Platte River Power Authority

Resource Planning

August 4, 2016

Fort Collins CAP Citizen Advisory Group

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Chief External Affairs and Customer Relations Officer

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Today's Discussion

- Strategic Alignment
- Current Portfolio
- Process and Planning Timeframes
- Integrated Resource Plan
- Customized Resource Portfolio

Strategic Alignment

Platte River Focus – Balance

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Strategic Planning Initiatives

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Strategic Initiative – Resource Planning

Adaptive strategy to cost effectively manage reliability, manage risks, and ensure regulatory compliance.

- ***Adaptive*** → many uncertainties – need to be flexible
- ***Cost effective*** → customers are price sensitive
- ***Reliability*** → non-negotiable
- ***Risk management*** → ongoing process / increasing
- ***Compliance*** → also non-negotiable – once defined

Current Portfolio

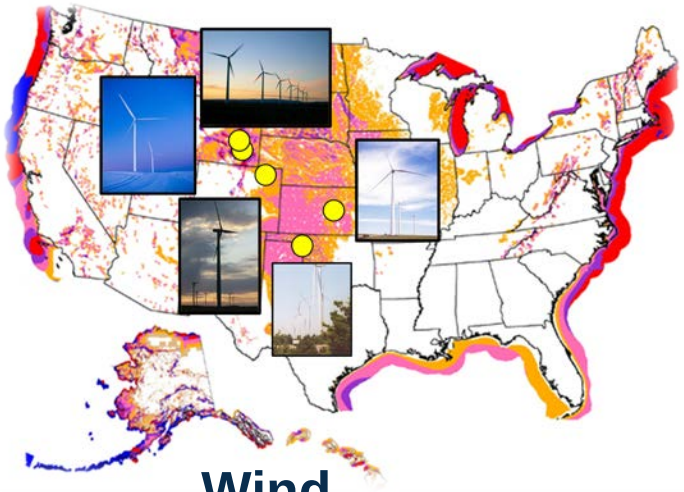
Existing Wholesale Generation Resources

Rawhide Coal

Hydropower

Craig Coal

Rawhide Gas



Wind

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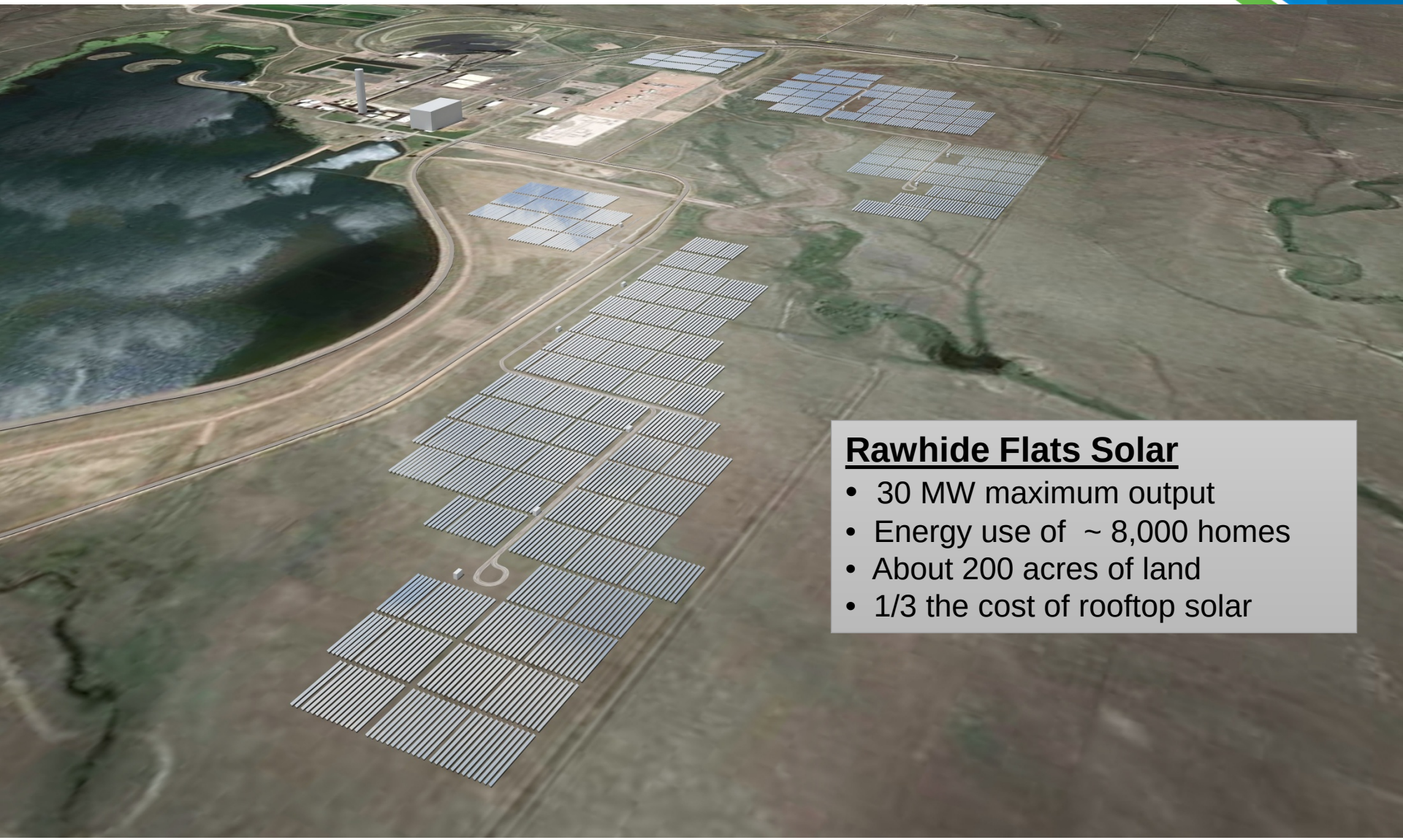
New Solar Resource – Coming Soon



