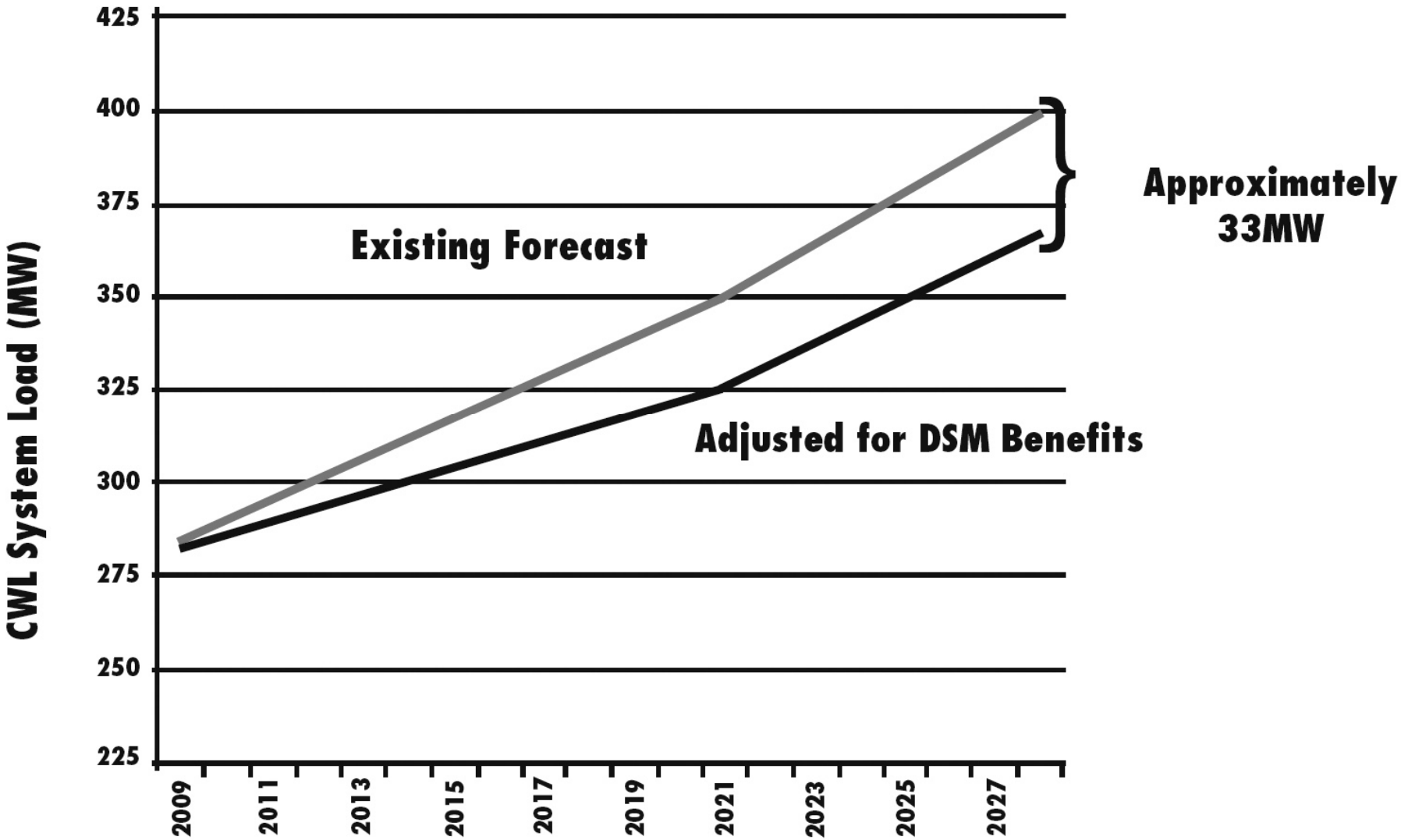
Demand Side Management

Demand Side Management

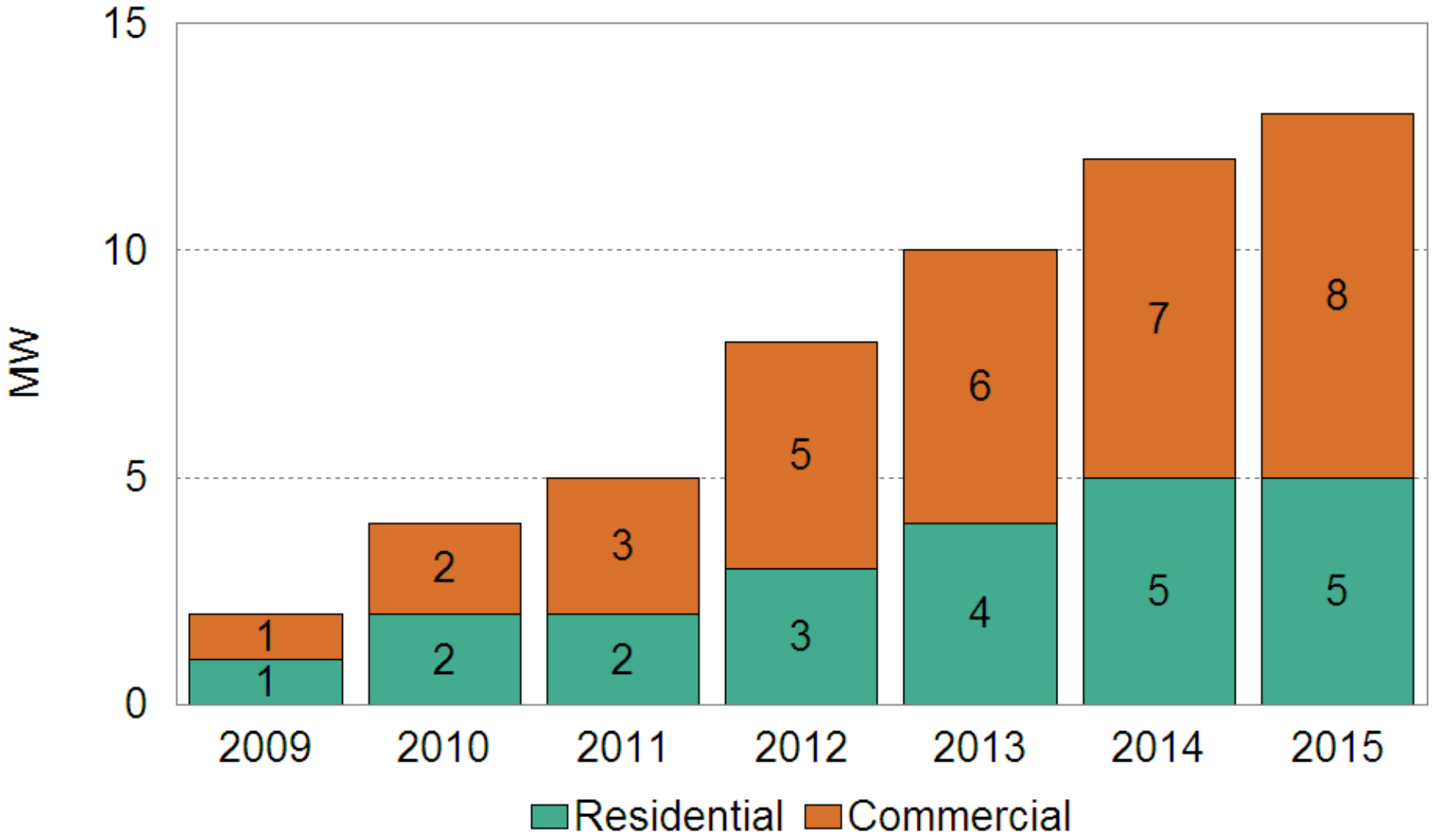
- IRP: Outlines the cost of the future power supply and correlates it to the cost of DSM programs

- Goal: Reduction of 33 MW of demand and 1035 GWH of energy within the next twenty years

