



ACCOMPLISHMENTS IN ENERGY REDUCTION EFFORTS AT THE ARCHITECT OF THE CAPITOL

IDEA CAMPUS ENERGY CONFERENCE
MARCH 8, 2018

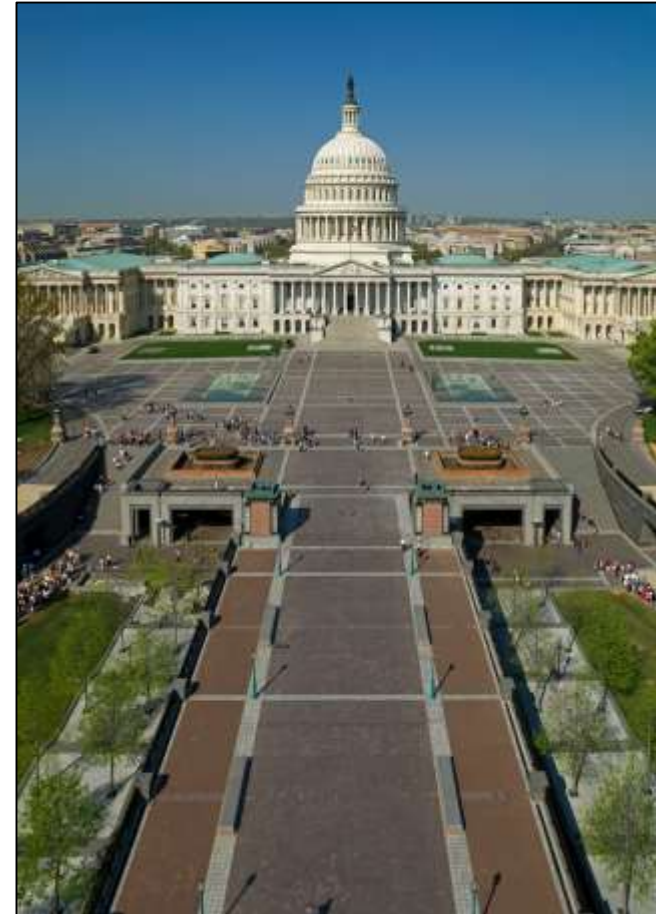


ACCOMPLISHMENTS IN ENERGY REDUCTION EFFORTS AT THE ARCHITECT OF THE CAPITOL



PRESENTATION TOPICS:

- OVERVIEW OF THE AOC
- DRIVERS FOR ENERGY CONSERVATION
- AOC ACCOMPLISHMENTS IN ENERGY REDUCTION EFFORTS
- BRIEF HISTORY OF THE CPP
- CONDITIONS AT THE START OF THE EFFORT
- CPP ENERGY CONSERVATION EFFORTS



THE ARCHITECT OF THE CAPITOL



*CARE FOR: 17.4 MILLION+
SQUARE FEET OF FACILITIES;
580+ ACRES OF GROUNDS AND
THOUSANDS OF WORKS OF ART*

SERVE



*OVERSEE ANNUAL BUDGET OF
APPROXIMATELY \$600 MILLION
PER YEAR AND MANAGE \$1
BILLION+ IN ACTIVE
CONSTRUCTION PROJECTS*

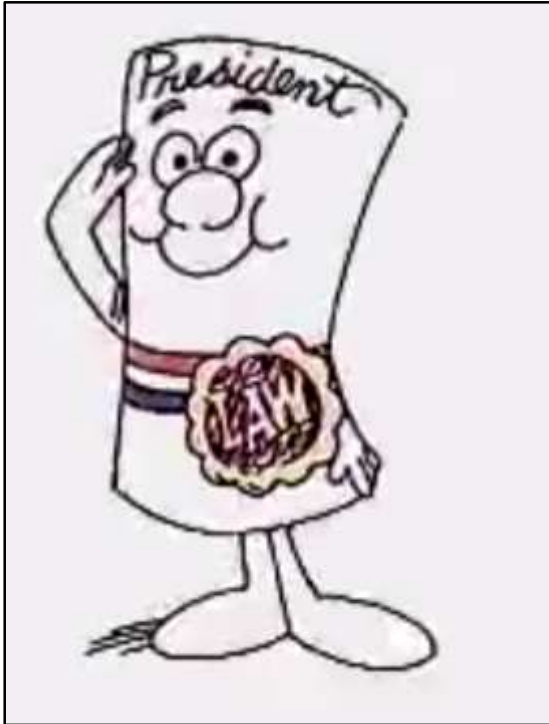
PRESERVE



*HOST 3 MILLION+ VISITORS
ANNUALLY WHILE SERVING
30,000 DAILY OCCUPANTS
AROUND THE CLOCK TO
MAINTAIN THE CAPITOL CAMPUS*

INSPIRE

KEY DRIVERS FOR FEDERAL ENERGY CONSERVATION EFFORTS



ENERGY POLICY ACT OF 2005

- ESTABLISHED A 20% ENERGY INTENSITY REDUCTION GOAL BY 2015
- USED 2003 ENERGY INTENSITY AS A BASELINE

KEY DRIVERS FOR FEDERAL ENERGY CONSERVATION EFFORTS



KEY DRIVERS FOR FEDERAL ENERGY CONSERVATION EFFORTS



ENERGY INDEPENDENCE AND SECURITY ACT 2007:

- ESTABLISHED A MORE AGGRESSIVE GOAL OF A 30% REDUCTION IN ENERGY INTENSITY BY 2015
- STILL USED THE 2003 ENERGY INTENSITY AS THE BASELINE

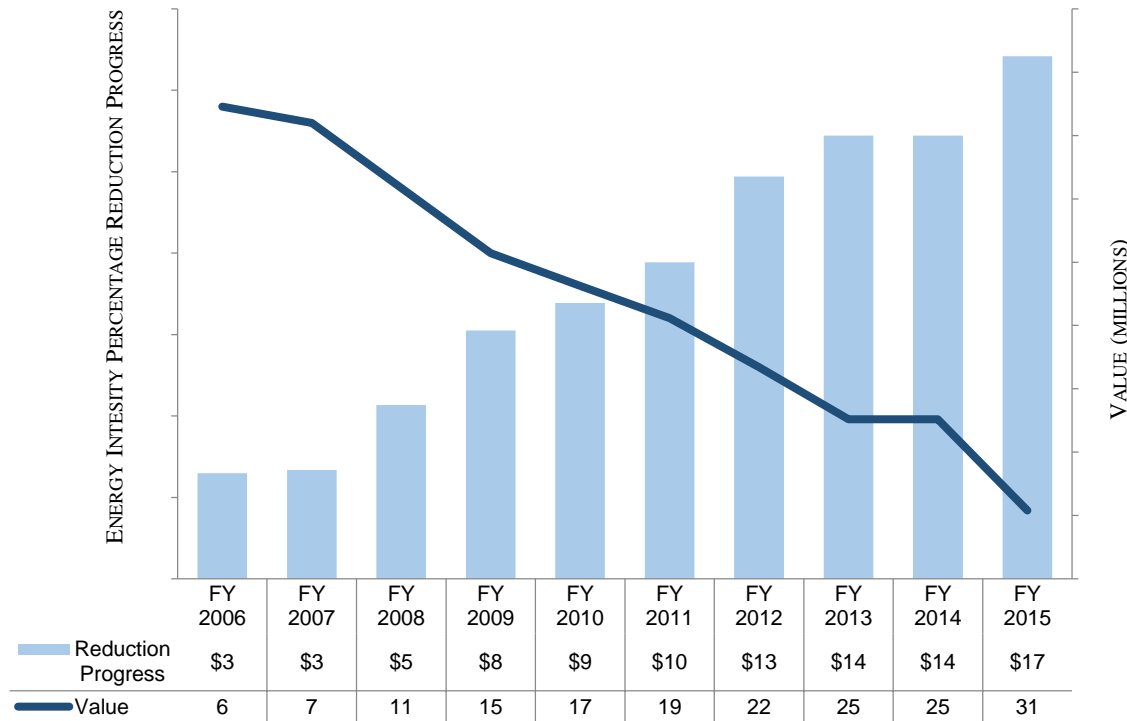
ARCHITECT OF THE CAPITOL

ENERGY CONSERVATION EFFORTS SUCCESS STORY

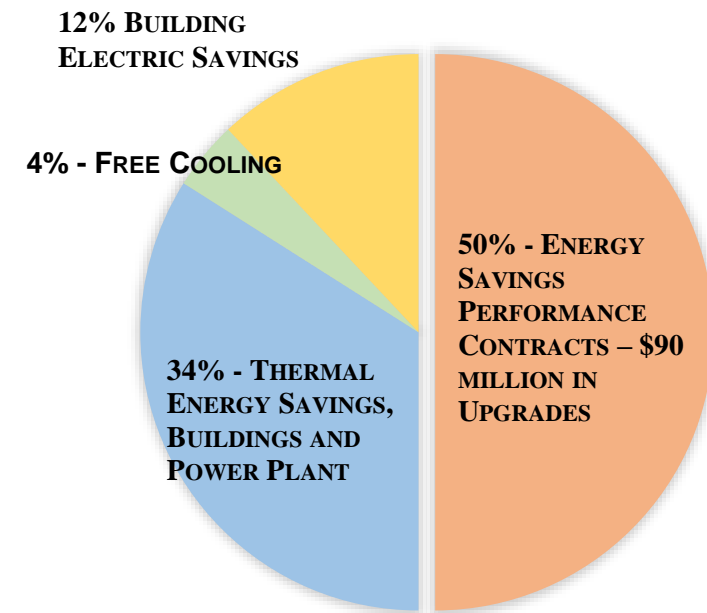


AOC ENERGY CONSERVATION: A STORY OF SUCCESS!