Rawhide Flats Solar

- 30 MW maximum output
- Energy use of ~ 8,000 homes
- About 200 acres of land
- 1/3 the cost of rooftop solar

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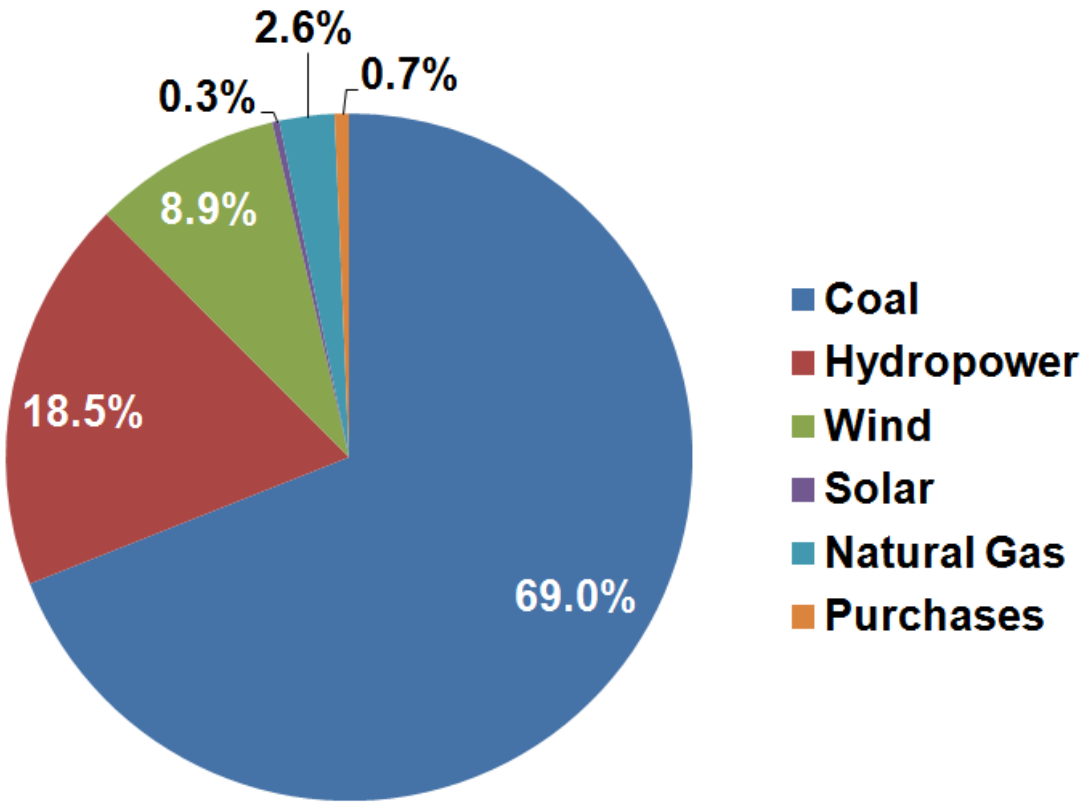
Wholesale Supply – Municipalities