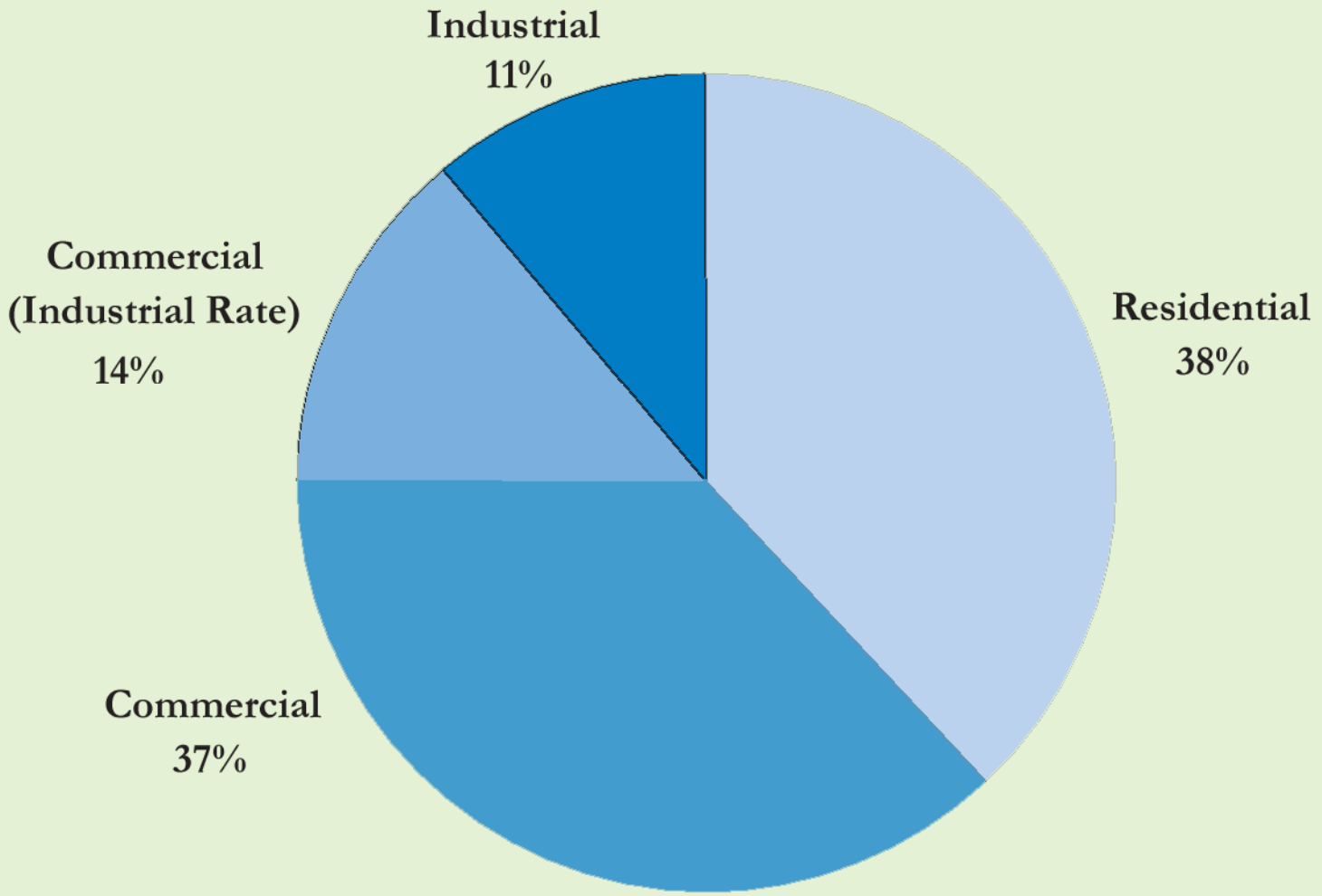

CWL System Load (MW)
425
400
375
350
325
300
275
250
225
2009
2011
2013
2015
2017
2019
2021
2023
2025
2027
Existing Forecast
Adjusted for DSM Benefits
Approximately
33MW

Demand Side Management

Load Reduction



2006 Columbia Electric Customer Classifications



Expanded Residential DSM Programs

Expand existing rebate & loan program

Program	Benefit/Cost Ratio
Air Conditioner Replacement Program	3.24
Heat Pump Replacement Program	6.76
Add Attic Insulation (From R-11 to R-38)	4.20
Add R-13 Wall Insulation To Exposed Walls (No Insulation)	3.07

NOTE: These items will also be included under HPwES and current rebates.