ANNUAL VALUE OF ENERGY REDUCTIONS



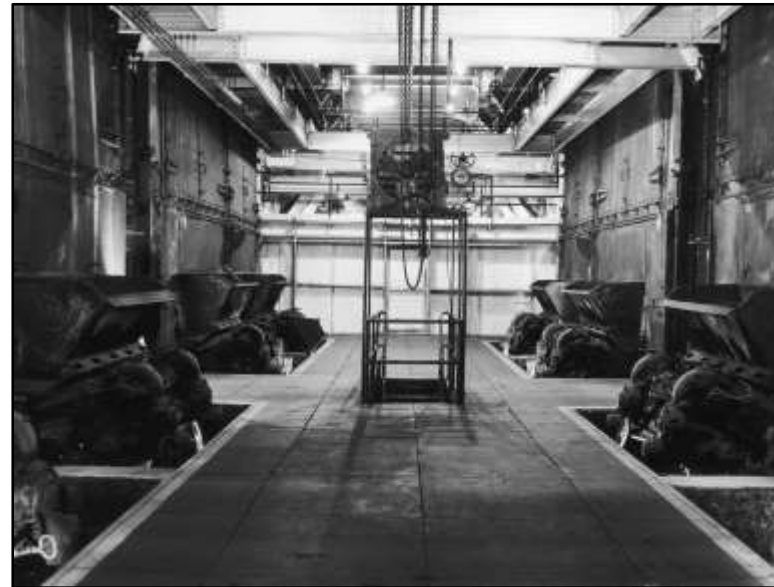
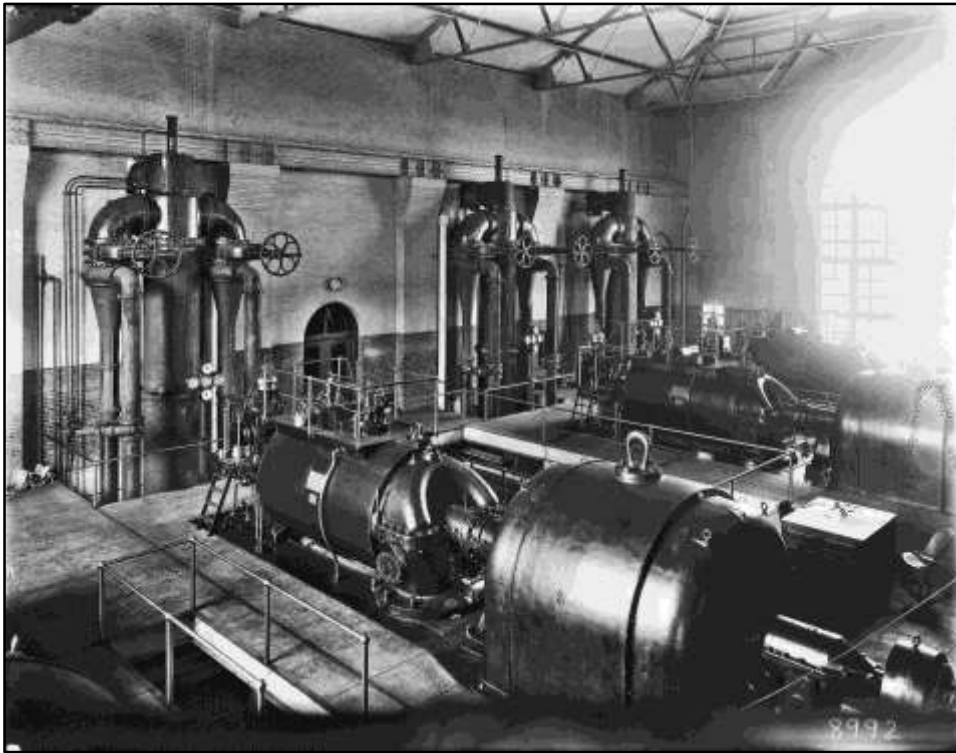
MAJOR SOURCES OF COST SAVINGS
MMBTUS (UNIT OF MEASURE)



OVERVIEW OF THE CAPITOL POWER PLANT



1910 INITIAL CONSTRUCTION



OVERVIEW OF THE CAPITOL POWER PLANT



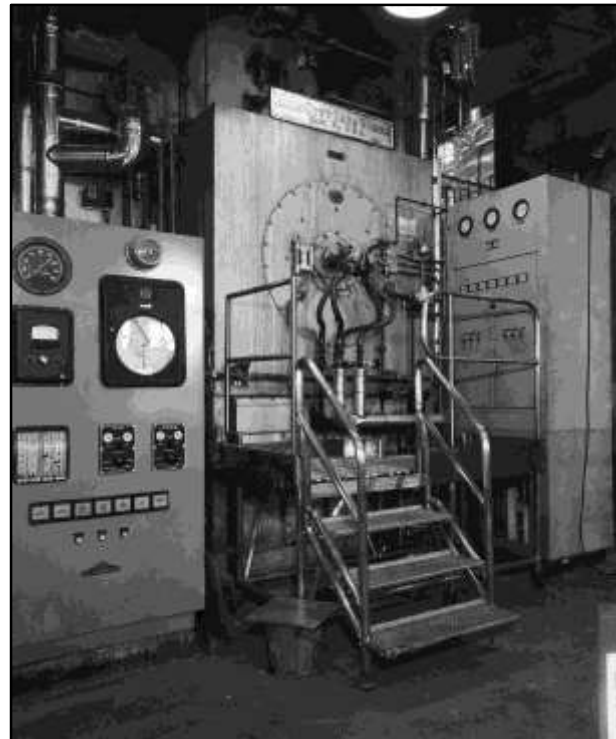
1930's REFRIGERATION PLANT



OVERVIEW OF THE CAPITOL POWER PLANT



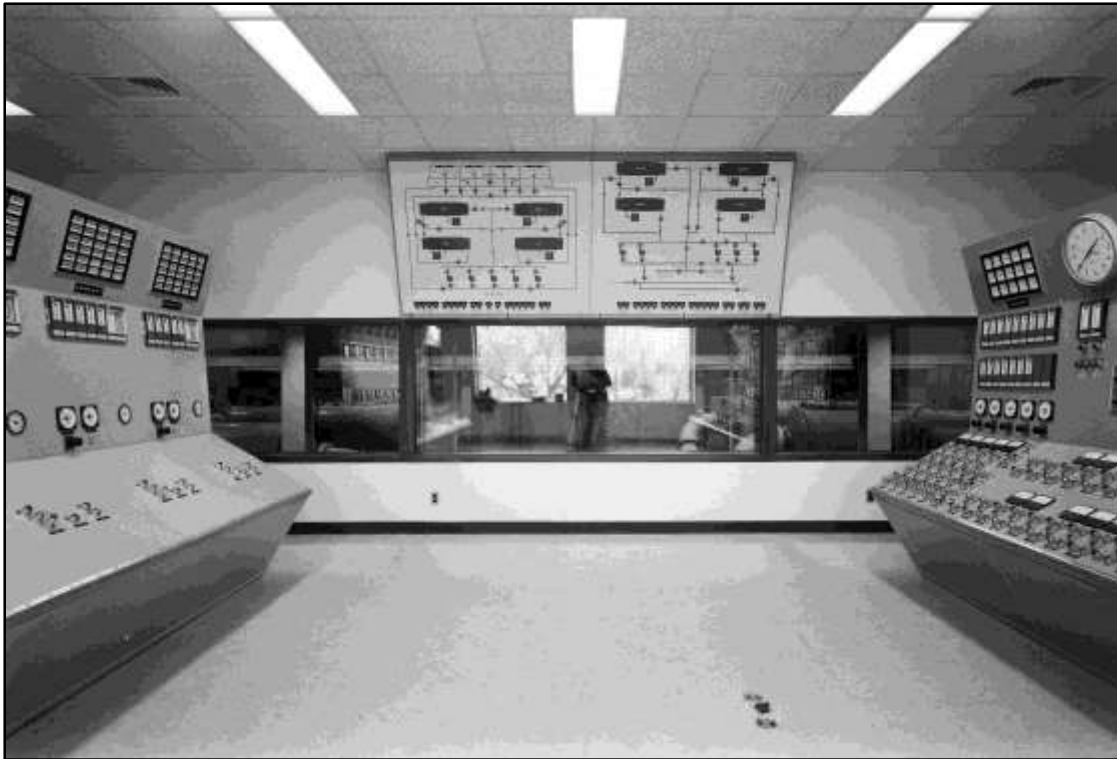
1950'S AND 1960'S RENOVATIONS



OVERVIEW OF THE CAPITOL POWER PLANT



1970's WEST REFRIGERATION PLANT CONSTRUCTION



OVERVIEW OF THE CAPITOL POWER PLANT



2000's EXPANSION OF THE WEST REFRIGERATION PLANT



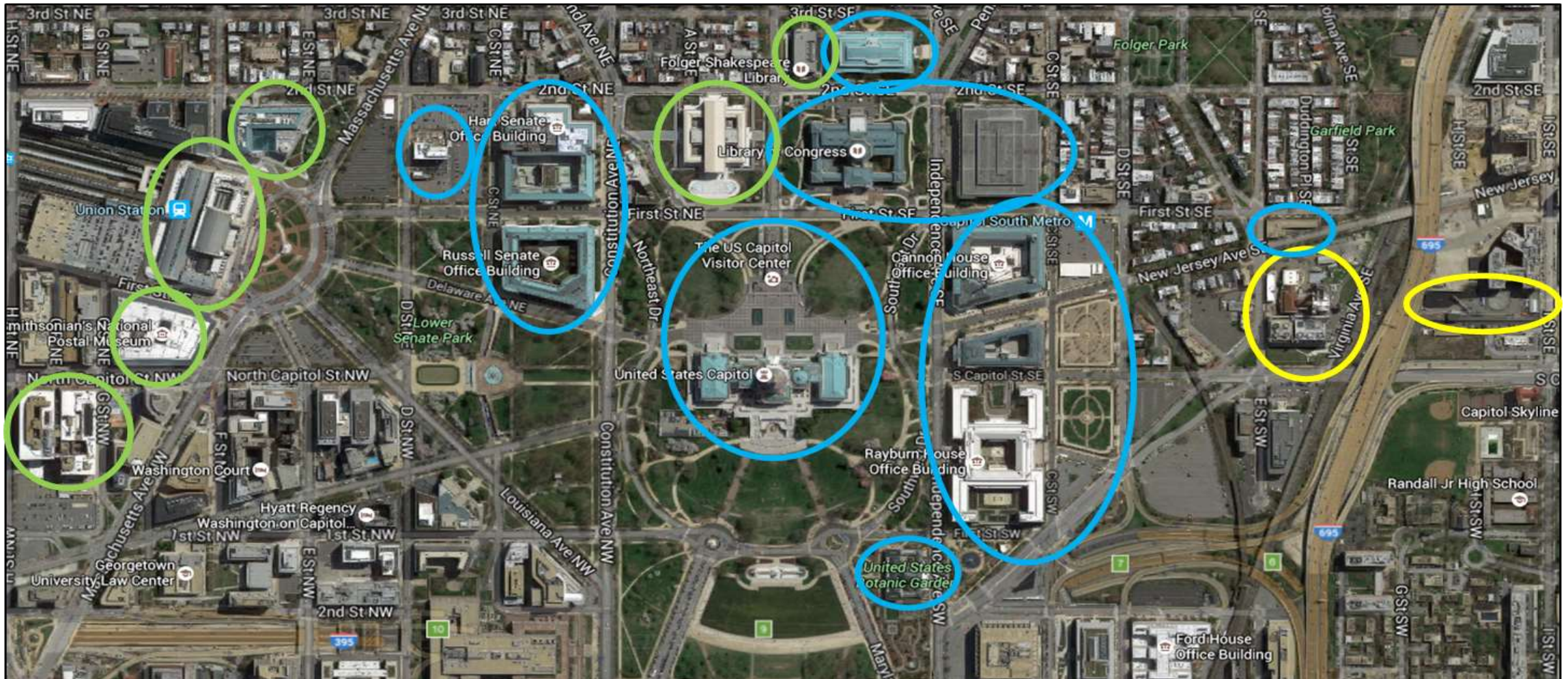
OVERVIEW OF THE CAPITOL POWER PLANT



CAPITOL POWER PLANT TODAY



OVERVIEW OF THE CAPITOL POWER PLANT



THE CAPITOL POWER PLANT (IN 2007)



SYSTEM SNAPSHOT

- 1970'S REFRIGERATION PLANT EXPANSION COMPLETED IN 2007
- CONNECTED LOAD FOR ~17.5 MILLION SQ. FT.
- 7 BOILERS (620,000 / 460,000 PPH)
- 7 ELECTRIC-DRIVEN CHILLERS (40,200 TONS)
- 4 FREE-COOLING HEAT EXCHANGERS
- PRIMARY-SECONDARY PUMPING (125 - 150 PSIG)
- SUPPLY TEMPERATURE (41°F – 43°F)
- OPERATOR TRAINING PROGRAM