2016 Forecasted Resource Mix (Average)



About one-third of municipal supply will come from renewable energy (hydro, wind & solar) 2017 forward

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Energy Efficiency as a Resource

Efficiency Works™

Estes Park Light and Power

Fort Collins Utilities

Longmont Power & Communications

Loveland Water and Power

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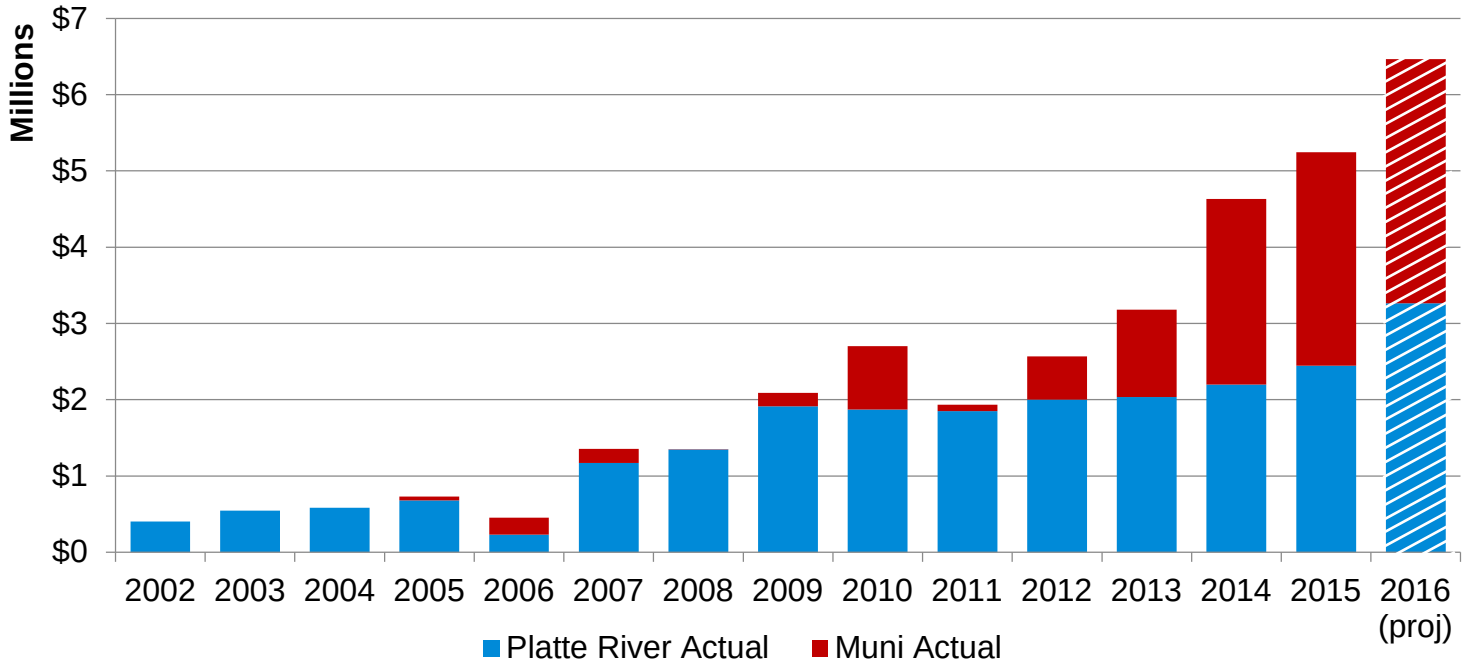

Cumulative Results (2002 – 2015)

