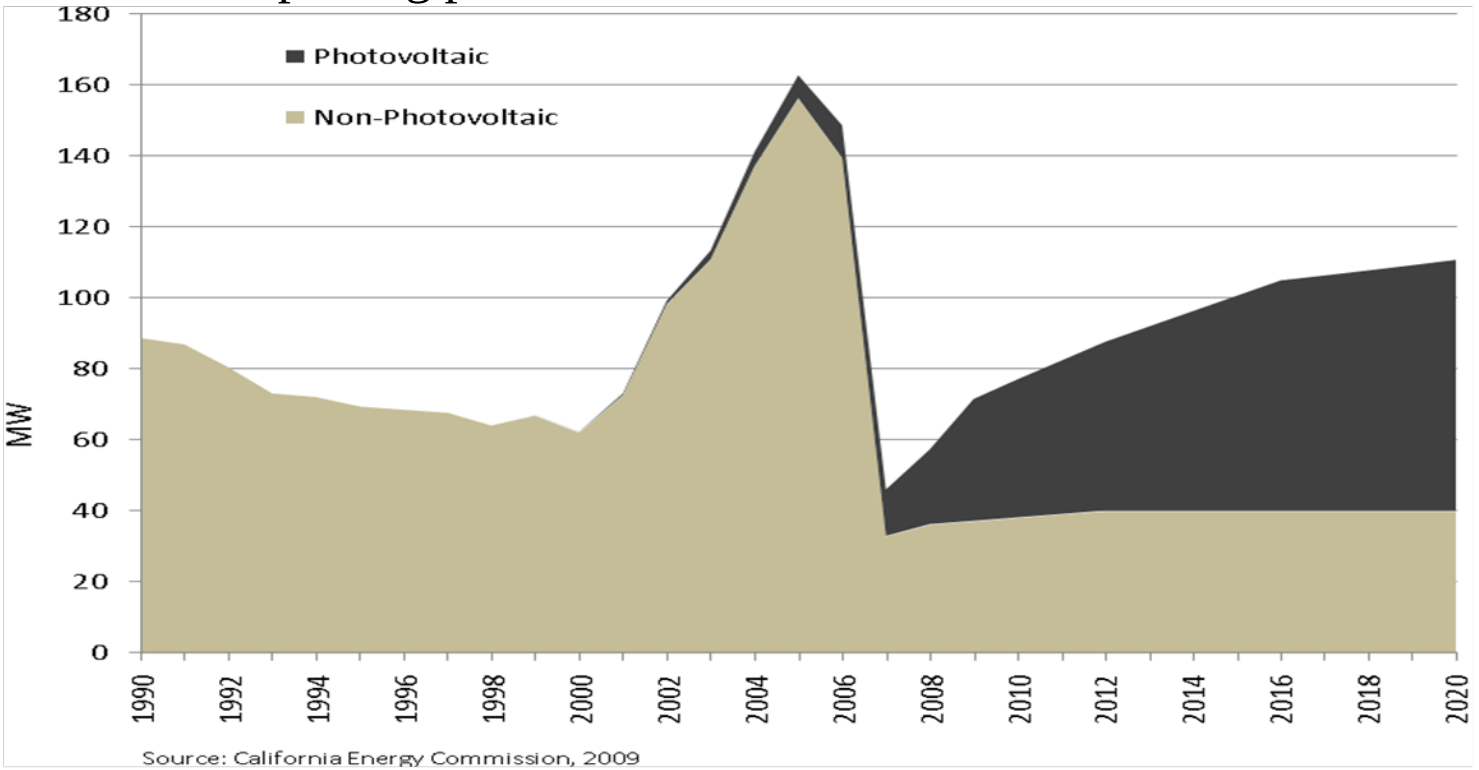
| | 1990 | 1998 | 2003 | 2008 | 2011 | 2015 | 2020 |
|---|---|---|---|---|---|---|---|
| Residential Energy Savings (MW) | | | | | | | |
| Building Standards | 18 | 37 | 39 | 49 | 61 | 76 | 95 |
| Appliance Standards | 45 | 119 | 140 | 196 | 225 | 254 | 290 |
| Utility and Public Agency Programs | 4 | 13 | 33 | 125 | 160 | 124 | 50 |
| Naturally Occurring Savings | 28 | 56 | 55 | 66 | 70 | 105 | 173 |
| Total Residential Savings | 96 | 225 | 268 | 436 | 515 | 559 | 607 |
| Commercial Energy Savings (MW) | | | | | | | |
| Building Standards | 32 | 67 | 105 | 137 | 164 | 202 | 247 |
| Appliance Standards | 20 | 43 | 62 | 79 | 92 | 109 | 128 |
| Utility and Public Agency Programs* | 15 | 60 | 64 | 65 | 88 | 75 | 53 |
| Naturally Occurring Savings | 134 | 119 | 136 | 123 | 130 | 148 | 192 |
| Total Commercial Savings | 201 | 289 | 366 | 404 | 474 | 533 | 619 |
| Total Energy Savings | 296 | 514 | 634 | 840 | 989 | 1092 | 1226 |

Source: California Energy Commission, 2009

*Commercial programs also include agricultural program savings.