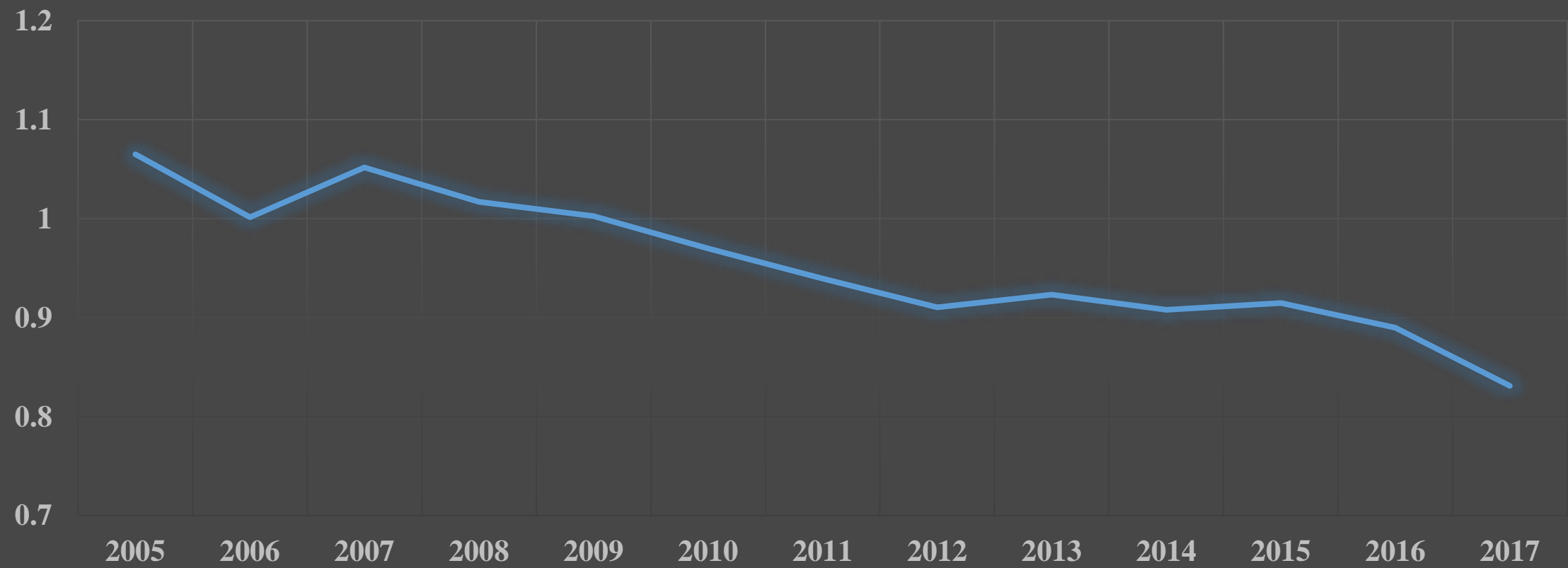
THE CAPITOL POWER PLANT (IN 2007)



CPP CHILLED WATER SYSTEM CONSERVATION EFFORTS



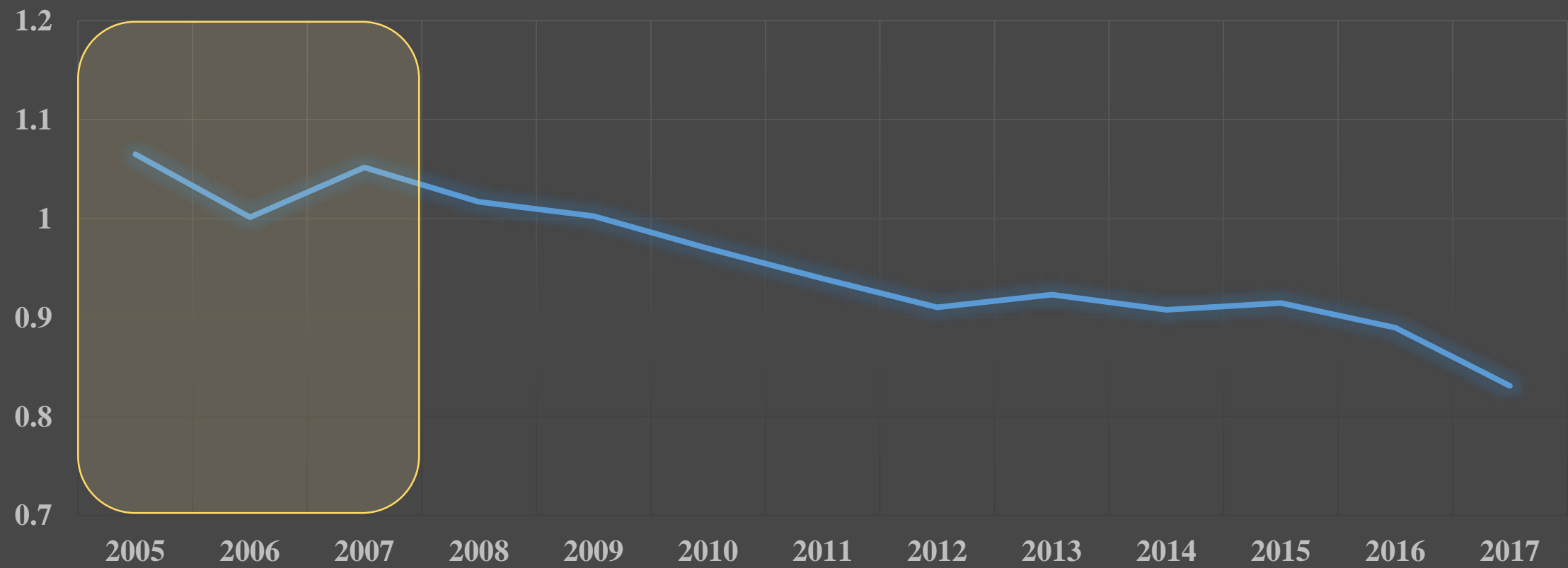
ANNUAL CHILLED WATER PRODUCTION EFFICIENCY (KW/TON)



CPP CHILLED WATER SYSTEM CONSERVATION EFFORTS



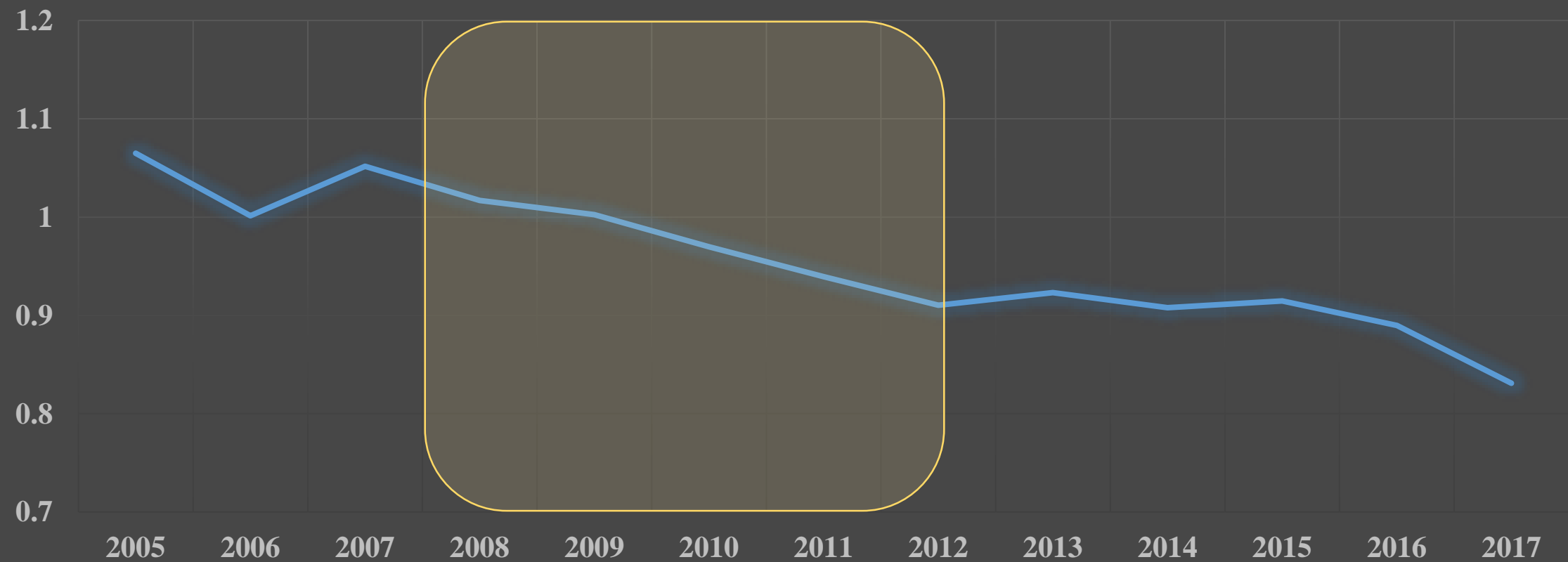
ANNUAL CHILLED WATER PRODUCTION EFFICIENCY (KW/TON)



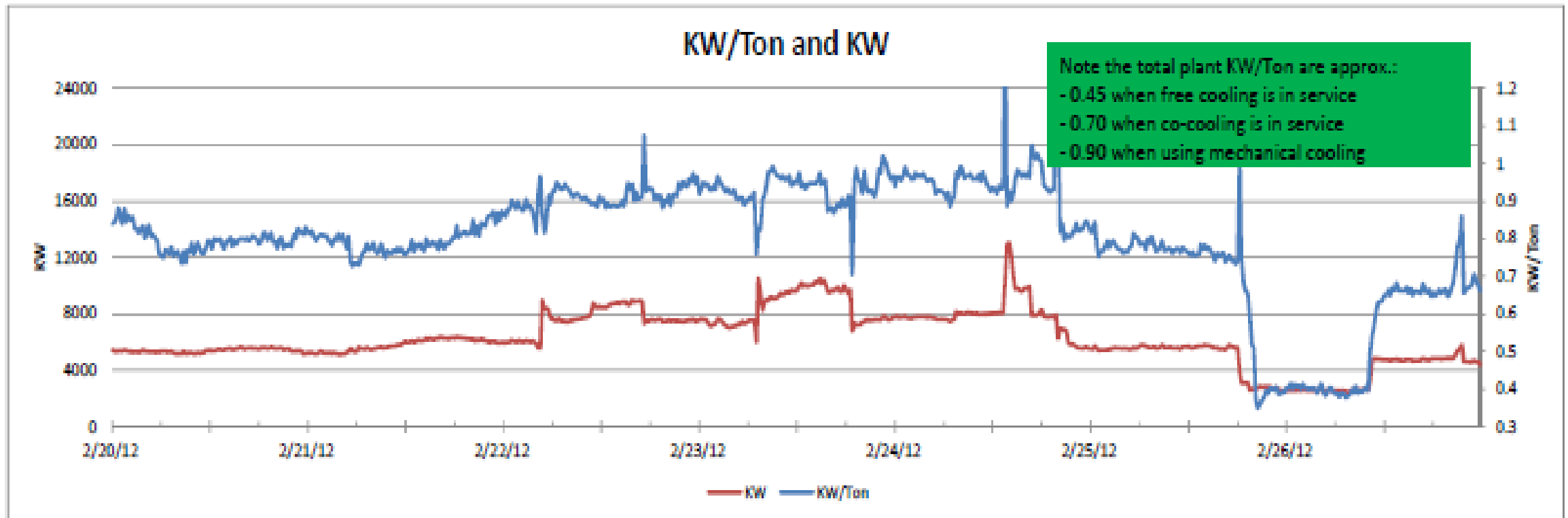
CPP CHILLED WATER SYSTEM CONSERVATION EFFORTS



ANNUAL CHILLED WATER PRODUCTION EFFICIENCY (KW/TON)