- Utility investment of ~ $28 million
- About 5% system load reduction
- All sectors (residential, industrial, commercial)
- Customer perspective:
  - Invested ~ $41 million
  - Saving ~ $11 million/yr

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Energy Efficiency
"Common Programs"
Since 2002

Efficiency
Works
Co-branding

Rawhide Flats
Solar – 2016
(30 MW)

Resource Changes

Resources Collaboration

2016 Focus Areas:

- Customized Resource Portfolio
- Expanded Energy Efficiency
- Demand Response Pilot
- Combined Heat & Power (CSU)
- System Community Solar
- Loveland FEMA Solar

Medicine Bow
Wind Pilot
First in Region
1998

Expansions
through 2004

Silver Sage –
2008
(12 MW)

108 MW Total Wind & Solar (2016)

Spring Canyon –
2014
(32 MW + 28 MW)

Medicine Bow
Life Extension
(6 MW)

Craig Unit 1
Exit Strategy

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Why Exit Craig Unit 1?

- Potential to avoid future costs
- Big enough to allow major CO_2 changes to mix
  - About 1/8th of all system energy
  - About 1/5th of coal energy
- Most of Craig output serves surplus sales
  - Sales to others (not Municipalities)
- Rawhide provides sufficient base load
  - Need more flexible resources

Process and Planning Timeframes

Planning Timeframes

✔ **Board review and direction**

NEAR TERM
Now - 2020

- New Renewables: Large Wind & Solar
- Energy Efficiency Program Expansion
- Craig Unit 1 Strategy & Implementation
- DR/DG Programs

Current Planning Focus

MID TERM
2020-2030

- Emission Reductions
- Continued Energy Efficiency Expansion
- More Renewables
- Resource Integration & New Technology
- 2030 Craig Unit 2 Strategy

LONG TERM
2030-2050

- Rawhide Operations Strategy (Long Term)
- Normal Rawhide Retirement
- New Technology Integration

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Modeling and Methods

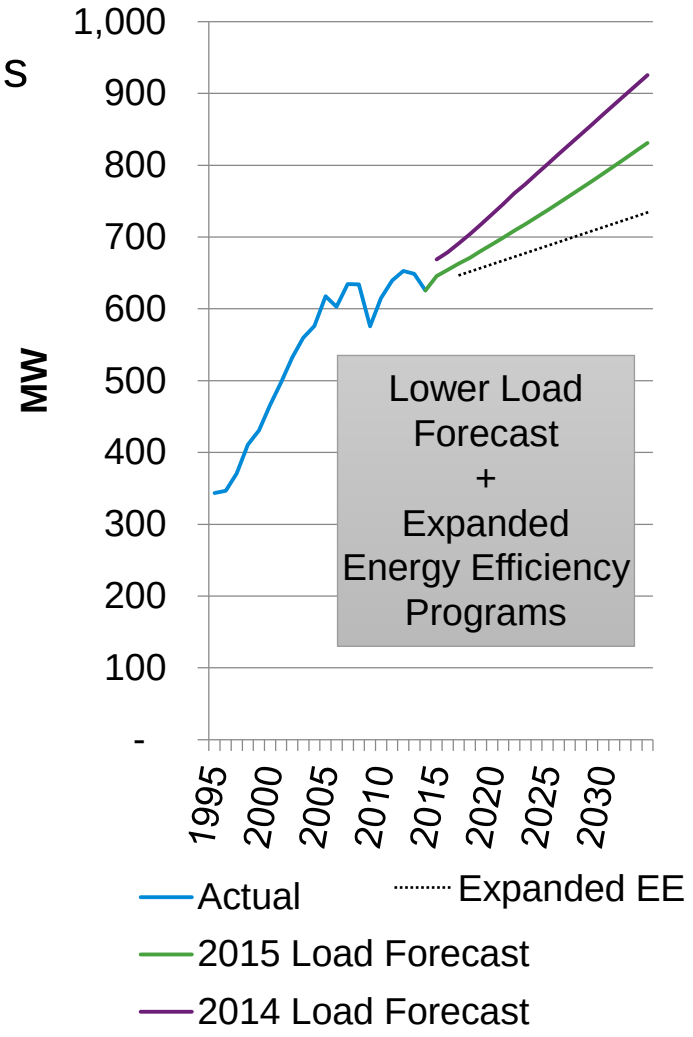
- Standard modeling processes
- Range of scenarios analyzed
- Aurora system planning software
  - Hourly-based modeling framework
  - Can assess the operating impacts of changes in our portfolio
  - Can determine overall reliability impacts (to a certain degree)
  - Cannot model distribution-level impacts