New Residential DSM Programs

New: HVAC tune-up program

Program	Benefit/Cost Ratio
Add Refrigerant To Undercharged AC System	8.24
Remove Refrigerant From Overcharged AC System	8.82
Increase Blower Speed Due To Low Evaporator Air Flow	51.83

New and Expanded Residential DSM Programs

Home Performance with Energy Star Program

Program	Benefit/Cost Ratio
Install Low E Double Pane Windows (Replace Single Pane)	15.93
Reduce Air Infiltration To 0.35 ACH From 0.8 ACH	9.79
Reduce duct leakage to 5% from 25%	6.59

New Commercial & Industrial DSM Programs

B&M: Individual analysis needed to determine full benefit/cost

Program	Benefit/Cost Ratio
Commercial HVAC retrofits	3.41
Commercial Lighting Retrofits (current program)	17.02
Industrial machine drive retrofits	8.08
Industrial facility HVAC	8.11
Industrial facility lighting retrofits (current program)	26.88

W&L staff have begun commercial audits for benchmarks on new customized commercial incentives. The utility will continue with existing prescribed incentives.

New DSM Programs

Additional items to accomplish goals:

- Aggressive energy assessments
- IRP recommends reviewing building codes for energy efficiency standards
- Marketing & advertising
- Education/outreach
- Develop collaborative efforts to increase low income weatherization

Measuring success

- Evaluate, purchase and implement new DSM software management for tracking/evaluation/verification
- Collect statistically valid data through detailed energy assessments

Estimated Funding

- Current DSM expenditures: $1.4 million/yr
- FY09 proposal: Additional $957,000
  - Includes 3 FTE's, software, marketing, incentives & equipment

Funding Breakdown

• DSM Database Program	$250,000
• Marketing	$40,000
• Home Perf. with Energy Star	$100,000
• Energy Assessments	$50,000
• Market Saturation Study	$32,000
• Commercial and Industrial	$315,000
• Staffing and Equipment	$70,000
• Vehicles and Office Equip.	$100,000
• TOTAL	$957,000

Benefit to Utility – Home Perf. with Energy Star

• Air Infiltration	$25,000	
– Benefit Cost Ratio	9.79	$244,750
• Low E Windows	$25,000	
– Benefit Cost Ratio	15.93	$398,250
• Attic Insulation	$25,000	
– Benefit Cost Ratio	4.20	$105,000
• Duct Sealing/Insul.	$25,000	
– Benefit Cost Ratio	4.50	$112,500
• TOTAL		$860,500

Benefit to Utility – Commercial and Industrial Programs

• Comm. HVAC	$50,000	
– Benefit Cost Ratio	3.40	$170,000
• Comm. Appliance	$5,000	
– Benefit Cost Ratio	1.19	$5,950
• Comm. Lighting	$80,000	
– Benefit Cost Ratio	17.02	$1,361,600
• Ind. Machine	$50,000	
– Benefit Cost Ratio	8.08	$404,000
• Ind. HVAC	$80,000	
– Benefit Cost Ratio	8.11	$648,800
• Ind. Lighting	$50,000	
– Benefit Cost Ratio	26.88	$1,344,000
• TOTAL		$3,934,350