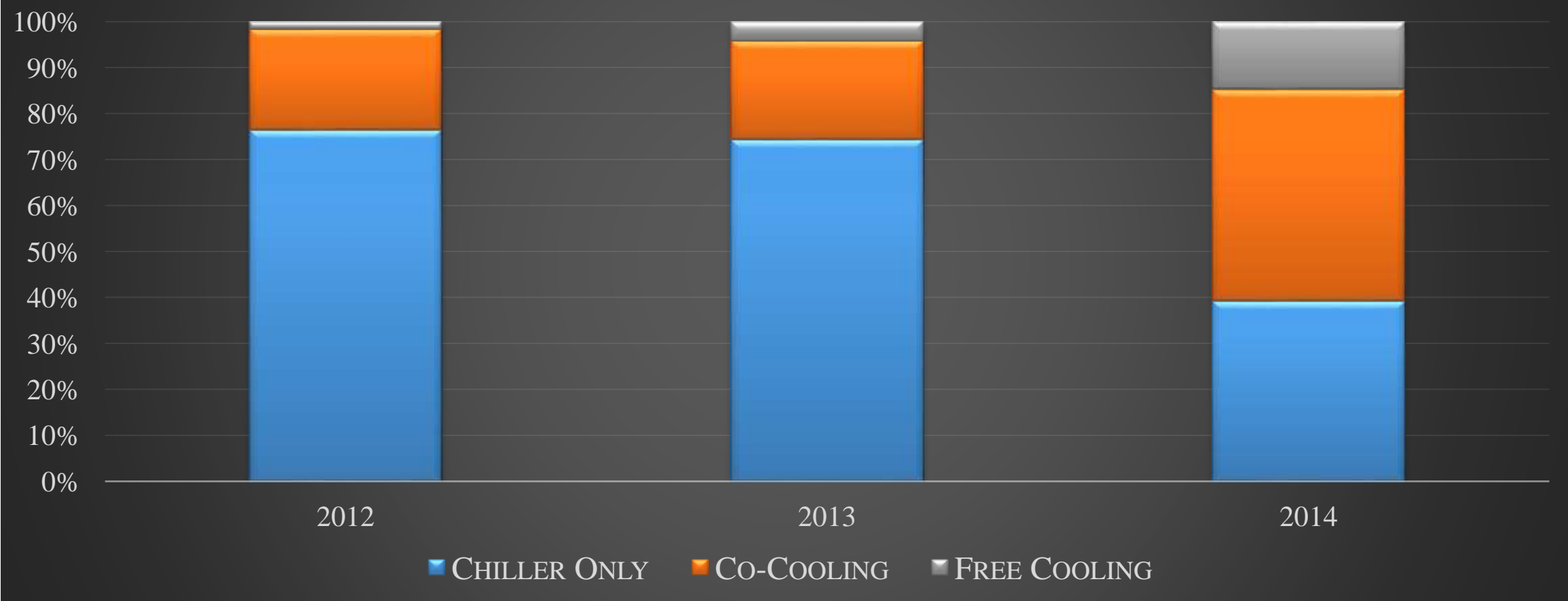
CPP CHILLED WATER SYSTEM CONSERVATION EFFORTS



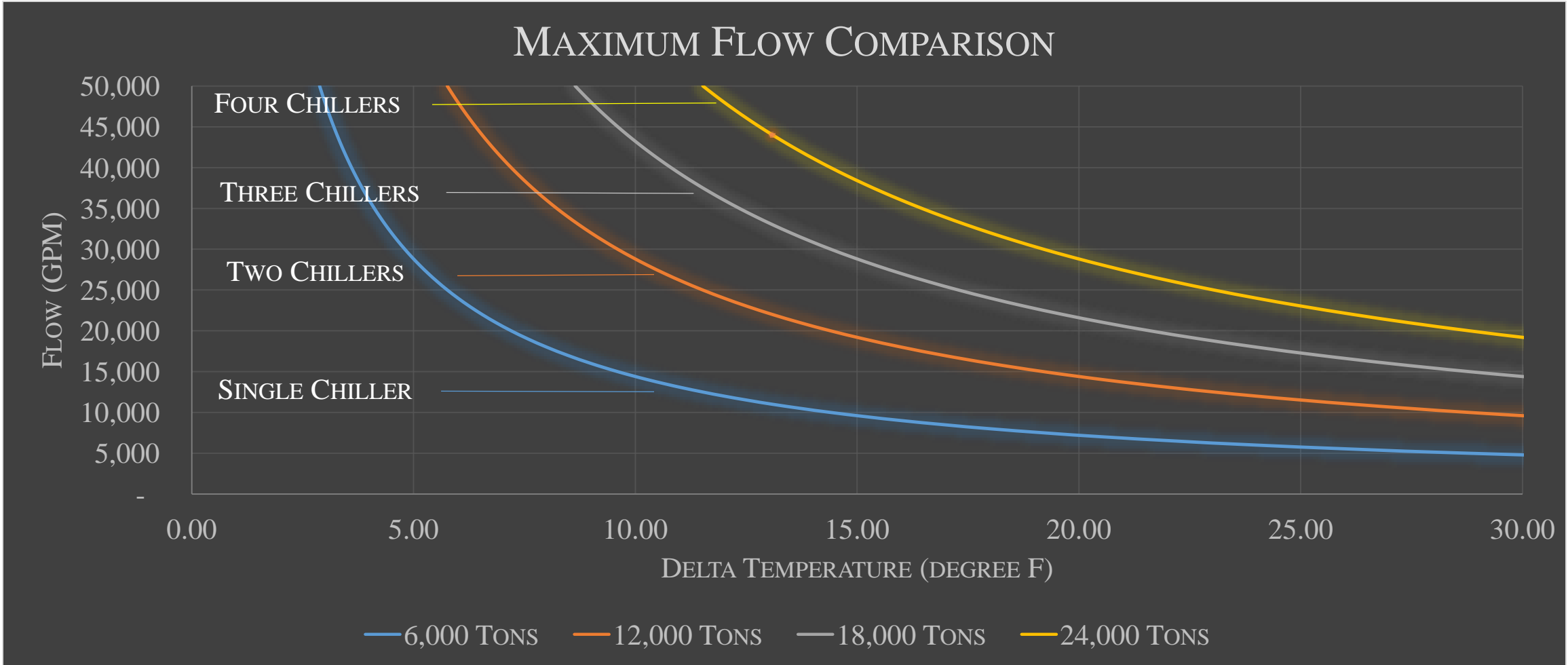
CPP CHILLED WATER SYSTEM CONSERVATION EFFORTS



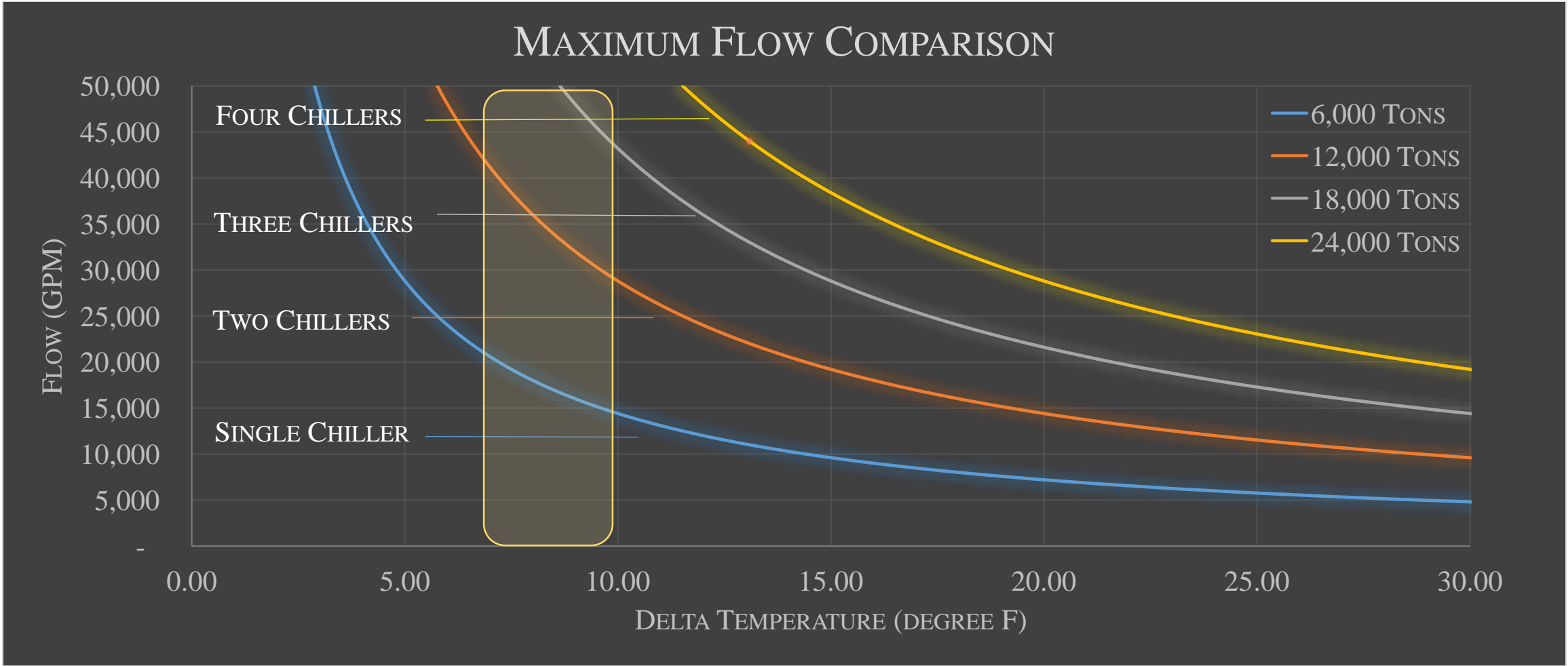
PERCENT FREE COOLING SYSTEM USE (OCT. –MAR.)



