Memorandum

TO: Bryan Flint, Public Utility Board Chair

COPY: Chris Robinson, Power Superintendent/COO
Scott Dewhirst, Water Superintendent/COO
Andre' Pedeferri, Advanced Metering Program Manager
Matt Hubbard, Power Engineer

FROM: Jackie Flowers, Director of Utilities

DATE: February 16, 2021

TOPIC: Backgrounder: Advanced Metering Rate Impact

QUESTION: How much will advanced meters cost and how will they impact rates?

EXECUTIVE SUMMARY: The updated, estimated cost for the project's multi-year deployment is about $80 million, which is the incremental cost to TPU for the project and includes new meters, software, communications equipment, and labor.

Costs for advanced meters are already factored into current customer rates. Beginning in 2019, the additional cost increase each year for the next ten years is about:

- 8 cents per month for the average residential power customer ($0.96 per year),
- 11 cents per month for the average residential water customer in the City of Tacoma ($1.32 per year), and
- 13 cents per month for the average residential water customer outside the City of Tacoma ($1.56 per year).

As an example, for the average residential power customer, the additional cost is projected to be about $0.96 per year in year one, increasing $0.96 each year to about $9.60 per year in year ten.

A financial impact analysis was completed by Power and Water rates staff in 2019 to estimate the customer rate impacts of implementing advanced metering infrastructure (AMI) through 2028. Results of this analysis were presented to the Public Utility Board on February 27, 2019 (presentation attached). The AMI Rate Impact Analysis was reviewed in May 2020 based on the project cost forecasts at that time, and is deemed to still be valid.

In addition, although the rate impact analysis was completed for a ten-year period (2019-2028), TPU completed an economic analysis (business case) for advanced meters over the next twenty years, which is the assumed lifetime of the meters. Over the twenty-year lifecycle for the new metering system, TPU expects this project to result in a positive financial benefit to the utilities, which ultimately benefits customers and potentially allows for more gradual rate increases in the future. The 2020 updated AMI business case shows a positive financial net present value of approximately $8 million.

RATE IMPACT ANALYSIS:

TPU's financial analysis considers rate impacts over ten-years, as shown in the utilities' long-range financial plans. This only considers costs and benefits that are reflected in rates. Thus, by including relevant costs and benefits of AMI, this analysis provides the projected rate impacts of AMI.

A summary of the AMI Rate Impact analysis is provided in Figures 1 and 2, reflecting rate impacts to an average residential customer in the City of Tacoma.

