

Line	Decision No.	Proceeding No.	Statement or Direction	Witness Addressing or Summarizing
1	C11-0139	10A-124E	To assist in developing a robust strategic plan [and] identifying a suite of future applications, Public Service should use such techniques as an advisory group of academics, researchers, and customers. The Company should also avail itself of Commission Information Meetings to keep the Commission informed of its process and to solicit ideas for future applications of SGC technologies.	Lee
2	C11-0139	10A-124E	In short, we want to see the Company articulate and defend a strategic plan for the SGC investment. We want to see the credible promise of consumer and utility benefits sufficient to justify the cost We want to know more about the ability of customers to make practical use of SCG on their side of the meter through in-home devices, and we want to know more about the interconnect ability of SGC with those customer devices.	Jackson Borchardt Lee
3	C10-1077	10I-099EG	The Commission has a long-standing practice of using cost-benefit analysis when evaluating the merits of utility investments. We expect that utilities will bring forward smart grid projects in the future and note that smart grid investments may be particularly well-suited to such cost-benefit analysis.	Hancock
4	C10-1077	10I-099EG	Smart grid technologies are often discussed as a whole and not by specific components. We find that there may be value in considering the technologies on a disaggregated basis. Further, certain smart grid components, especially utility-facing components, may have stand-alone justification. We believe utilities should move forward to implement components that are clearly cost-effective. There is no reason to insist that the entire suite of technologies be installed at the same time, or even at all.	Lee

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5	C10-1077	10I-099EG	An effective smart grid implementation must be governed by consistent standards, particularly for interoperability and cyber security.	Reimer Harkness
6	C10-1077	10I-099EG	This Commission is aware of the challenges of estimating and incorporating “societal benefits” in decision-making. Resource planning and demand-side management (DSM) are two examples where the Commission is required to make such estimates. We find that the benefits of smart grid investments fall into two general categories: (a) those benefits that are currently known and quantifiable (such as anticipating equipment replacements prior to failure, or improving responses to outages); and (b) societal benefits that are more harder to estimate and relate to public policy objectives (such as the potential to reduce system-wide carbon dioxide emissions). We find that the positive externalities potentially attributable to smart grid investments should be factored into the Commission decision-making. We also note that these benefits, given that they often rely upon other independent factors (such as the development of a robust electric vehicle market), may be relatively more difficult to quantify, and may lend themselves to creating an overall cost-benefit “adder” (percentage margin from break-even) for use in cost-benefit analyses.	Hancock
7	C10-1077	10I-099EG	We find that meter supported time variable rates can benefit electric system in terms of more efficient operations and deferring capital investments in generation. We also understand that whether such rates are optional or mandatory has a significant effect on the ability of the rates to yield the desired system benefits. We therefore conclude that such rates should be pursued when and only when clearly beneficial to the system.	Jackson

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8	C10-1077	10I-099EG	<p>It is clear that the residential customer class is not homogeneous when it comes to electric usage and commensurate service needs and expectations. We observe that this diversity will likely influence how customers interact with smart meter technology. This leads us to conclude that the pros and cons of converting all meters, and applying time-sensitive rates (as opposed to targeting conversions to specific types of customers), should be further evaluated. Such targeting might take into consideration customer characteristics such as total usage, amount and time of peak demand, and power quality requirements. The Commission must find a balance between the benefits of upgrading all meters and the costs of upgrades that yield little value to specific customers. We find this issue must be explored in specific utility applications.</p>	Jackson
9	C10-1077	10I-099EG	<p>... We preliminarily support adoption of a "checklist" for the utilities to follow when filing a smart-grid related application. We observe that the application standards being developed by the Illinois Statewide Smart Grid Collaborative provide such a framework for utilities to organize their applications for rate recovery of smart grid investments (See Illinois State Smart Grid Collaborative draft documents at www.ilgridplan.org). We believe this framework may be useful in Colorado as well.</p>	N/A: no rate recovery requested in this proceeding.

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10	C11-0406	10I-099EG	<p>... Since the cost justification for smart meters will likely rely, at least in part, on benefits resulting from expected shifts in consumer behavior, we note that significant consumer education efforts are critical. Consumer education is necessary to mitigate the risk that these benefits will not be realized due to lack of consumer awareness, knowledge, or interest.</p>	Wozniak
11	C11-0406	10I-099EG	<p>We conclude that detailed consumer education plans should be filed in the smart meter applications developed via formal rulemaking as discussed in paragraphs 10 and 11. These plans should determine the most effective, cost-controlled consumer engagement methods and strategies to achieve minimum participation necessary to realize expected benefits. Thorough consumer segmentation studies need to underlie these consumer education plans. Consumer education plans should also involve a plan for stakeholder collaboration and propose multiple channels for consumer engagement.</p>	Wozniak
12	C11-0406	10I-099EG	<p>Furthermore, through the formal rulemaking, we envision developing performance metrics specifically tied to consumer education and engagement that could include quantifications of consumer awareness, understanding, interest, participation, and satisfaction. The rulemaking discussed above should address whether achievement of performance benchmarks using these performance metric targets related to consumer education and engagement should ultimately be connected to cost recovery.</p>	Wozniak

