Electric and Gas Integrated Resource Plans
Phase 1 Public Workshop

August 28, 2019
Agenda

1. Welcome
2. Energy Vision and Pillars
3. Transformation of the Energy Industry and Utility Business Model
4. Introduction to the Integrated Resource Plan and Timeline
5. Goals and Sensitivities
6. Methods of Public Participation
7. Schedule
8. Public Input
Welcome

Gather public input on our Integrated Resource Plans’ goals, guiding principles, reference cases and sensitivities.

Utilities Policy Advisory Committee and Utilities Board will rely on public comments, including survey results, in determining recommendations and giving direction.
Mission & Vision

Mission
Provide safe, reliable, competitively-priced electric, natural gas, water, and wastewater services to the citizen owners and customers of Colorado Springs Utilities.

Vision
Colorado Springs Utilities is a treasured community asset. We are welcome partners, well-known for responsible and dependable service. We are vital to the future of our region.
Energy Vision

Provide resilient, reliable and cost-effective energy that is environmentally sustainable, reduces our carbon footprint and uses proven state-of-the-art technologies to enhance our quality of life for generations to come.
Pillars of the Energy Vision

ECONOMIC
Cost-effective and equitable initiatives that drive a strong economy

ENVIRONMENT
Sustainable solutions that complement our natural resources

RESILIENCY
Reliably withstand and recover from disturbances in a dynamic environment

INNOVATION
Proactively and responsibly evolve in a transforming landscape

OUR FOUNDATION IS THE COMMUNITY WE SERVE
Industry Transformation

• Six key factors driving major changes in industry

• Changes have significant implications for resource planning, gradual paradigm shift
Evolving Utility Business Model

LONG-STANDING RESPONSIBILITIES
- Safety
- Reliability
- Affordability

MODERN NEEDS AND EXPECTATIONS
- Environmental Performance
- Resilience
- Expanded Choice
- Innovation

Utilities Policy Advisory Committee

- Utilities Board directed advisory committee that reviews, analyzes and provides recommendations to the Utilities Board on specific issues or policies.

- Customers with diverse backgrounds that volunteer their time to serve on the committee.

- Meet first Wednesday of each month:
  - 8 a.m.
  - Blue River Board Room, South Tower in the Plaza of the Rockies 5th floor
  - Open to the public
Utilities Policy Advisory Committee Assignment

- Evaluate and provide feedback for process plans, modeling assumptions, inputs, targets, evaluation criteria for the 2020 Electric and Gas Integrated Resource Plans (EIRP/GIRP) based on the Energy Vision.
- Oversee public outreach planning, provide feedback on portfolio options, and deliver recommendations to the Utilities Board.

Public Process Oversight

- **Reference Case, Inputs, Sensitivities, and Goals**
  - Recommendation to Utilities Board (Sept) and Board approval (Oct)

- **Portfolio Evaluation Criteria**
  - Recommendation to Utilities Board (Feb) and Board approval (Mar)

- **Portfolio Recommendation with Metrics**
  - Recommendation to Utilities Board (June) and Board approval (July)
What is an Integrated Resource Plan (IRP)?

Our energy IRPs are a roadmap, combining technical analysis and public input, to meet forecasted electric and natural gas needs of the community using both supply and demand side resources to ensure resilient, reliable and cost-effective energy that is environmentally sustainable.
## IRP Terminology

<table>
<thead>
<tr>
<th>TERM</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Vision</td>
<td>Set direction and guidance for IRPs</td>
</tr>
<tr>
<td>Reference Case</td>
<td>Starting point of a plan including the current system configuration and inputs/modeling parameters previously agreed upon</td>
</tr>
<tr>
<td>Sensitivities</td>
<td>Change an input/modeling parameter to determine the impact. Uncertainties can be bounded with low, mid, high sensitivities to test potential outcomes.</td>
</tr>
<tr>
<td>Portfolios</td>
<td>Potential configurations for multiple systems / plants / generators</td>
</tr>
<tr>
<td>Attributes</td>
<td>Important criteria that represents broad metrics necessary for evaluating portfolios</td>
</tr>
<tr>
<td>Course of Action</td>
<td>Agreed upon action plan</td>
</tr>
</tbody>
</table>
IRP Process

1. Develop foundation for IRPs
   - Gathering inputs & assumptions
   - Modeling & analysis

2. Development of analysis
   - Evaluate results
   - Risk analysis

3. Gather inputs & assumptions
   - Portfolio Evaluation Criteria

4. Modeling & analysis
   - Determine course of action
   - Portfolio Recommendation with Metrics

5. Portfolio Evaluation Criteria
   - Rate portfolios based on scoring criteria developed early in the process

6. Risk analysis
   - Initial results may provide insight to additional sensitivities to be evaluated

7. Determine course of action
   - What are we trying to accomplish? What are our guiding principles? What are the critical decision points? How will we make a decision? Alternative resources

- What is being evaluated and how will it be analyzed? Sensitivities / risk / reference case
- It is critical to know the sensitivities to be considered in order to gather the correct inputs

- Reference Case, Inputs, Sensitivities, and Goals
  - Q4 2019
  - Q3 2020
  - Q1 2020