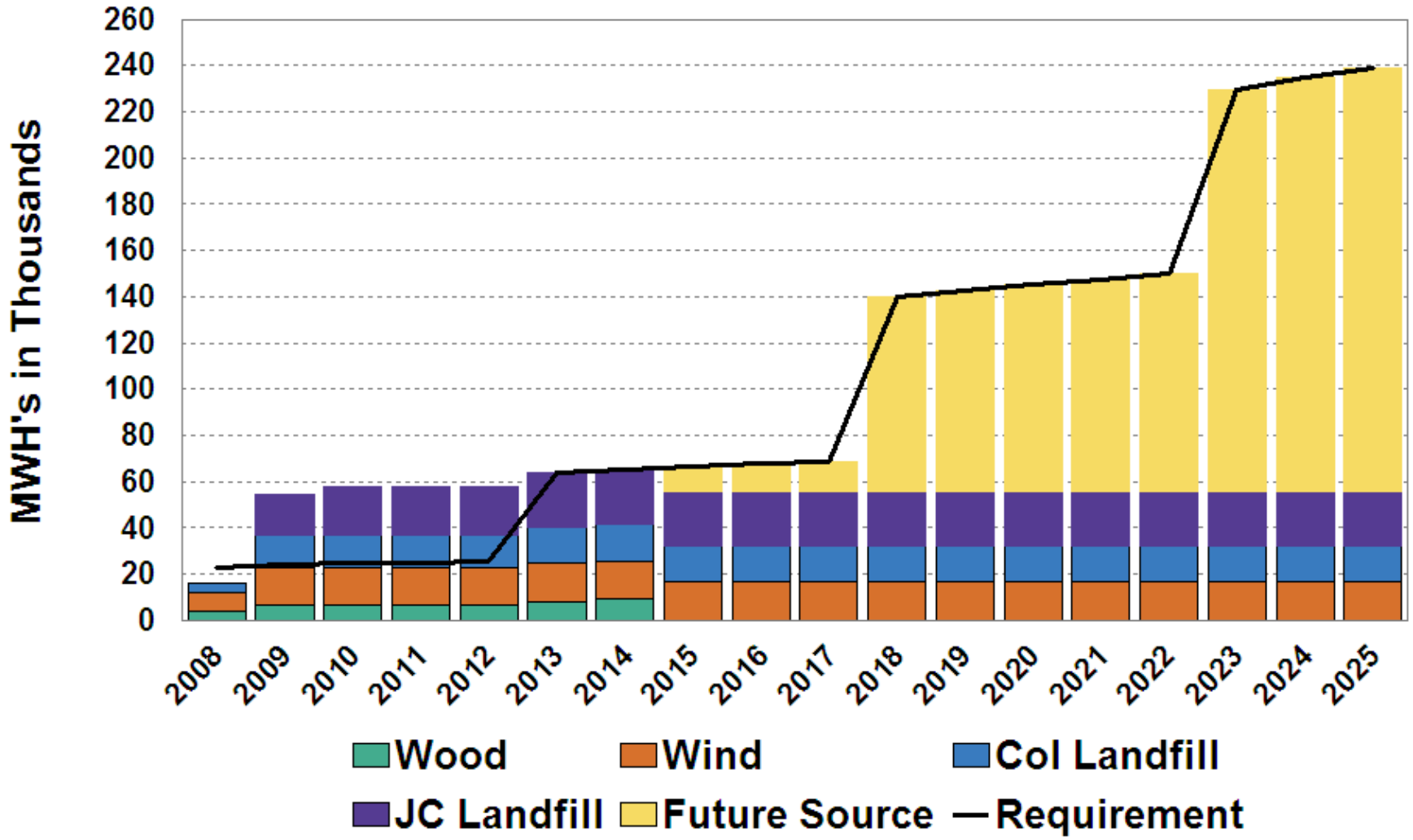
Renewable Portfolio

Renewable Energy Standard

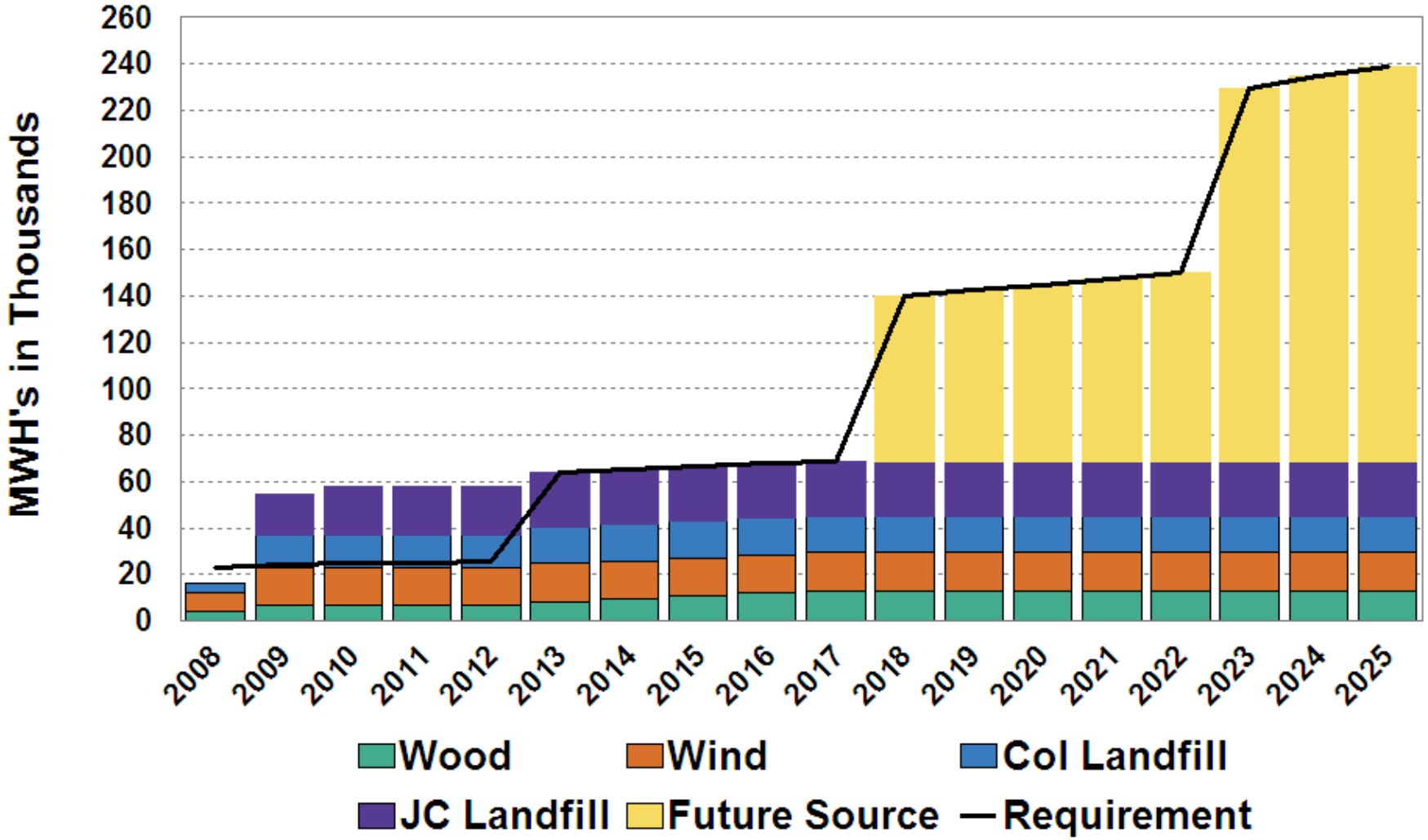
- Renewable Requirements:

- 2% of retail sales by end of 2007
- 5% of retail sales by end of 2012
- 10% of retail sales by end of 2017
- 15% of retail sales by end of 2022
- (cannot increase rates by more than 3%)