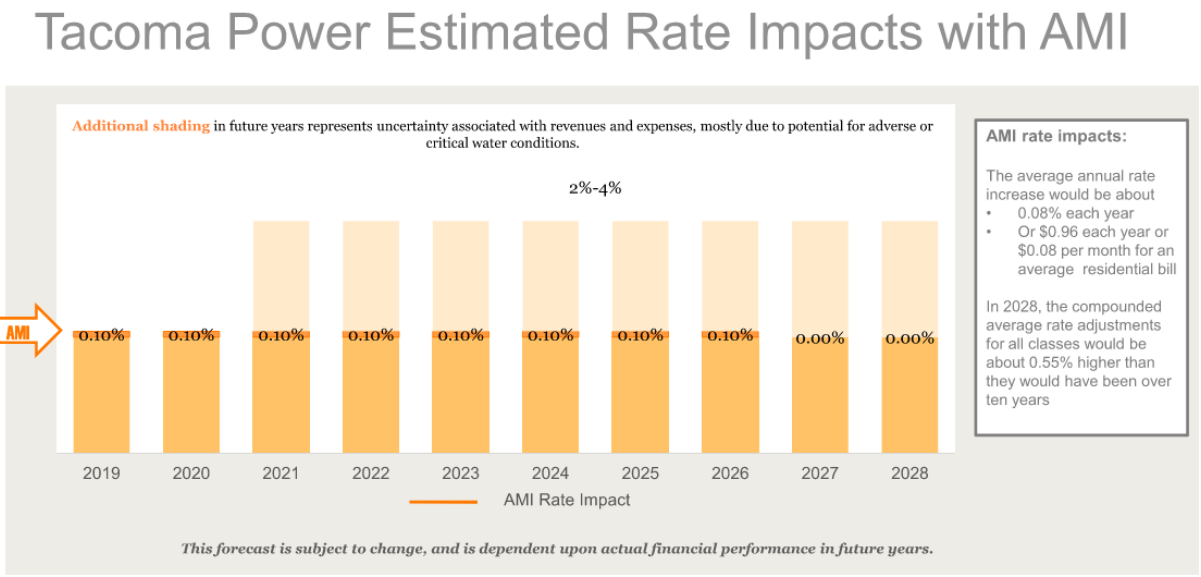


Figure 1. Tacoma Power Estimated Rate Impacts with Advanced Metering Infrastructure (AMI)

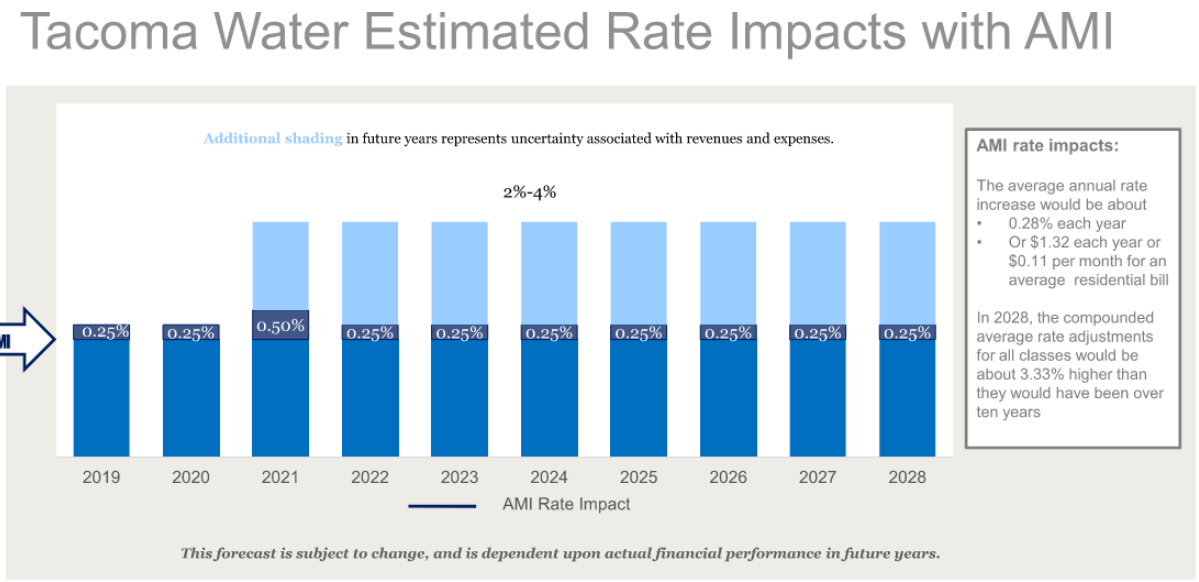


Figure 2. Tacoma Water Estimated Rate Impacts with Advanced Metering Infrastructure (AMI)

Methodology and Assumptions

The following methodology was used to complete the AMI Rate Impact Analysis:

- Created a new rate Base Case without AMI
  - Removed all previously assumed AMI costs from the financial model
- Added in business case Operations & Maintenance costs & benefits
  - Incorporated the AMI costs and benefits that impact rates regardless of financing
- Incorporated AMI capital costs through debt financing
  - Included a 20-year bond issuance for the business case capital costs
- Determined scenario rate increases that maintain target ratios for 2019-2028
  - Determined rates in 2019–2028 that closely reflect the financial metrics in the Base Case

TPU also developed an extensive economic analysis (business case) assessing the financial benefits, costs, and non-financial (soft) benefits over the next twenty years. An economic analysis looks at total costs and benefits, including triple bottom line, over the life of the asset being evaluated. Not all business case costs or benefits may be reflected in customer rates. The business case analysis looks at the feasibility of the project and helps inform the decision of whether to proceed or choose an alternative. The AMI business case analysis was completed in 2016, 2019, and updated in 2020. The 2020 updated analysis shows a positive financial net present value of approximately $8 million.