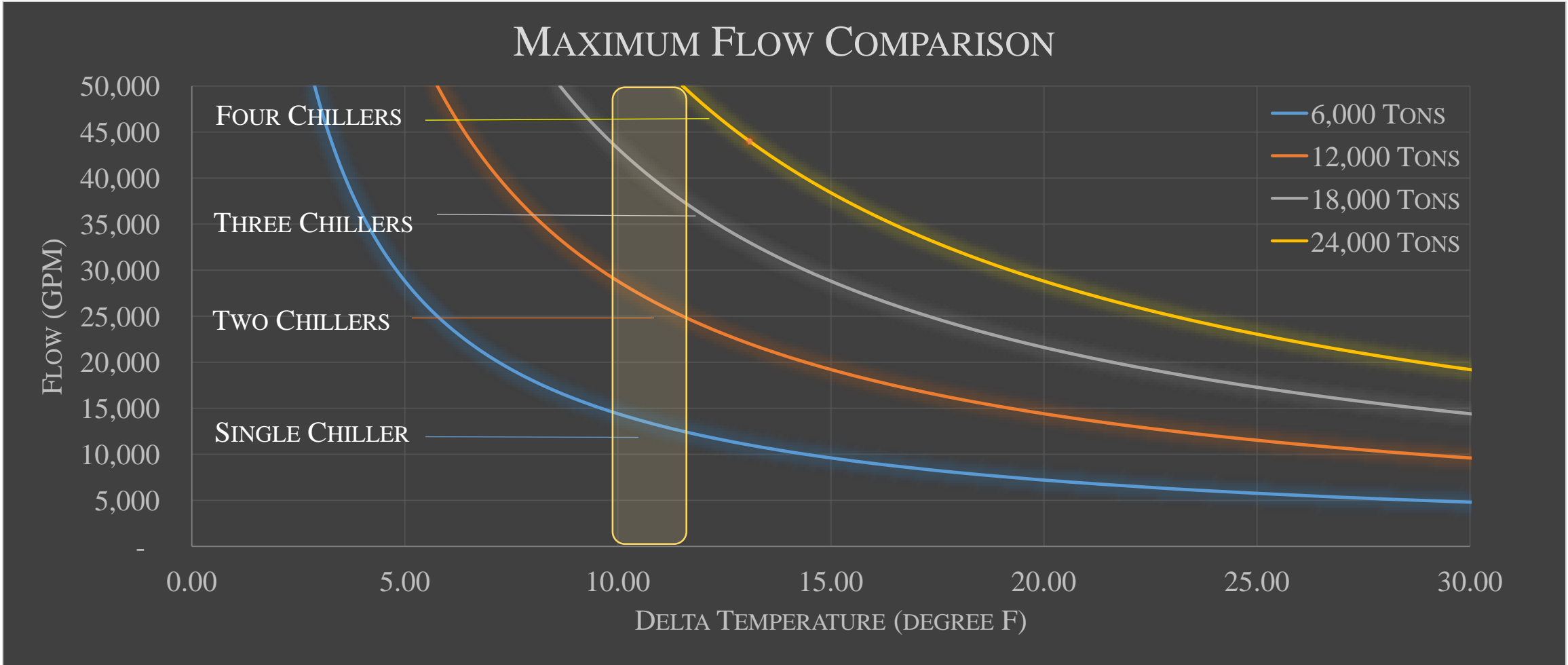
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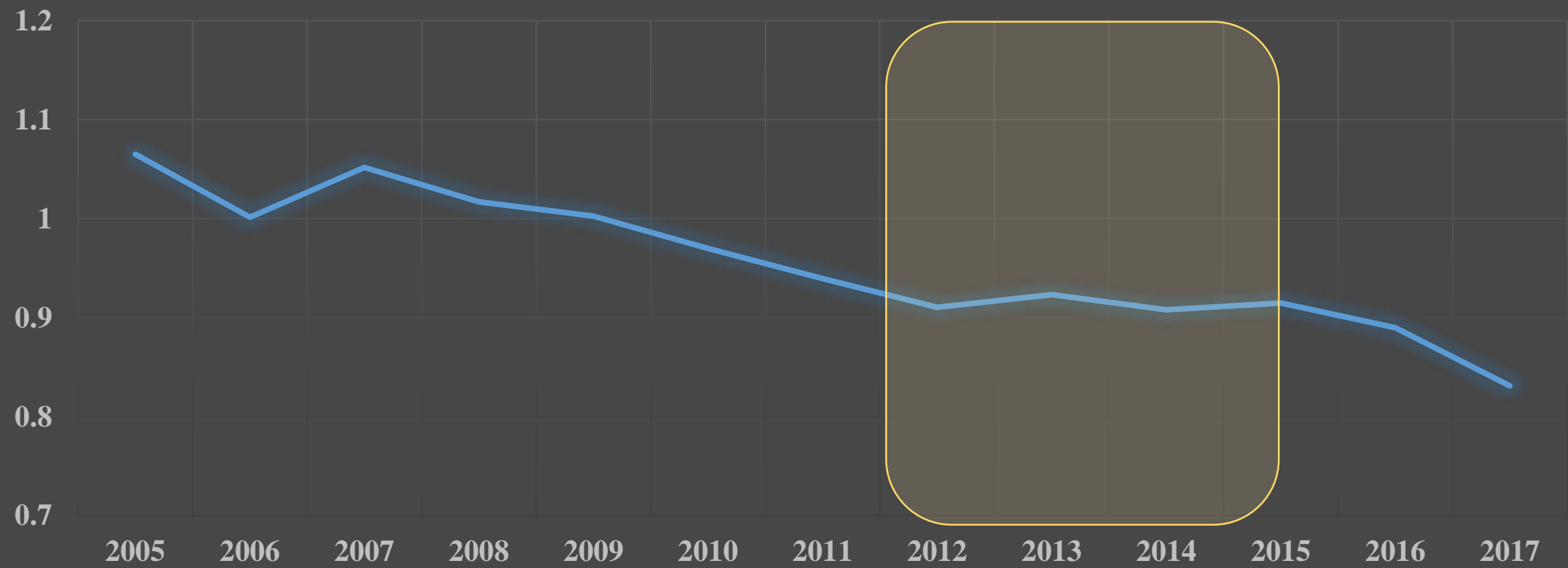
CPP CHILLED WATER SYSTEM CONSERVATION EFFORTS



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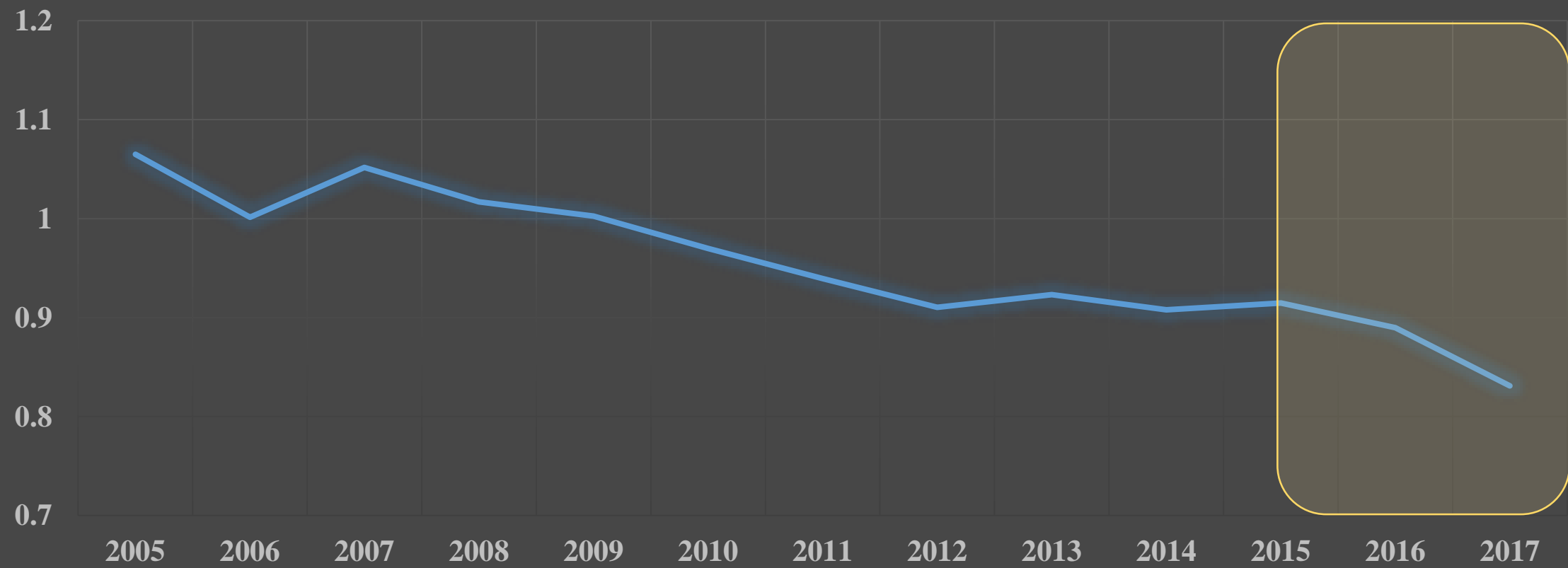
ANNUAL CHILLED WATER PRODUCTION EFFICIENCY (KW/TON)



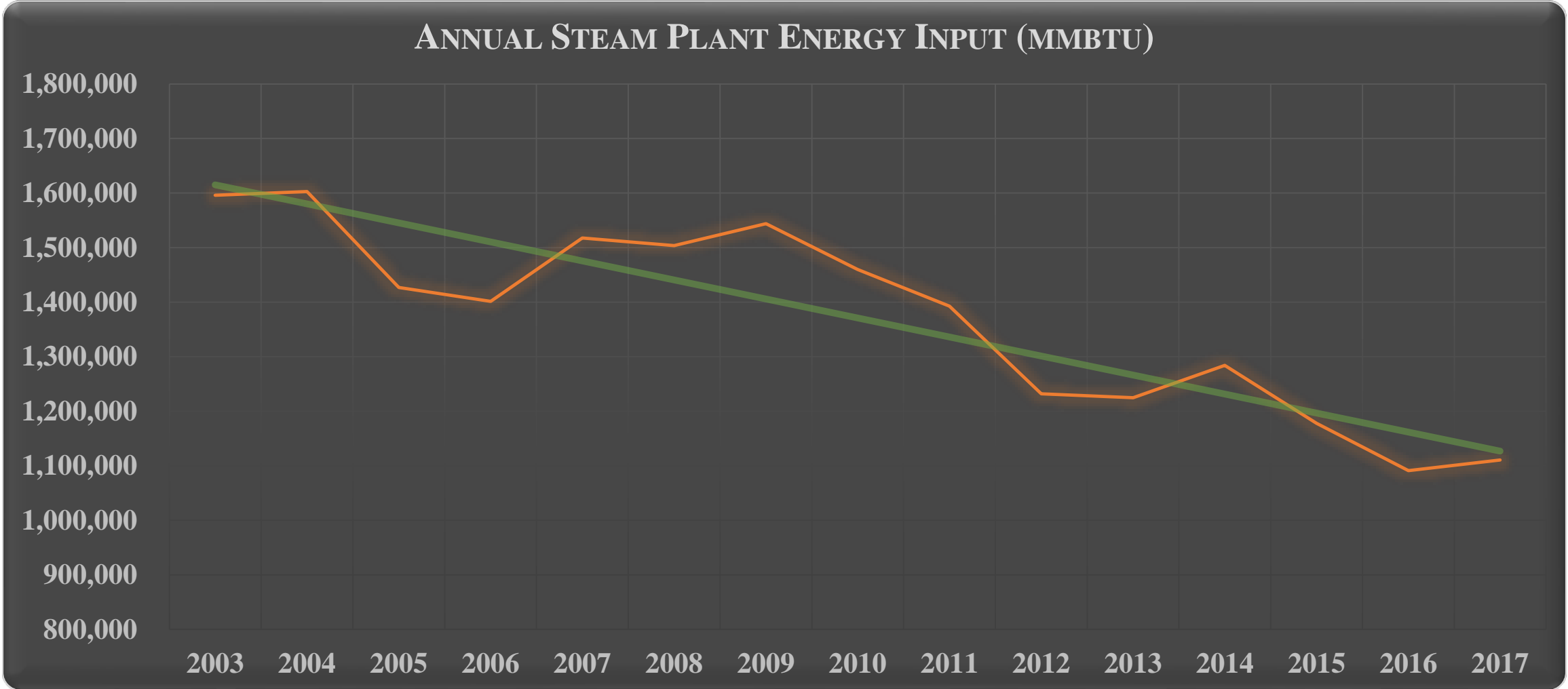
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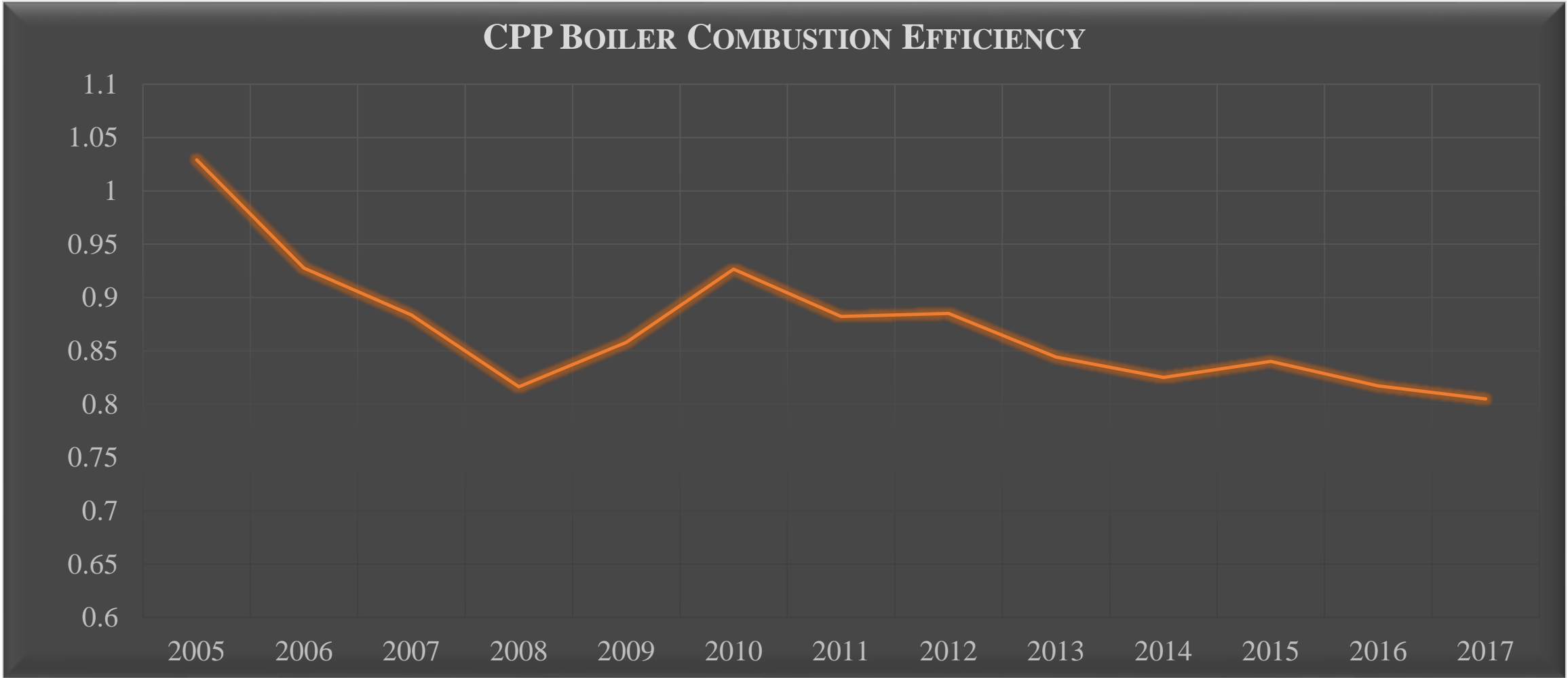
ANNUAL CHILLED WATER PRODUCTION EFFICIENCY (KW/TON)