# SDG&E Self Generation Peak Estimates

- self reporting problems in mid 2000's

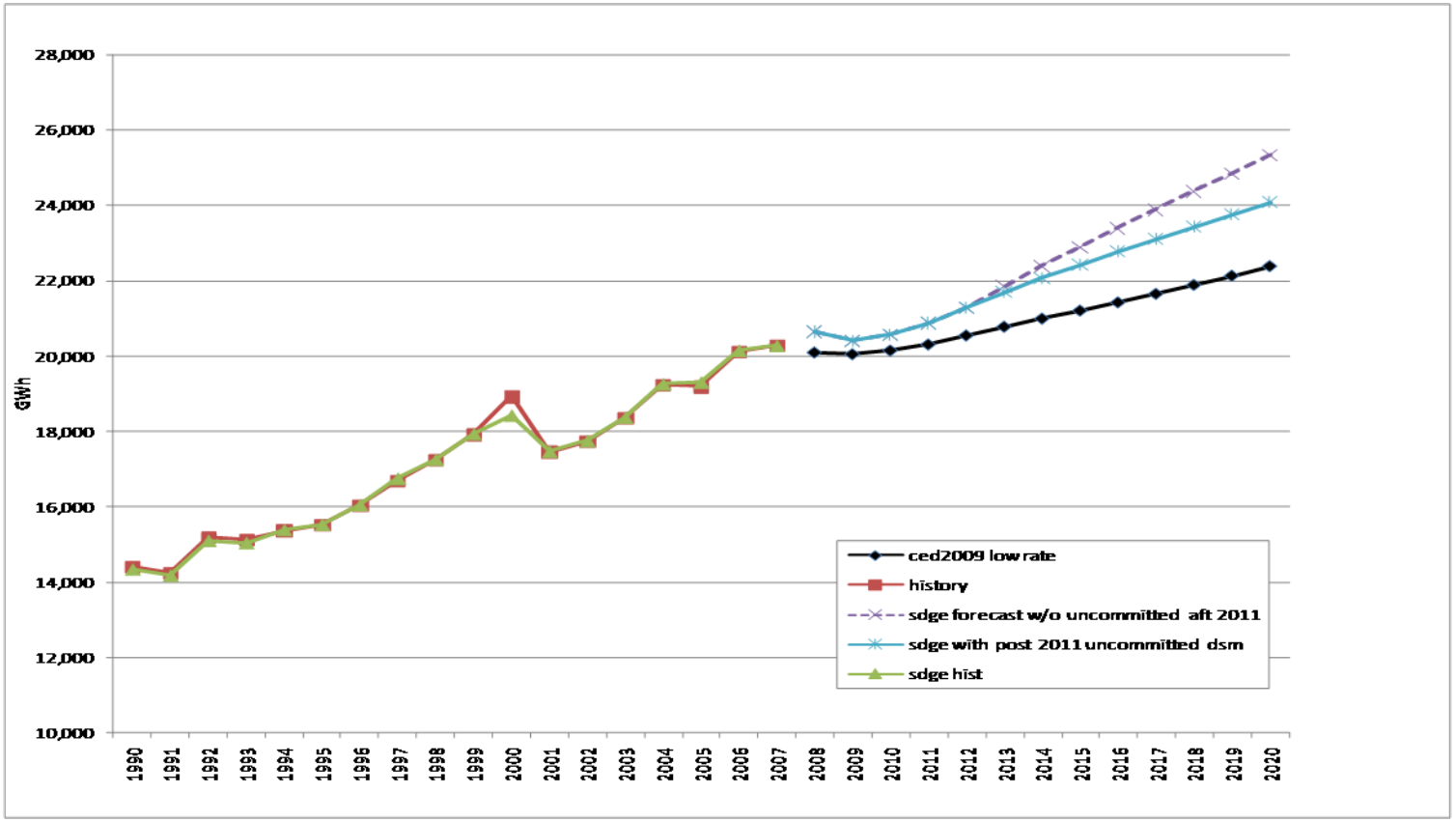


# Comparison to SDG&E Forecast

- SDG&E sales are 2.8% higher in 2008 than CEC forecast (2008 QFER sales are not included in Staff draft forecast)
- SDG&E managed (including uncommitted efficiency) sales forecast is 5.7% higher by 2015 and 7.6% by 2020
- SDG&E unmanaged (excluding uncommitted efficiency after 2011) sales is 8% higher by 2015 and 13.2% higher by 2020
- SDG&E managed peak is 1.5% higher by 2015 and 2.1% higher by 2020
- SDG&E unmanaged peak is 4% higher by 2015 and 7.2% higher by 2020
- SDG&E forecasts return to the projections of CED 2007 levels