Renewable Energy Requirements



Renewable Energy Requirements



Assumes continued use of local power plant

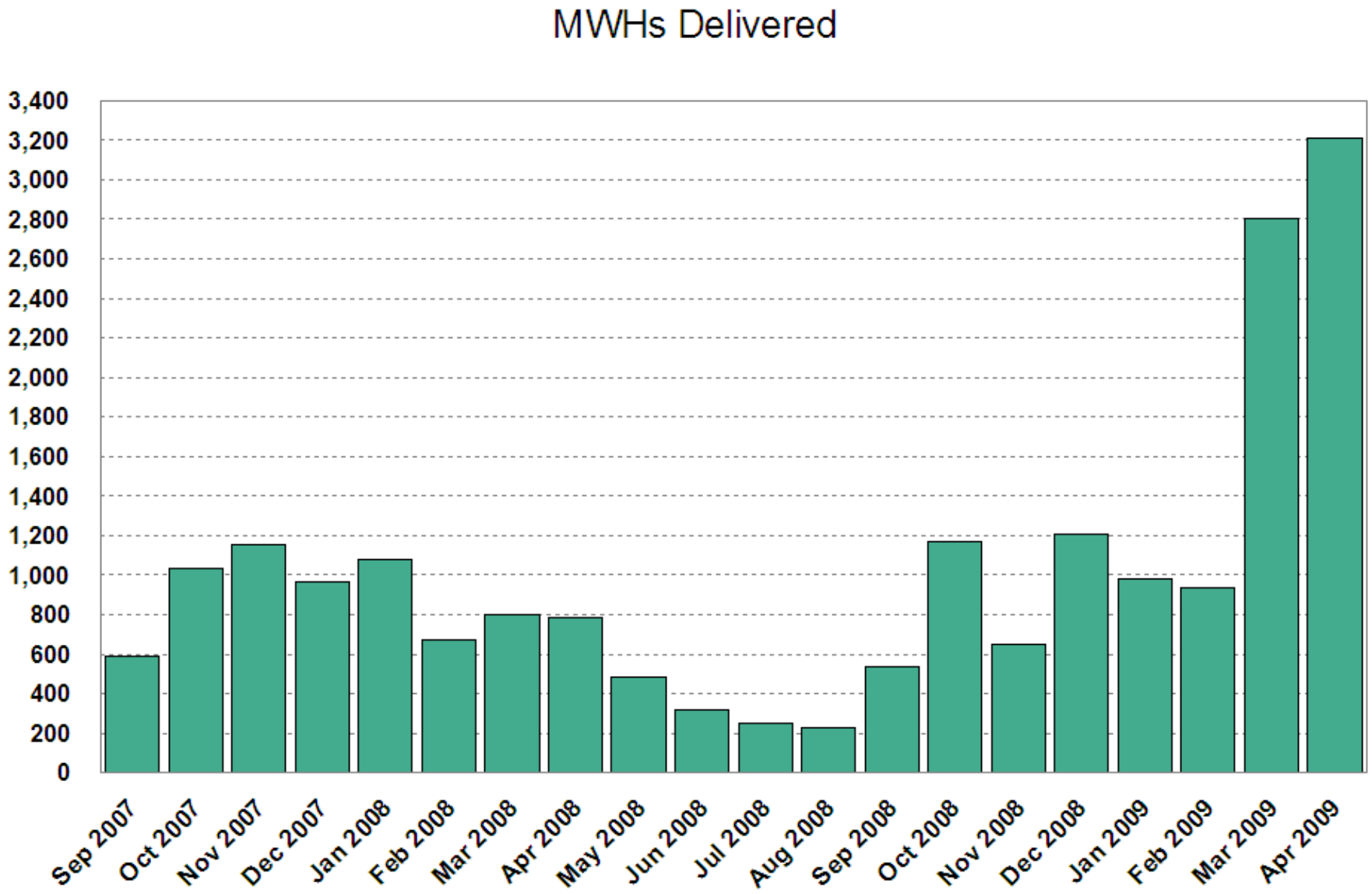
Columbia Renewables

- Wind farm near King City, Missouri
- 6.3 MW’s (3 turbines, 27 total)
- Receive first 6.3 MW’s for March, April, and May


SUZLON


B. NO. 5444B
S. NO. 360
23033

Wind Energy Data



Columbia Renewables

- Columbia Landfill Gas Project
- Currently in Operation at the Columbia Landfill
- 2 MW’s total (2 units)

Columbia Renewables

- Jefferson City Landfill Gas Project
- Currently on-line
- 3.171 MW’s total (3 units)

Columbia Renewables

- Solar One Projects
- Two 5 kW Systems Currently Operational
- Bernadette Drive and Quaker Oats


Growing Columbia's Solar Energy
Columbia Water & Light
www.GoColumbiaMo.com
solar one

Columbia Renewables

- Burning Up To 25% Wood (Biomass) at the Columbia Coal Plant
- Cost per MWH is Less Than Coal
- Working on a Permanent Permit


MUNICIPAL POWER PLANT

Questions?