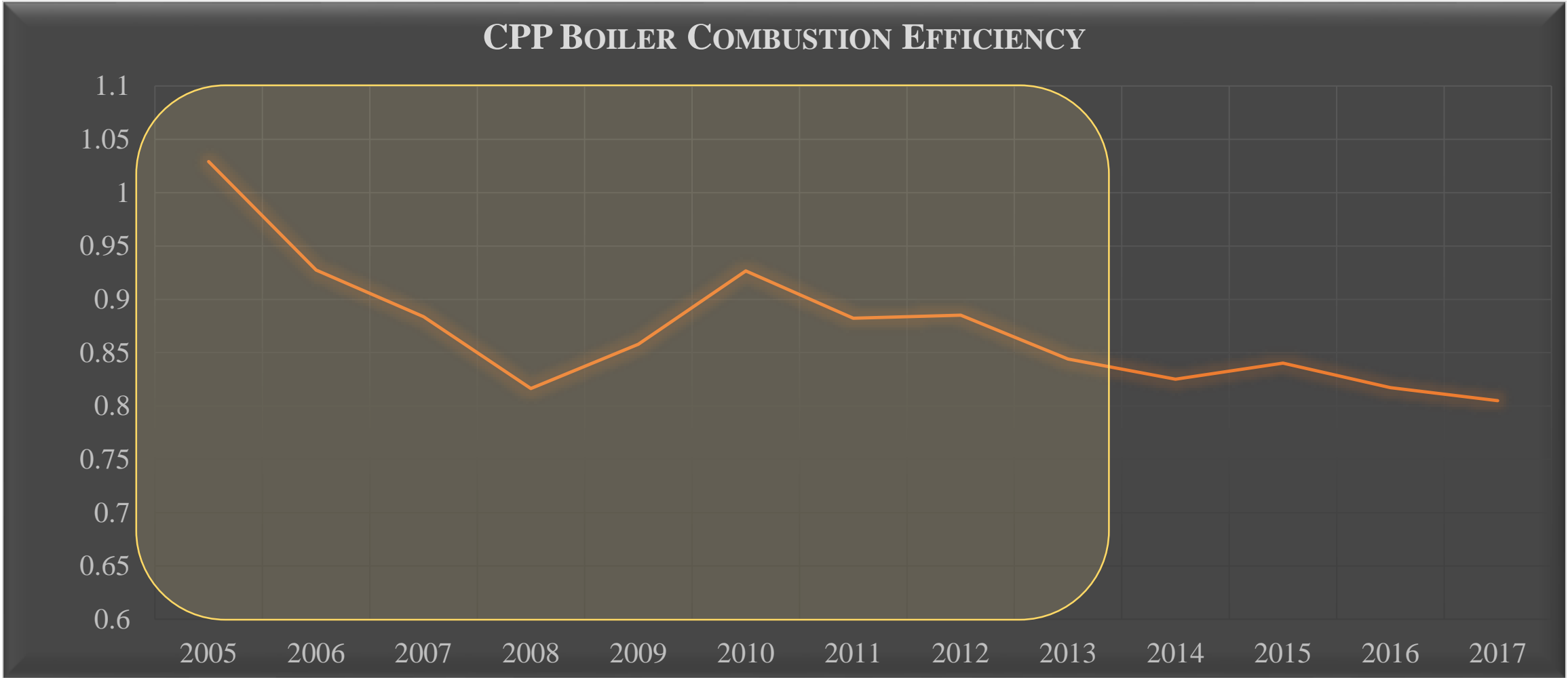
CPP STEAM SYSTEM CONSERVATION EFFORTS



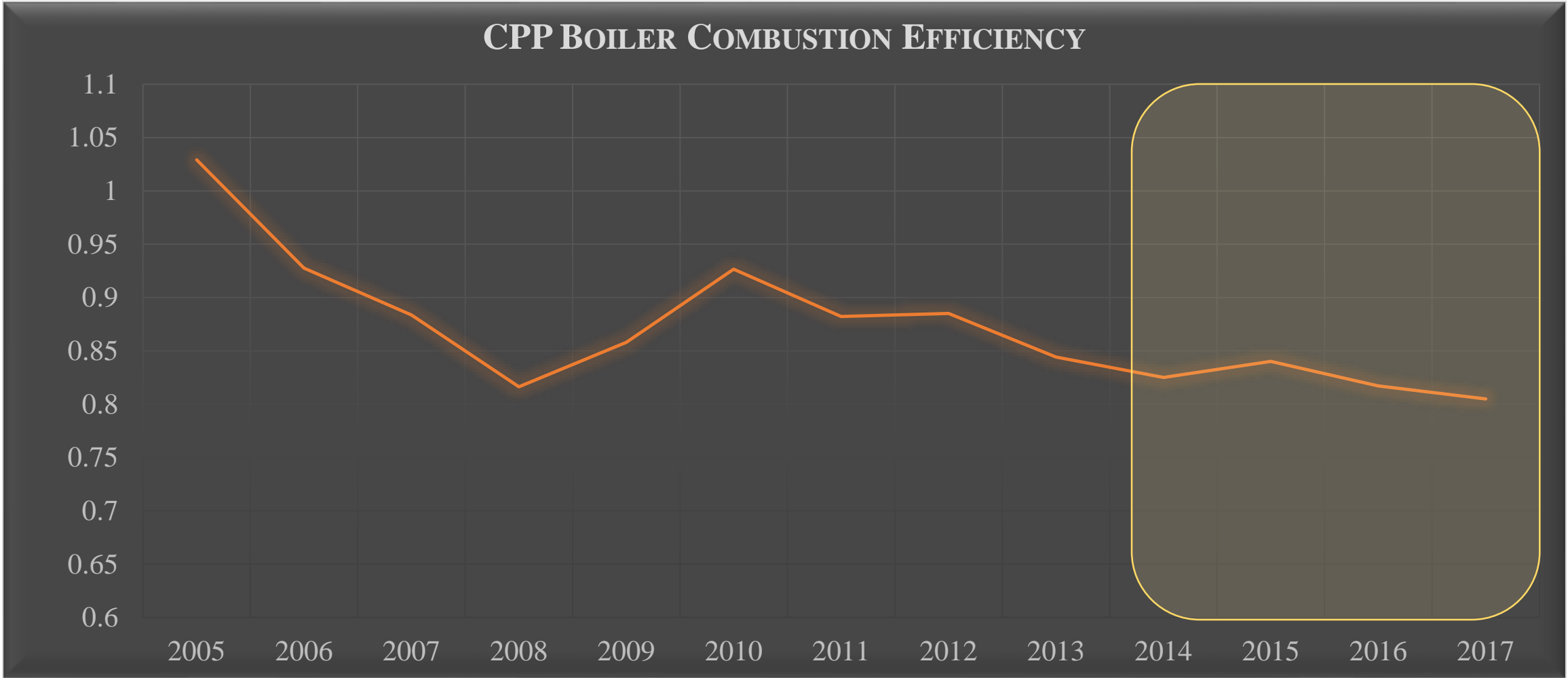
CPP STEAM SYSTEM CONSERVATION EFFORTS



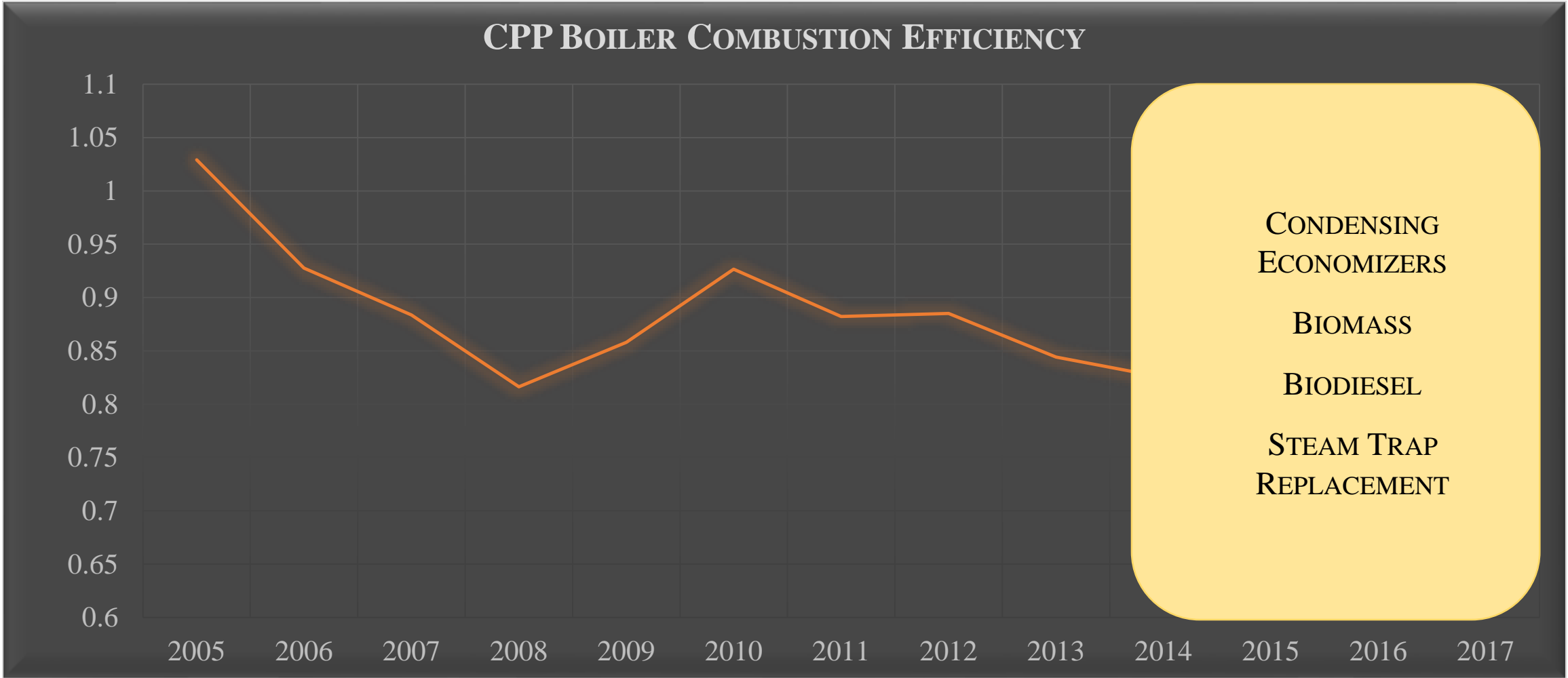
CPP STEAM SYSTEM CONSERVATION EFFORTS



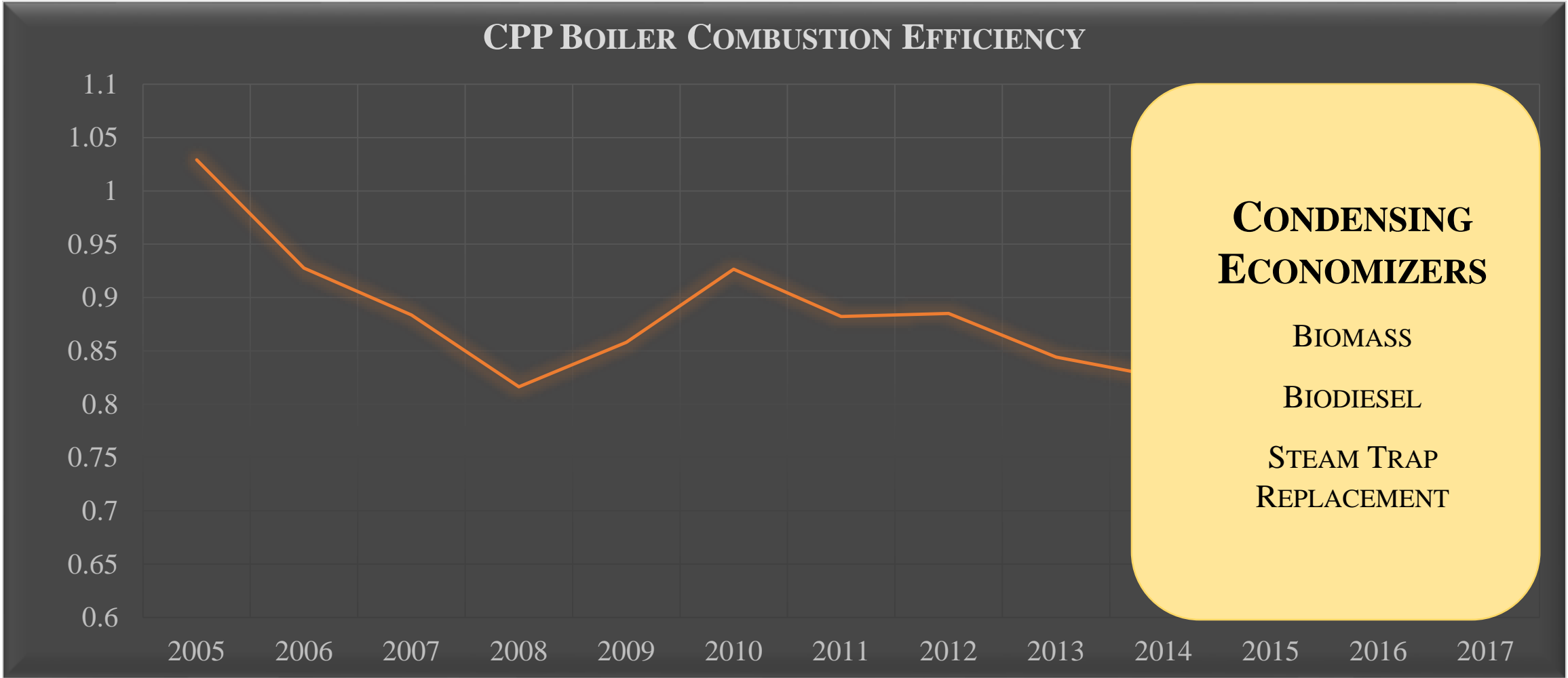
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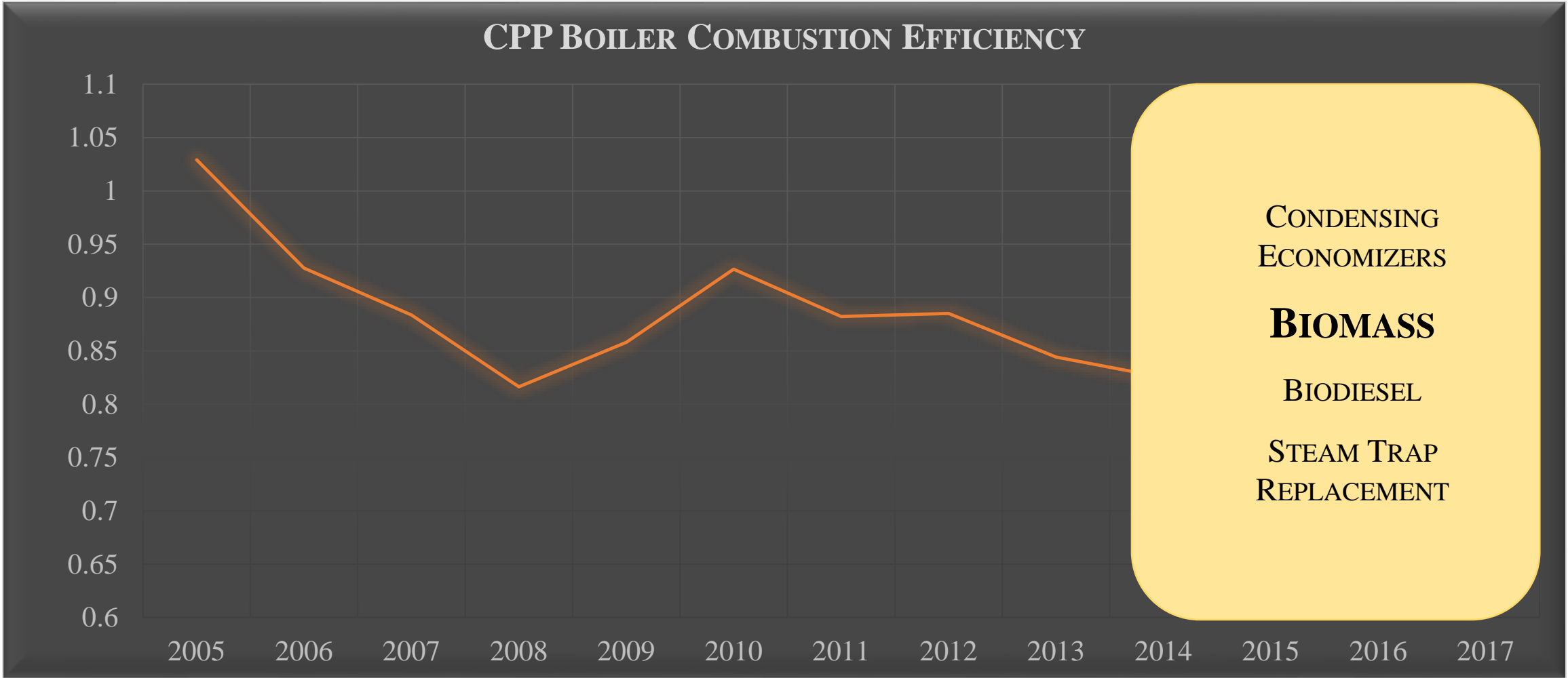