The business case included assumptions related to the deployment and operations of AMI, such as a twenty-year life of the metering system, a nominal discount rate of 5%, project costs (including meters, software, communications equipment, and labor), and project benefits (including labor savings, avoided truck rolls, and asset management).

Compared to the business case, there were several differences assumed in order to develop the rate impact analysis. These differences include:

- 10-year financial plan vs 20-year business case
  - Financial Planning period to set rates is 10 years vs business case and meter life of 20 years
- Isolated AMI rate impact
  - Did not include monthly billing assumptions that are in the AMI business case
- Removed benefit assumptions that are not currently impacting rates
  - Did not include AMI carbon benefits
  - Did not include AMI reduction in theft benefits for Power

In May 2020, following a review of the AMI Rate Impact Analysis, the rates teams for Power and Water determined that the 2019 AMI Rate Impact Analysis is still valid when compared to the updated 2020 AMI business case. Although the AMI business case provided for updated costs and benefits, the most significant updates occurred beyond the initial meter deployment period, during the second half of the twenty-year business case period (2020-2039), and also beyond the Power and Water ten-year rate financial planning horizon. Because of the nature of these updates, a new rate impact analysis was not required for 2020 and the 2019 analysis (and assumptions) can continue to be referenced.

Similarly, the 2019 rate impact analysis provides an estimate of customer costs per month based on assumptions from Q1 2019. If these general rate assumptions change significantly or if AMI costs are projected to greatly exceed those in the 2020 business case, a new AMI rate impact analysis may be needed.

Last, there are several soft benefits not quantified in the AMI business case but expected to provide value to customers and TPU. These include an improved customer experience and self-service options, conservation and environmental benefits such as carbon reductions (estimated at 4,461 metric tons but not included in the business case net present value calculation), TPU's reintroduced PrePay program, and customer support during times of economic uncertainty, including flexible payment options and empowering customers with usage data.

ATTACHMENTS:

- AMI Rate Impact Public Utility Board Study Session Presentation (February 27, 2019)

CONTACTS:

- Andre' Pedeferri, Utility Technology Services, Advanced Metering Program Manager
  (253) 502-8997, apedeferri@cityoftacoma.org
- Matt Hubbard, Utility Technology Services, Power Engineer
  (253) 345-1662, mjhubbard@cityoftacoma.org