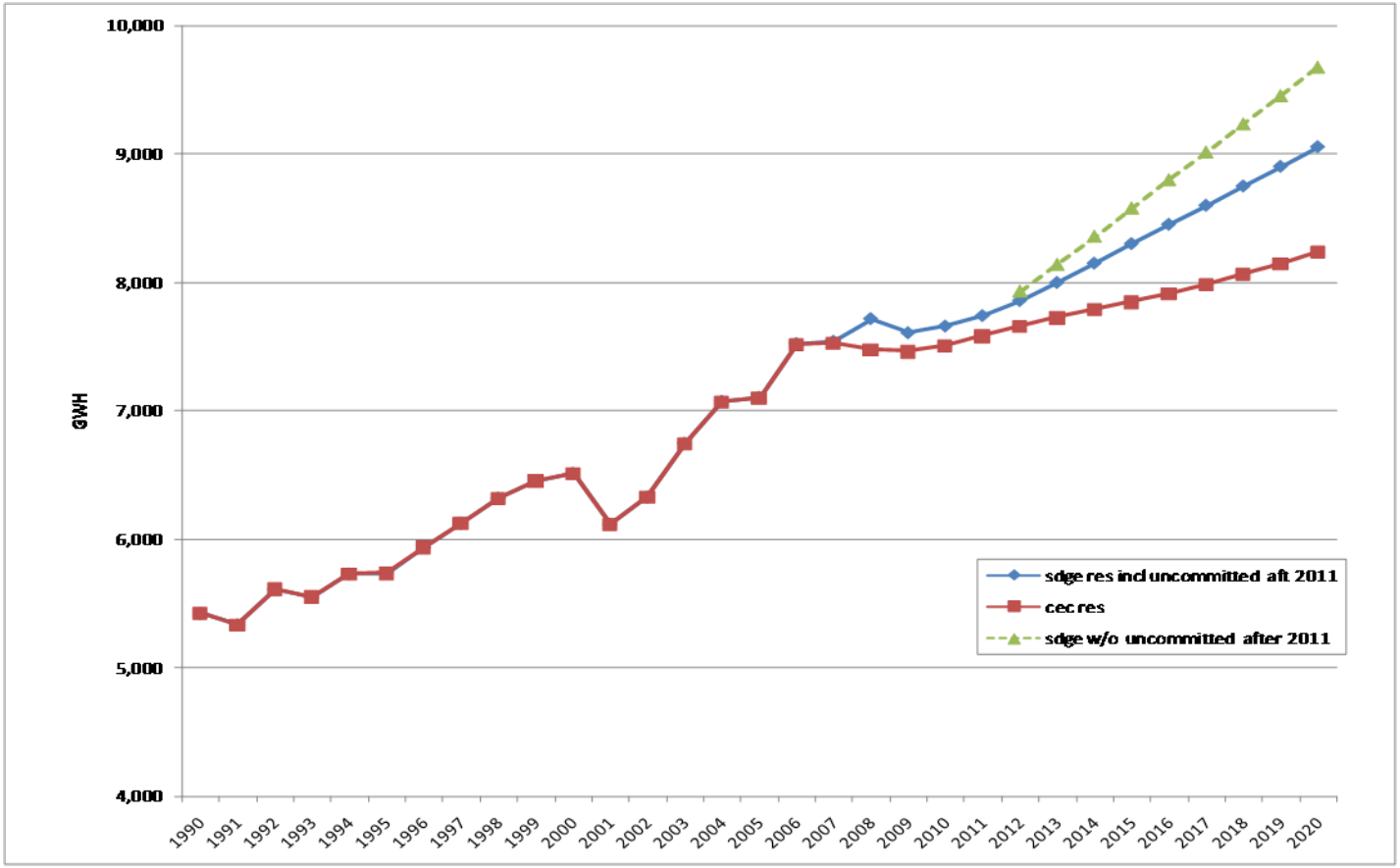
# SDG&E Forecast Comparison

- both SDG&E forecasts higher



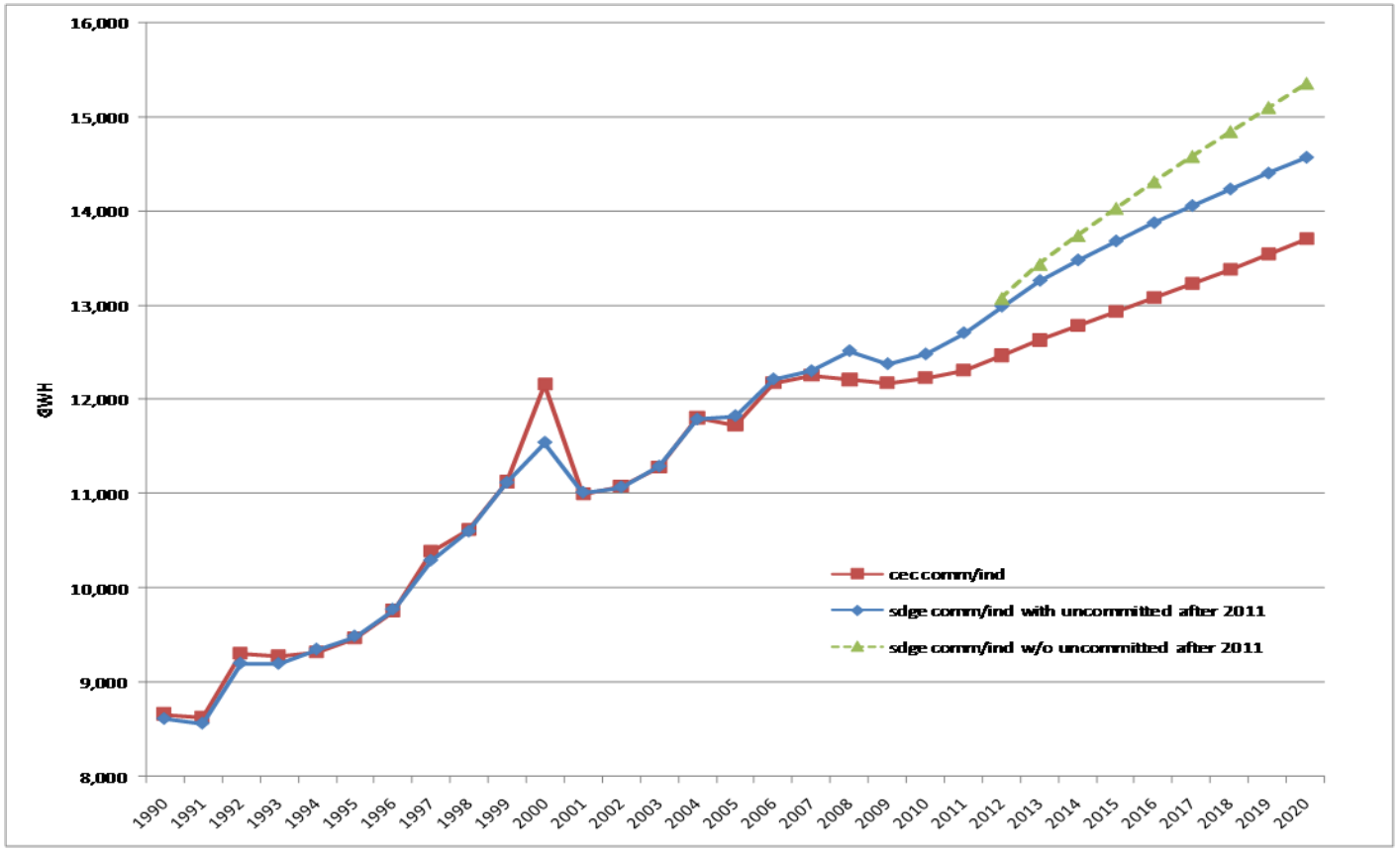
# SDG&E Residential Forecast Comparison

- both SDG&E forecasts higher after 2012



# SDG&E Commercial/Industrial Forecast Comparison

- both SDG&E forecasts higher after 2012



# SDG&E Peak Forecast Comparison

- SDG&E managed forecast (includes uncommitted ) close to CED 2009