

ADMS Benefit List

Benefits Articulated by Xcel in TCR Rider Filing

1. Integrated Grid Preparedness
 - a. Enablement of grid technologies and functionalities
 - b. Improved management of DER interactions
 - c. Improved management of DER outages
 - d. Improved management of feeder switching operations and smart grid technologies
2. Active DER Management
 - a. Reduction of operational risks from DERs
 - b. Real-time awareness of DER effects on entire electric distribution grid
 - c. Improved switching operations from hidden-DER load visibility
 - d. Incorporation of DER on the distribution grid
 - e. Continued safe operation of the distribution system
3. Increased efficiency and accuracy of DER management and interconnection processes
4. Improved reliability and quality of service
 - a. Reduced outages
 - b. Minimized outage times
 - c. Enablement of advanced energy efficiency
5. Dynamic reaction to distribution grid changes
6. Increased operational efficiency
 - a. Optimization of outage response effectiveness
 - b. Optimization power quality performance
 - c. Workspace optimization
 - d. Improved operator training
7. Achievement of multiple corporate objectives
8. Improved safety
 - a. Reduced workplace miscommunication
 - b. Other safety increases (not defined)
 - c. Increased visibility and situational awareness for distribution operators
9. Increased cybersecurity
10. Asset Optimization
 - a. Increased strategic operational planning of existing assets
 - b. Increased strategic operational planning of future assets
11. Customer Benefits
 - a. Improved ability to meet customer needs
 - b. Increase in system interoperability
 - c. Increase in system efficiency
 - d. Increase in system resiliency

Articulated by other utility filings, or Industry Guidance Documents, Not Explicitly Articulated by Xcel

12. Reduced System Peak Demand (VVO)
13. Reduced Line Losses (VVO)
14. Reduced Energy Consumption (CVR)
15. Economic Development and Job Creation
16. Reduced Operating Costs
17. Avoided Outage Costs (Value of Lost Load)
 - a. Reduced outage durations (CMO, SCADI, SAIFI)
 - b. Reduced number of outages (major and minor events)
18. Improved understanding of electrical asset damage via post-event analytics (Potential future quantitative benefit)
19. Improved data analytics (current and future)
20. Reduction in mutual aid during large events due to geographic visualization of issues
21. Increased hosting capacity and DER penetration
 - a. Improved system state topology monitoring
 - b. Increased visibility into load profiles (increased data for hosting capacity and distribution system planning) – Load Profile Generator
 - c. Increased visibility into daytime minimum loading
22. Enhanced use of smart inverters, micro-grids, demand response, etc.
23. Environmental Benefits
24. Improved Resilience
25. Increased Customer Satisfaction
26. Advanced Planning (IDP, p. 116)

Added by MN PUC staff (based off NREL's ADMS Use Case Guide, LBNL's Grid Mod BCA Slide Deck, other state utility-ADMS filings, and Xcel's TCR Petition filing)^[2]

^[2] NREL – Use Cases of ADMS <https://www.nrel.gov/docs/fy17osti/67614.pdf>, p. 2-4

Potential Compliance Filing Requirements

90-120 Days

1. Within [X] days of the Commission order, file an ADMS business case, cost effectiveness assessment, or cost-benefit analysis which includes information outlined below (in the future filing guidance) to the extent available.
2. Within [X] days of the Commission order, provide detailed information on the GIS data collection effort and what interrelated (with other future benefits) or direct benefits are expected from the GIS data collection.
3. Within [X] days of the Commission order, report on the actual costs spend on the ADMS implementation to date, and for the work to date, broken down in the categories of: design (including software configuration and software interfaces), hardware, software, testing and implementation – broken down by internal and external labor.
4. Within [X] days of the Commission order, estimate the total quantity of work completed on the ADMS Project identified by major category. In the even work cannot be quantified, major tasks completed shall be provided.