AMI Rate Impact
2019-2028

Jodi Collins, Tacoma Water

Michelle Brown, Tacoma Power

February 27, 2019

TACOMA POWER | TACOMA WATER | TACOMA RAIL

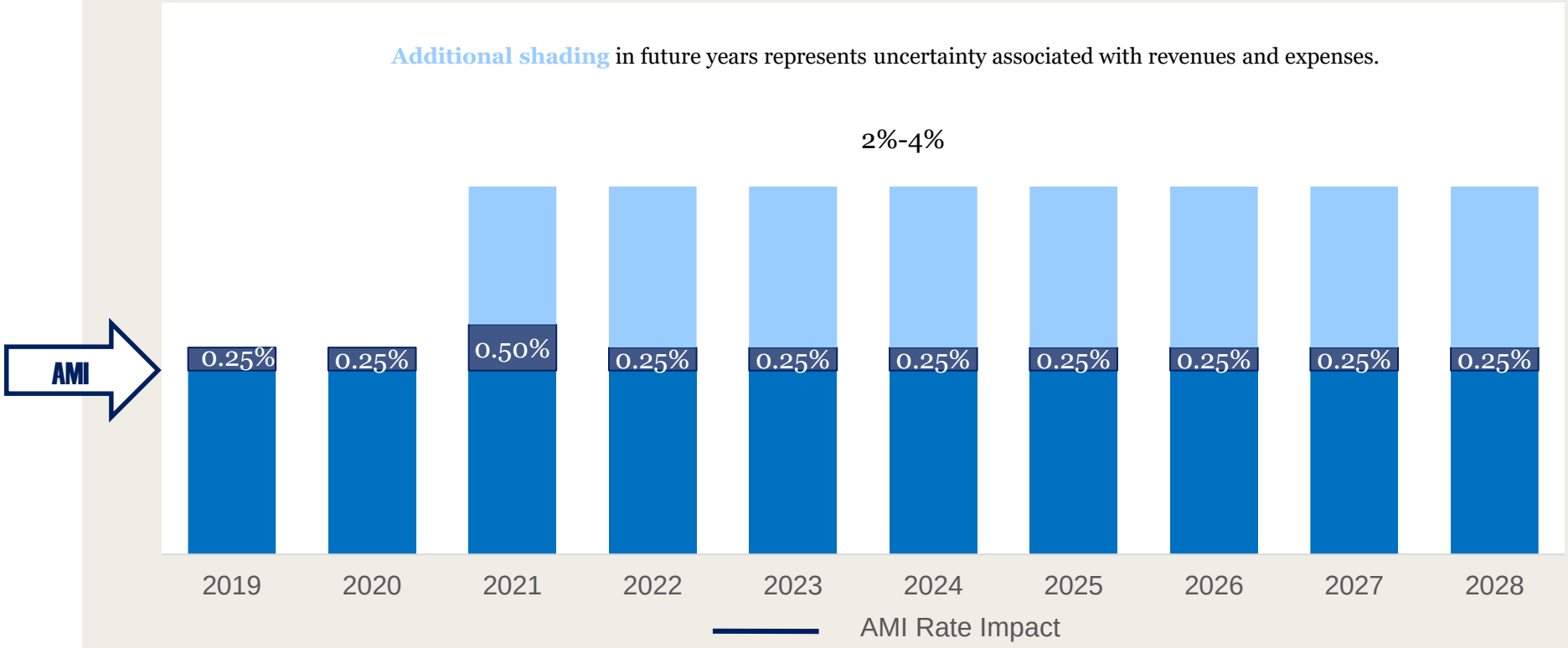
TACOMA PUBLIC UTILITIES

AMI Impact

+ *Rate Impact*
+ *Bill Impact*

At the January 9th PUB study session, the Board members requested more information about how AMI implementation impacts rates. This document provides more information about the methodology and the summary of our findings shown on the next two pages.

Tacoma Water Estimated Rate Impacts with AMI



AMI rate impacts:

The average annual rate increase would be about

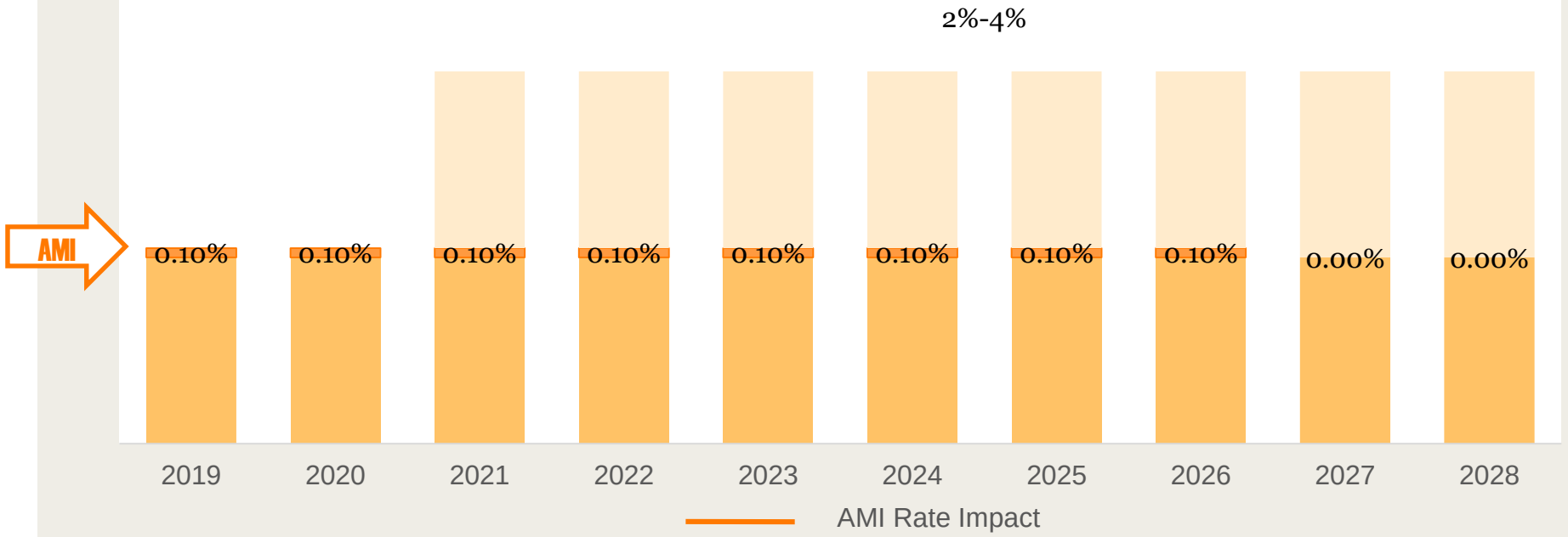
- 0.28% each year
- Or $1.32 each year or $0.11 per month for an average residential bill

In 2028, the compounded average rate adjustments for all classes would be about 3.33% higher than they would have been over ten years

This forecast is subject to change, and is dependent upon actual financial performance in future years.

Tacoma Power Estimated Rate Impacts with AMI

Additional shading in future years represents uncertainty associated with revenues and expenses, mostly due to potential for adverse or critical water conditions.



AMI rate impacts:

The average annual rate increase would be about

- 0.08% each year
- Or $0.96 each year or $0.08 per month for an average residential bill

In 2028, the compounded average rate adjustments for all classes would be about 0.55% higher than they would have been over ten years

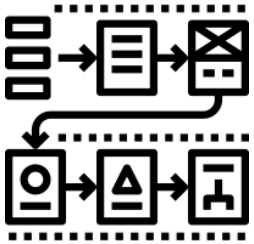
This forecast is subject to change, and is dependent upon actual financial performance in future years.

Appendix

+ Methodology

- *Methodology for Rate Impact Financial Analysis*
- *Economic Analysis vs Financial Analysis*

Financial Analysis of AMI



Created a new Base Case without AMI

- Removed all previously assumed AMI costs from the financial model

Added in business case Operations & Maintenance costs & benefits

- Incorporated the AMI costs and benefits that impact rates regardless of financing