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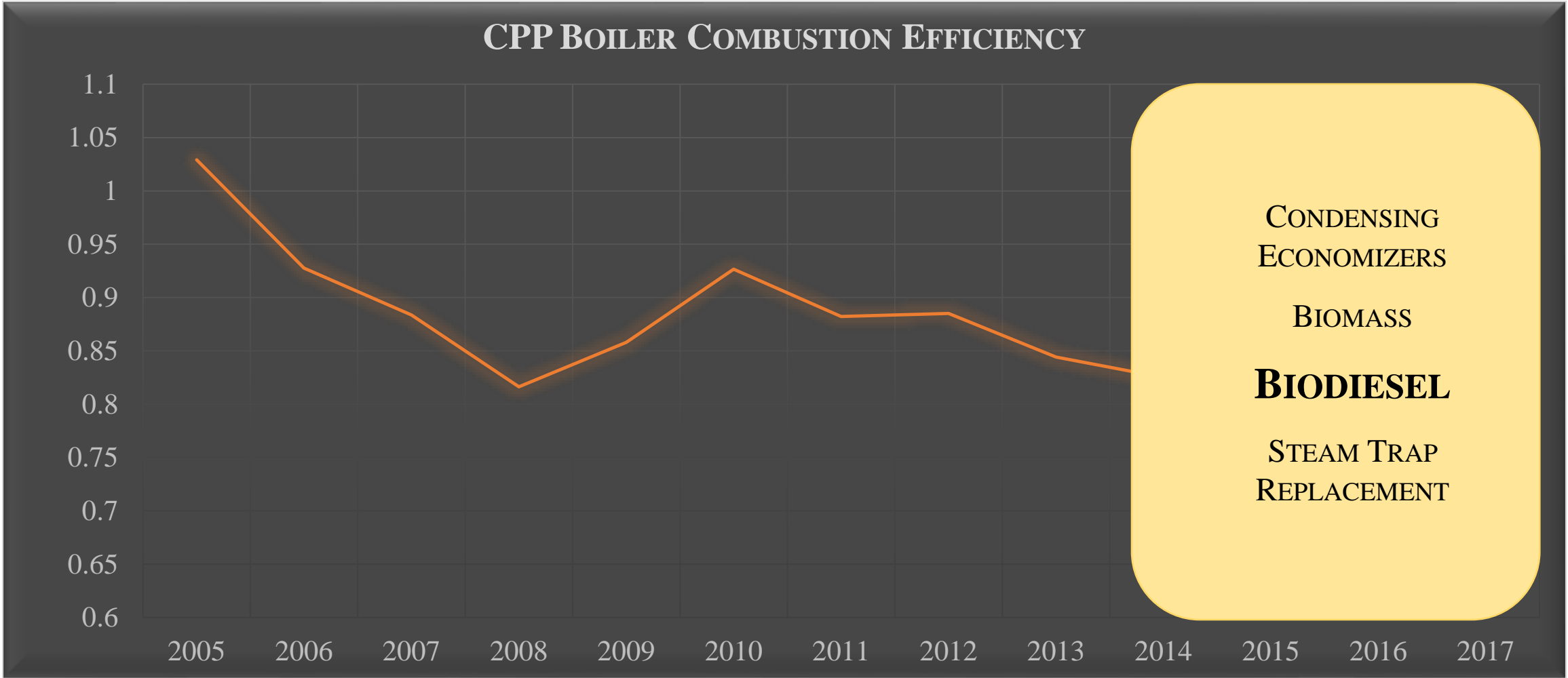
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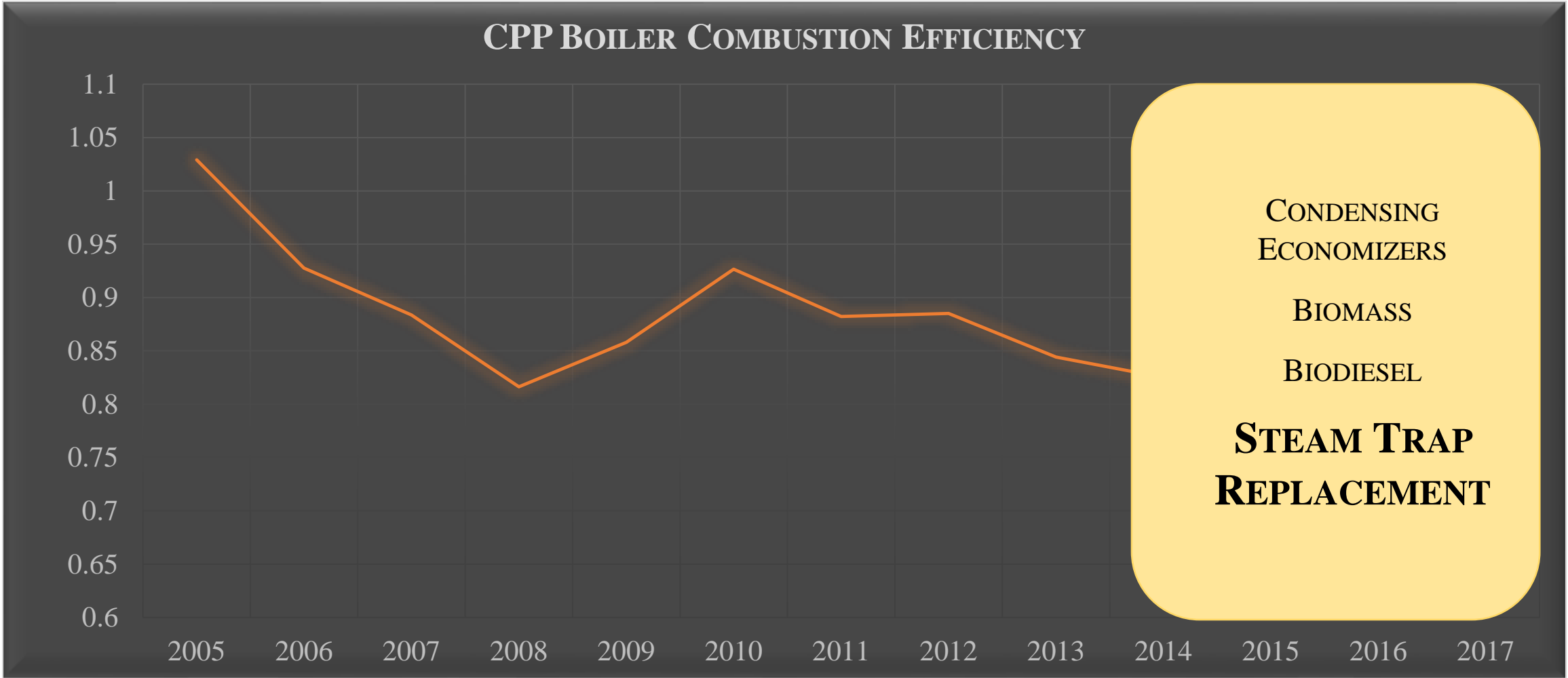
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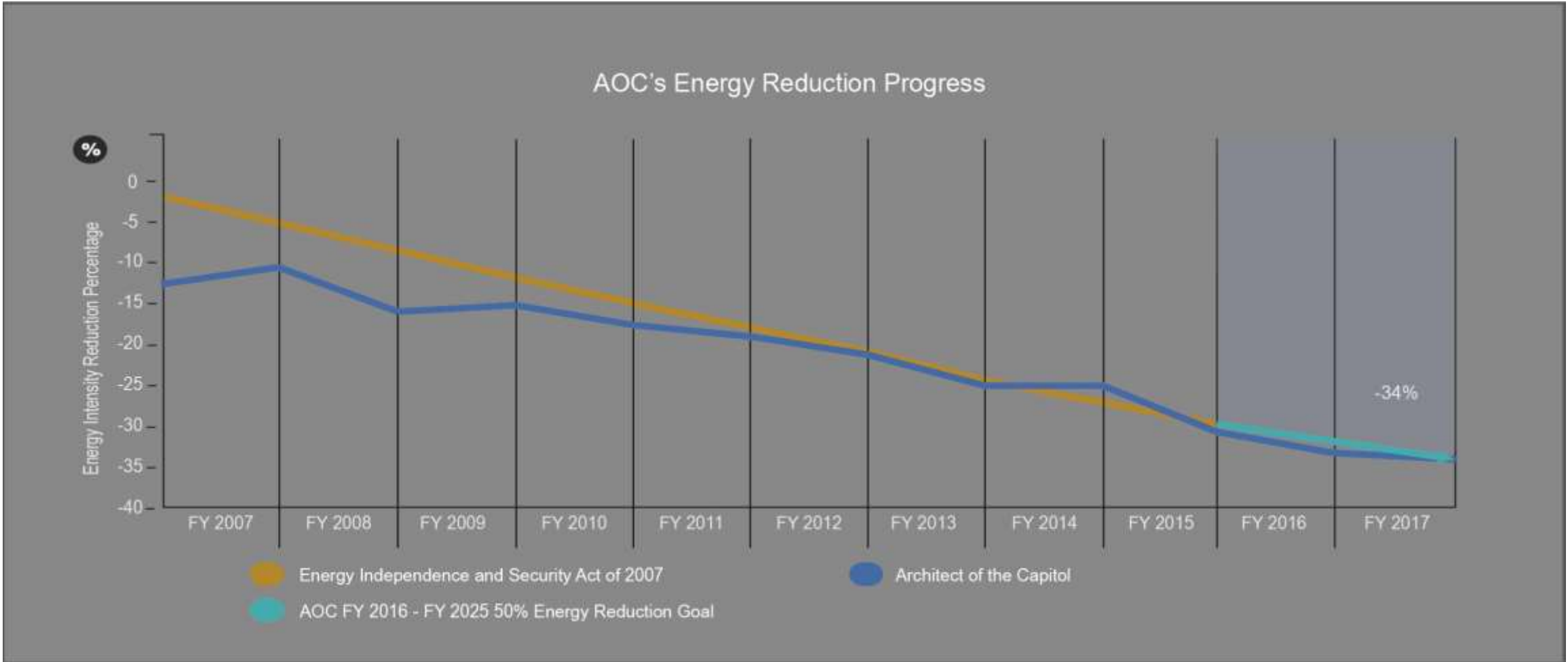
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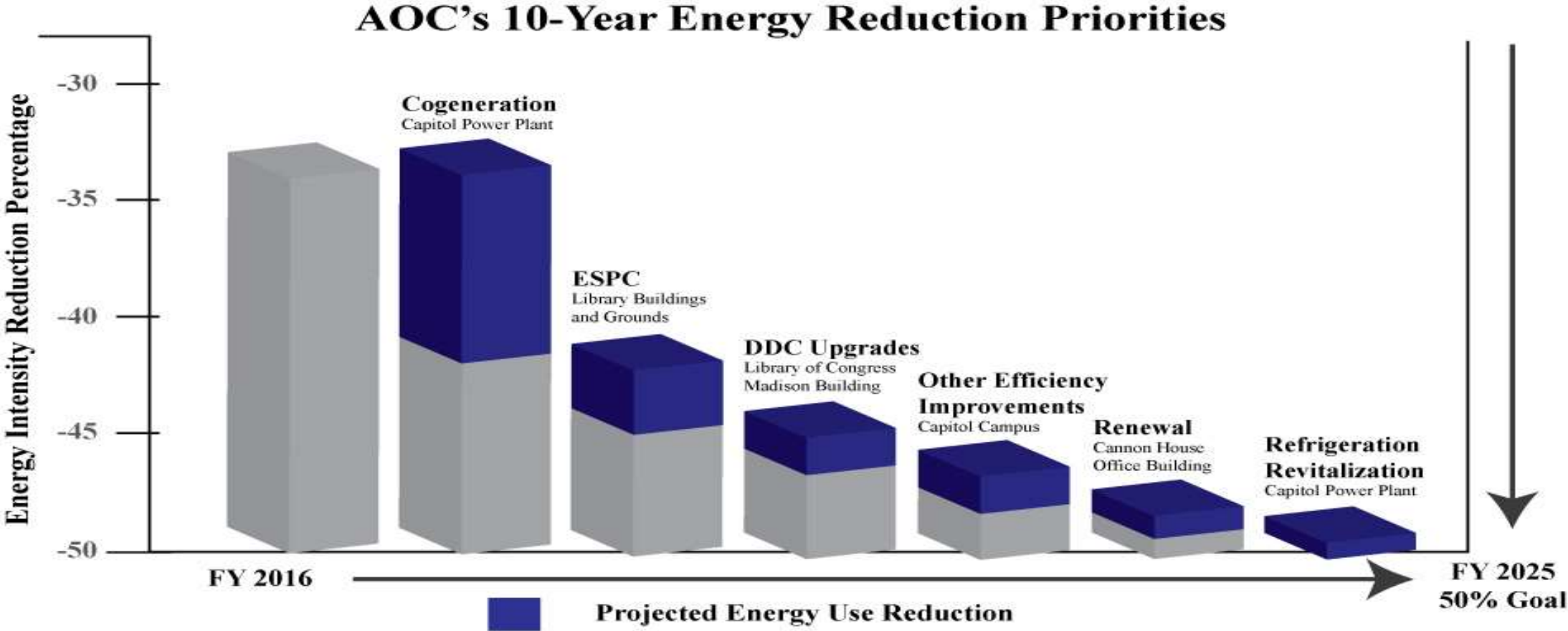
CPP STEAM SYSTEM CONSERVATION EFFORTS