Colorado Springs Utilities
Significance of these IRPs

- Drake, Birdsall and Nixon potential closures evaluated
- Gas and non-potable supply changes
- Environmental/carbon strategies
- Evaluation of battery storage
- Electrification potential
- Electric vehicles and rooftop solar
- Evaluation of market participation
- Distributed generation and military resiliency
- New business model
IRP Goals (draft)

- Develop long-term plans that align with the Energy Vision
- Reduce reliance on fossil fuels
- Further advance energy efficiency and demand response
- Grow renewable portfolio
- Establish timelines for decommissioning of assets
- Meet all environmental regulations with specific metrics that include reducing our carbon footprint

- Proactively and responsibly integrate new technologies
- Maintain competitive and affordable rates and the financial health of the four-service utility
- Industry leading reliability and resiliency while avoiding potential stranded assets
- Build safe and secure systems
- Support economic growth of the region
- Enhance the quality of life for customers and the community
EIRP Sensitivities (draft)

- High and low load growth
- Low cost energy efficiency
- High demand response potential
- Regional transmission organization/market
- High and low natural gas prices
- Plant decommission dates*
- Carbon reduction*
- Renewables*
- Military resiliency

- Low energy purchases available
- High and low renewables/battery costs
- Carbon price
- High renewable integration costs
- Extension of investment tax credit/production tax credit
- Higher and lower planning reserve margin
- Front Range reliability¹

* see subsequent slides

¹ Control Upgrades, isolate combustion turbine from steam turbine
# Plant Decommission Sensitivities (draft)

<table>
<thead>
<tr>
<th>Decommissioning Sensitivities</th>
<th>Environmental</th>
</tr>
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<tbody>
<tr>
<td>Drake/Birdsall</td>
<td></td>
</tr>
<tr>
<td>All units in - 2025, 2028, 2030</td>
<td></td>
</tr>
<tr>
<td>Birdsall Only 2025</td>
<td>SCR in 2028</td>
</tr>
<tr>
<td>Drake 6 only 2025</td>
<td>SCR in 2028, 2038</td>
</tr>
<tr>
<td>Nixon 1</td>
<td></td>
</tr>
<tr>
<td>2030, 2035, 2040, 2050</td>
<td></td>
</tr>
<tr>
<td>Front Range</td>
<td></td>
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<tr>
<td>2030, 2040, 2050</td>
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</tbody>
</table>

SCR = Selective Catalytic Reduction
EIRP Sensitivities (draft)

Renewables

• 100% by 2030
• 100% by 2040
• 100% by 2050
• 100% by 2030 (market purchases available)
• 100% by 2040 (market purchases available)
• 100% by 2050 (market purchases available)
• 30% and 50% by 2030
• 40% and 60% by 2040
• 60% and 80% by 2050
• 100% Carbon Reduction by 2050
• 90% Carbon Reduction by 2050

Carbon Reduction

• 50% by 2030, 90% by 2050¹
• 50% by 2030, 100% by 2050
• 50% by 2030, 80% by 2040, 90% by 2050
• 80%² by 2030, 90% by 2050
• 80% by 2030, 100% by 2050

1. State requirement. Uncertain if electric utility will have to exceed these goals
2. Intended to represent carbon reduction that includes Drake and Nixon retirement
GIRP Sensitivities (draft)

• High and low load growth
• High and low gas prices
• Firm reservation cost
• Firm and non-firm capacity options
• Higher heat content fuel
• Gas demand side management potential
• Gas-fired generation sensitivities to align with EIRP capacity expansion
• Design criteria alternatives 1-in-10 year event (vs. 1-in-25 year event)
Public Participation

Public Meetings
• Utilities Policy Advisory Committee
• Utilities Board
• Workshops
Website: csu.org
Surveys
Email: energyvision@csu.org
## IRP Schedule

<table>
<thead>
<tr>
<th>1st Quarter</th>
<th>2nd Quarter</th>
<th>3rd Quarter</th>
<th>4th Quarter</th>
<th>1st Quarter</th>
<th>2nd Quarter</th>
<th>3rd Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UPAC</strong></td>
<td><strong>Utilities Board Direction</strong></td>
<td><strong>Technical Work</strong></td>
<td><strong>Public Process</strong></td>
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<td><strong>Technical Work</strong></td>
<td><strong>Public Process</strong></td>
</tr>
<tr>
<td>EIRP &amp; GIRP Process Overview / Assignment Scope and Deliverables</td>
<td>Assignment Scope and Deliverables</td>
<td>Develop Schedule / Process</td>
<td>Energy Vision &amp; IRP Process Education Stakeholder ID and Outreach</td>
<td>Reference Case / Inputs and Sensitivities / Goals &amp; Guiding Principles</td>
<td>Gather Inputs / Develop Reference Case / RFI</td>
<td>Public Workshop</td>
</tr>
<tr>
<td>Evaluation Criteria</td>
<td>Portfolio Evaluation Criteria</td>
<td>Risk Analysis</td>
<td>Final Plan Recommendation and Approval</td>
<td>Evaluation Criteria &amp; Preliminary Results</td>
<td>Preliminary Results</td>
<td>Final Results</td>
</tr>
<tr>
<td>Review Results / Rate Plans using Scorecard / Provide Feedback</td>
<td>Finalize Scoring and recommendation</td>
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