Incorporated AMI capital costs through debt financing

- Included a 20 year bond issuance for the business case capital costs

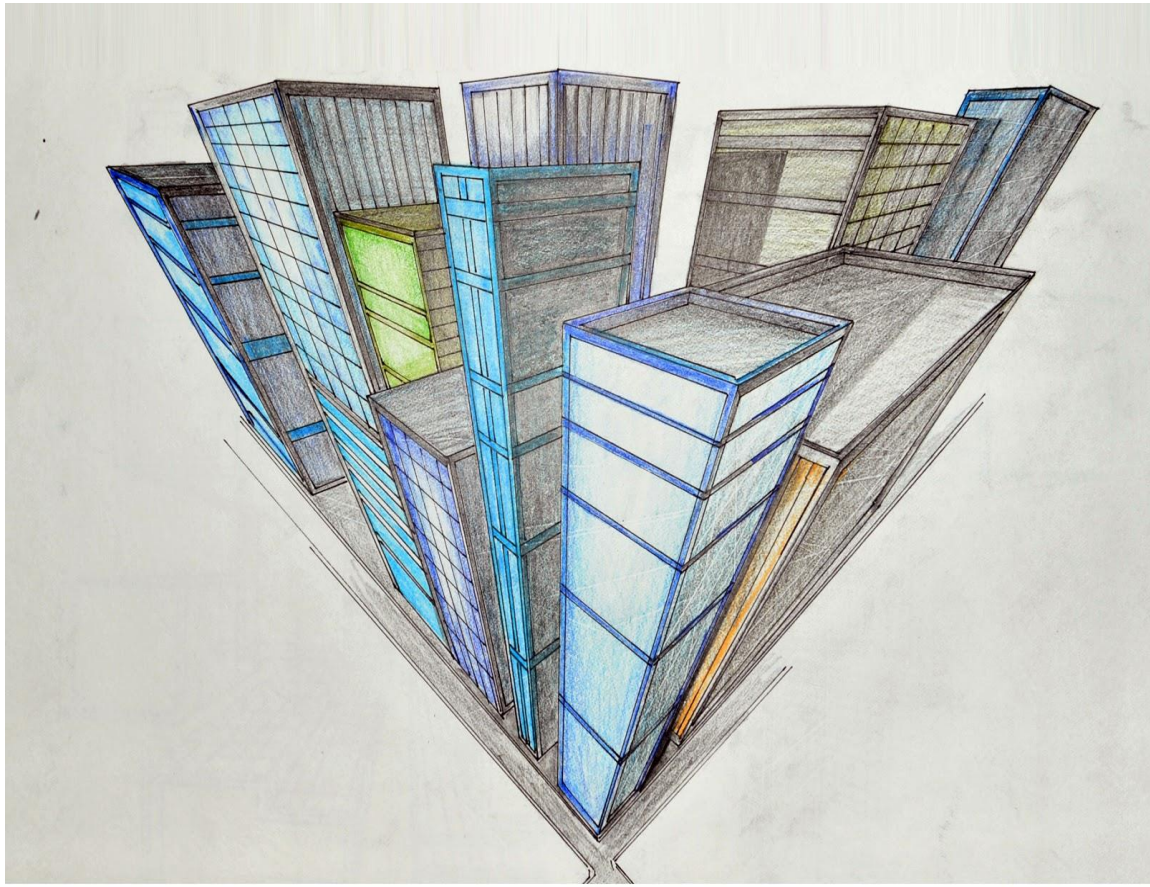
Determined scenario rate increases that maintain target ratios for 2019-2028

- Determined rates in 2019–2028 that closely reflect the financial metrics in the Base Case

The view depends upon your perspective

- **Economic Analysis** – looks at total costs and benefits, including triple bottom line, over the life of the asset being evaluated. Not all costs or benefits may be reflected in customer rates. This analysis looks at the feasibility of the project and helps inform the decision of whether to proceed or choose an alternative.

- **Financial Analysis** - considers rate impacts over ten-years as shown in our long range financial plans. Considers only costs and benefits that are reflected in rates. Once the decision has been made to proceed, this analysis provides projected rate impacts.



Here's what's included in the Business Case

20 years

Life of Asset

5%

Discount Rate

Costs

- **Meters**
- **Software**
- **Communications**

Benefits

- **Labor Savings**
- **Asset management**
- **Carbon reduction**

=

Differences between the financial analysis and the business case

10-year financial plan vs 20-year business case

- Financial Planning period to set rates is 10 years vs business case and meter life of 20 years

Isolated AMI rate impact

- Did not include monthly billing assumptions that are in the AMI business case

Removed benefit assumptions that are not currently impacting rates

- Did not include AMI carbon benefits
- Did not include AMI reduction in theft benefits for Power

Customer benefits not quantified in the business case

- Outage notifications
- Energy monitoring
- Bill management
- New products & services

Over time, many customers may see bill savings from the programs and services AMI enables