CPP ENERGY CONSERVATION EFFORTS



CPP ENERGY CONSERVATION EFFORTS



OPERATIONAL ENERGY CONSERVATION EFFORT STRATEGIES

- WEEKLY OPERATIONS STAFF MEETINGS
- CREATING METRICS AND TARGETS
- IMPROVING VISIBILITY OF METRICS AND TARGETS
- PROVIDING EMPLOYEES FLEXIBILITY TO EXPERIMENT
- COMMUNICATE WITH FACILITY MANAGERS
- CONDUCT ANNUAL BOILER TUNING
- EXPLORE DEMAND RESPONSE OPPORTUNITIES

CPP ENERGY CONSERVATION EFFORTS



CAPITAL PLANNING/IMPROVEMENT STRATEGIES

- IMPLEMENT FREE COOLING
- IMPROVING SYSTEM METERING
- REPLACED STEAM TRAPS
- DON'T OVERLOOK METER DATA MANAGEMENT
- INTEGRATING EFFICIENCY TARGETS INTO CAPITAL IMPROVEMENT PROJECTS
- EXPLORE MULTIPLE AVENUES FOR ENERGY CONSERVATION EFFORTS
- INTEGRATE PERFORMANCE TARGETS INTO UTILITY MASTER PLANS

CONTACT INFORMATION



THANK YOU

- BRIAN KLEIN
ASSISTANT DIRECTOR OF OPERATIONS
CAPITOL POWER PLANT
BKLEIN@AOC.GOV



QUESTIONS?