Annual Status Report - ADMS Project Compliance Filing (Annual or Biennial)

1. Report on the actual costs spent on the ADMS implementation for the reporting period, and for the work to date, broken down in the categories of: design (including software configuration and software interfaces), hardware, software, testing and implementation – broken down by internal and external labor.
2. Estimate the total quantity of work completed on the ADMS Project identified by major category. In the event work cannot be quantified, major tasks completed shall be provided.
3. Report on the additional functional requirements installed to achieve ADMS usage function (including AMI, FAN, FLISR or IVVO modules), their percent of system implementation or integration, and cost incurred to date.
4. Estimate anticipated expenses in coming reporting periods, both capital and O&M

Future Filing Guidance: Cost Benefit Information^[5]

Provide at the time of cost recovery for the AGIS Initiative (including ADMS) and at the time of request for any other additional investments (additions beyond AMI, FLISR, FAN, and ADMS)

I. Scope of Investment

A. Investment Description

1. Detailed description of proposed investment and project life
2. If multiple components, overview of costs and descriptions of each
 - a. Include purpose and role
 - b. Explain known and potential future use cases for each component
 - c. Explain known and potential value streams and how each component fits with state policy, statutes, rules and Commission orders
 - d. Describe beneficiaries of each investment (who, how many, over what time period)
3. Articulation of principles, objectives, capability, functionalities, and technologies enabled by investment
4. Interrelation and interdependencies with other existing or future investments
 - a. Overlapping costs: Scope, amount, timing

B. Alternatives considered

1. If a Request for Proposal was used provide:
 - a. The RFP issued, including list of all services or assets scoped in the RFP
 - b. Provide summary of responses
 - c. Provide assessment of bids and factors used for selection
 - d. The scope of offerings or services included in the selected bid

C. Costs

1. Provide sufficient information to determine what is included in the investment in each of the following categories:
 - b. Direct Costs (product, service, customer, project, or activity)
 - c. Indirect Costs
 - d. Tangible Costs
 - e. Intangible Costs
 - f. Real Costs
2. If needed, provide the utility's definition of each category and whether internal or external labor costs are included in the category and the instant petition. If the costs are not included in the petition, include information on where and when those costs will be sought to be recovered.

^[5] These requirements were drafted by staff based on the National Grid (RI) Grid Modernization Plan Outline (slides [42-56](#)); a draft (non-public) guidance version under review by state regulators of the Lawrence Berkeley National Lab work on cost-benefit analyses for grid modernization investments, slides: [BCA of Utility Investments](#), See [DTE Testimony](#) before the MI PSC, PDF pg. 323, Getting Utilil/Eversource Link (pending)

1. If there is overlap or costs included in both categories, outline the overlapping costs and explain.
2. For each of the cost categories outline whether the investment has been partially approved or included in previous or on-going docket riders, rate cases, or other cost recovery mechanisms or note all costs are included in the instant petition.

II. Detailed Analysis

1. Type of proposed (or multiple) cost effectiveness analysis utilized
 - a. Least-cost, best-fit (Xcel proposes in IDP Reply comments)
 - b. Utility Cost-test
 - c. Integrated Power System and Societal Cost test
2. Provide a cost benefit analysis for: 1) each investment component with overlapping costs or benefits in isolation and 2) each bundled components, as appropriate
 - a. Provide Discount Rate Used and Basis
 - b. Identify cost categories and benefit categories used (explain metrics)
 - i. Explain how benefits can be monitored overtime and proposal for reporting to Commission
 - c. Identify quantitative costs and qualitative costs
 - i. Use quantitative methods to address qualitative benefits to the extent possible.
 - ii. Explain system used to assess value and priorities to qualitative benefits (points and/or weighting)
 - d. Identify sensitivity ranges on estimates or value
3. Include a long-term bill impact analysis
4. Include a reference case/scenario without the project (or group of projects)
5. Apply the following principles to ensure the investment analysis has:
 - e. compared with traditional resources or technologies;
 - f. clearly accounted for state regulatory and policy goals;
 - g. accounted for all relevant costs and benefits, including those difficult to quantify;
 - h. provided symmetry across relevant costs and benefits;
 - i. applied a full life-cycle analysis;
 - j. provided a sufficient incremental and forward-looking view;
 - k. is transparent;
 - l. avoided combining or conflating different costs and benefits;
 - m. discuss customer equity issues, as needed;
 - n. assessed bundles and portfolio where reasonable; and
 - o. addressed locational and temporal values.