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13	C11-0406	10I-099EG	<p>We conclude that electric utilities should be directed, through a rulemaking, to file periodic smart grid plans with the Commission. We envision these plans addressing anticipated investments in smart grid technologies associated with the utility's entire system, from generation to the customer meter. We envision that a smart grid plan would explain the function, cost, and objectives of each smart grid investment, including direct benefits and anticipated and synergistic benefits. ...</p>	<p>Lee Jackson</p>
14	C11-0406	10I-099EG	<p>Separate and distinct from the smart grid plan discussed above, we conclude that when utilities anticipate upgrading automated meters to smart meters, they should submit to the Commission a smart meter plan in the form of an application. We envision this as a component of the future rulemaking discussed in paragraph 10, above. Without limitation, we offer the following as possible components of such a plan: number and type(s) of meters to be installed; quantified goals associated with the meters (over time), such as impact upon usage, peak load, demand side management (DSM) participation, etc.; minimum consumer participation levels required to achieve the goals; cost/benefit analysis calculations and underlying assumptions; a detailed consumer education and outreach plan, including underlying consumer segmentation study; and an assessment of potential detrimental impacts on low-income and other vulnerable consumer groups.</p>	<p>Application All witnesses</p>

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15	C11-0406	10I-099EG	<p>... We conclude that system-wide smart meter implementation concurrently with system-wide changes in rate design is likely to elicit negative customer reactions, regardless of the quantity and quality of the associated customer education undertaken We also note that the "diffusion of innovation" concept, which explains how product acceptance occurs in a market, is applicable to smart meter implementation. The targeting of smart meters and dynamic pricing to the segment of residential customers most receptive, while limiting short-term benefits to the overall system, also limits the negative customer reactions that, if unabated, can preclude achieving any long-term benefits.</p>	Jackson Wozniak
16	C10-1077	10I-099EG	(a) the utility's proposal to implement a substantial and comprehensive consumer education program, options for phasing in any smart grid proposal, options for timing of rate design changes, and other matters that may influence consumer adoption of smart grid technologies;	Wozniak Lee Jackson
17	C10-1077	10I-099EG	(b) the utility's assessment of the anticipated adverse financial impacts of reduced kWh on cost recovery; and	N/A: no rate recovery requested in this proceeding.
18	C10-1077	10I-099EG	(c) the utility's proposal to address and compensate for identified adverse financial impacts.	N/A: no rate recovery requested in this proceeding.
19	C11-0406	10I-099EG	(i) Utilities should incorporate the "diffusion of innovation" concept into smart meter and dynamic pricing implementation planning; initially, smart meters and dynamic pricing should be optional and their promotion targeted.	Jackson Lee Borchardt
20	C11-0406	10I-099EG	(ii) Through customer segmentation and targeted marketing, those customers most desirous of these changes should be engaged first, gradually moving outward through segments.	Jackson Wozniak

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21	C11-0406	10I-099EG	(iii) As smart meter implementation is expanded across a service territory, some customers may be interested in staying with the current rate. Such an option makes sense in the near term to reduce negative customer reactions, yet, over time these customers should be "nudged" toward increased interaction with the smart meter, by gradually making the default option more dynamic.	Jackson Wozniak
22	C11-0406	10I-099EG	(iv) Utilities are encouraged to develop the core competencies of customer segmentation and targeted marketing associated with offering products into a diverse and dynamic market. Such skills, which are integral to the success of a smart meter/dynamic pricing implementation, should be secured as either internal resources or by engaging outside expertise.	Wozniak
23	C11-0406	10I-099EG	(i) Consumer segmentation and behavioral analyses with insights into consumer interests and motivations, responsiveness to dynamic prices, and assessments of relevance of results to service territory as a whole;	Wozniak
24	C11-0406	10I-099EG	(ii) Comparison of various feedback strategies with varying technological complexity and cost; and	Wozniak
25	C11-0406	10I-099EG	(iii) An assessment of the effectiveness and cost of various consumer education and outreach approaches, including implementation of stakeholder involvement and multi-channel strategies.	Wozniak
26	R10-0546-I	10A-124E	The costs of the program subject to recovery.	Hancock
27	R10-0546-I	10A-124E	The benefits that accrue to customers from the program.	Hancock
28	R10-0546-I	10A-124E	The benefits that accrue to the Company from the program (e.g. goals of the program, value of intellectual property rights).	Hancock
29	R10-0546-I	10A-124E	Whether project benefits justify the cost.	Hancock

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30	R10-0546-I	10A-124E	Quantification of the cash, non-cash and intellectual property contributions.	Jackson Hancock
31	R10-0546-I	10A-124E	The on-going maintenance expenses associated with the [project] investments.	Hancock
32	R10-0546-I	10A-124E	The need for ratepayer investments to obtain the full benefit of [project] benefits.	Jackson
33	R10-0546-I	10A-124E	The appropriate size, scope, and scalability of the [project] investments.	Lee
34	R10-0546-I	10A-124E	Whether the existing facilities are functionally inadequate or unavailable.	Lee
35	R10-0546-I	10A-124E	Ownership of intellectual property rights.	TBD as part of vendor selection.
36	R10-0546-I	10A-124E	The Online Account Management system, including both fiscal and environmental effects.	Harkness Nickell Borchardt