Resource Management Considerations

- We have time for new resource decisions
  - Great performance of existing resources
  - Surplus capacity and energy available
  - Colorado renewable energy standard met
  - Lower future capacity needs vs. historical

- Wide range of future options – (promising cost trends)
- Many uncertainties going forward (some beyond our control)

Clean Power Plan



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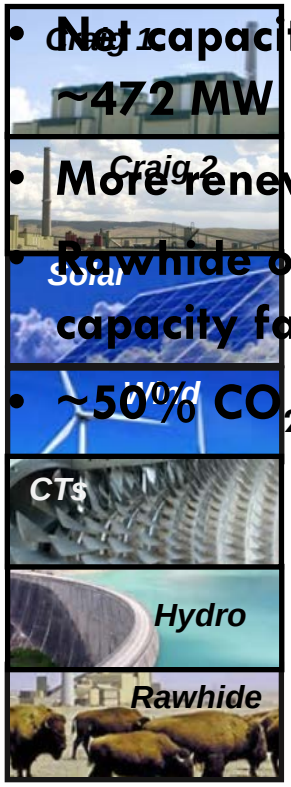
Resource Changes / Mix – An Illustration

(No Outages)

Energy Efficiency Programs



77 MW

77 MW

108 MW

388 MW

90 MW

280 MW

100 MW

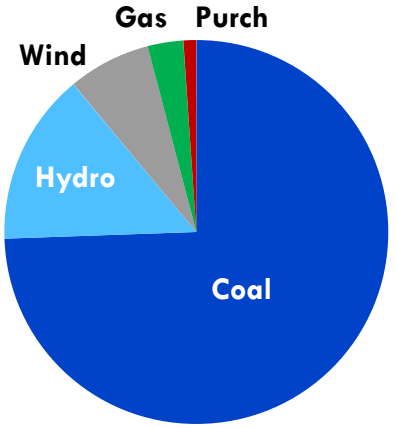
475 MW

150 MW

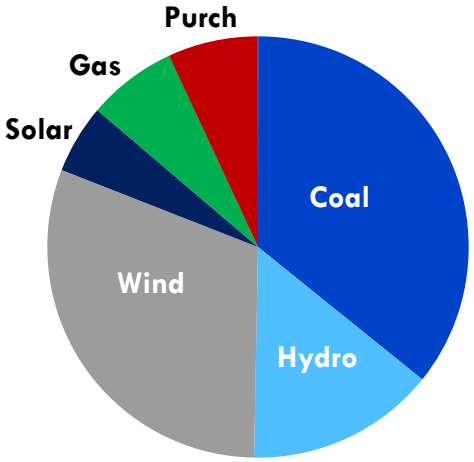
- Net capacity increase ~472 MW (78 MW firm)
- More renewable sources
- Rawhide operates at lower capacity factor for 2030 +
- ~50% CO_2 reduction by 2030

2015 | 2030 | 2035

2015 Energy Mix



2035 Energy Mix



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Modeling Wholesale Rates – Many Variables

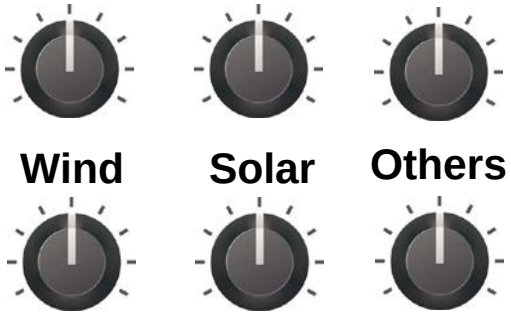
CO_2 REDUCTION

25% → 50%

TIMING

2020 → 2030

RESOURCE MIX



CPP IMPLEMENTATION MECHANISM

INPUT ASSUMPTIONS

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2015 Average Wholesale Rates ($/mWh)

Reported PSCo rates are derived from FERC EQR filings. Only customer transactions with a *FERC Tariff Reference* of *Assured Power and Energy Requirements Tariff* are included.

- Competitive wholesale rates
- For the last 10 years, others have risen faster than Platte River
- Platte River may rise faster in the future due to high coal in mix (depends on CPP/carbon implementation in Colorado)

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Integrated Resource Plan

Western Area Power Administration – Integrated Resource Plan (IRP)

- Platte River buys hydropower from Western
- Federal rule (October 1995) requires customers to produce an IRP every five years
- Platte River's BOD approved the most recent IRP in June 2016
- Awaiting response from Western

Western Area Power Administration

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Western IRP Requirements

Description	Context
Identify and compare all practicable energy efficiency and energy supply resource options	Generation Technology Review
Include action plan with timing set by customer	IRP articulates actions
Describe efforts to minimize adverse environmental effects of new resource acquisitions	Primary driver for analysis is CO2 reduction
Provide ample opportunity for full public participation	2014 Outreach and Report 2015 Board Work Session
Conduct load forecasting	Annual LF meets this requirement
Include brief description of measurement strategies for options identified in IRP to determine whether objectives are being met	Annual progress update

IRP Action Items

Continue to diversify the portfolio to prepare for long-run CO_2 reductions

Continue to implement ways to maintain the high reliability of Platte River's power system

Prepare for business structures, products, and programs wanted by our member-owners

Customized Resource Portfolio

CRP Project Goals

1. Identify long-term strategic needs of each of Platte River's four municipalities
2. Develop range of alternatives for all four municipalities
3. Determine costs associated with altering portfolio mix
4. Establish portfolio decision paths for each municipality

CRP Project Considerations

Prioritization of objectives

- Expectations for modeling outcomes (metrics, reports, etc.) need to be defined

Modeling assumptions

- Municipal staff must provide the needed inputs and assumptions regarding their individual goals and objectives

Commitment to a modeling plan

- Agreement will help avoid in-process requests that slow down or divert the analytical effort.
- Conform to future regulatory and legislative expectations

CRP – Roles and Responsibilities

Municipalities

- Provide project direction, modeling parameters, and strategic views
- Provide modeling inputs specific to each municipality (load growth, efficiency expectations, etc.)
- Determine viability of model results, how to use the information

Platte River

- Provide project management
- Provide analytical modeling and industry expertise
- Provide software and systems
- Present findings

Board/Project Sponsor

- Help determine course of action

CRP Participants

Municipals

Estes Park:

- Reuben Bergsten, Utility Director

Fort Collins:

- Kevin Gertig, Utility Director
- Tim McCollough, Light & Power Manager
- Lance Smith, Strategic Financial Planning Manager
- John Phelan, Energy Service Manager

Longmont:

- Tom Roiniotis, Utility Director
- Susan Wisecup, Business Manager
- Kate Medina, Utilities Financial Analyst
- Anne Lutz, Energy Services Manager

Loveland:

- Steve Adams, City Manager
- Bob Miller, Power Operations Manager
- Gretchen Stanford, Customer Relations Manager /Interim Utility Director
- Jim Lees, Utility Accounting Manager

Platte River

- Jason Frisbie, CEO (*Project Sponsor)*
- Andy Butcher, Director of Operations (*Project Manager Supervisor)*
- Brad Decker, Strategic Planning Manager (*Project Manager)*
- Mike Jones, Senior Planner
- Dave Smalley, Chief Financial & Risk Officer
- Deb Schaneman, Chief Compliance Officer
- Pete Hoelscher, Chief External Affairs & Customer Relations Officer

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CRP – Project Schedule

1. To be determined jointly with the municipalities
2. Platte River proposes a final target date of mid-2017
3. Some project components can be conducted concurrently
4. Platte River recommends two iterations:
   - First draft portfolio analysis
   - Final estimates

Mid-2017

1Q	2Q	3Q	4Q
Project organization	Modeling and delivery of ***range*** of portfolio estimates	Review and determination of needed adjustments	Revisions and final portfolio analysis and presentation

Flexible schedule, will be refined in early project meetings

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Today's Discussion – Recap

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Questions?