Comments of Ameren Missouri

Regarding:
Staff's Change Request for Program Year 2020 ("PY20")

Prepared by

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July 15, 2021

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Executive Summary

On October 25, 2018, Ameren Missouri reached a stipulation and agreement with stakeholders in case EO-2018-0211, which provided authorization to offer Missouri Energy Efficiency Investment Act ("MEEIA") programs in years 2019-2021. Ameren Missouri first filed its plan on June 4, 2018. That plan provides for the largest single investment in energy efficiency programs ever approved for Missouri customers. In total, the plan authorized three-year spending of $195.45 MM (with an additional $31.86 MM approved for income eligible programs through 2024). For Program Year 2020 ("PY20"), these programs were expected to provide energy savings of 284,595 MWh, and first year demand savings of 91.8 MW on an ex post net as filed basis.

Opinion Dynamics Corporation ("ODC") was selected as the evaluation contractor for the 2019-2021 program. In addition to the evaluation activities documented in these draft reports, ODC also conducted a baseline market research study as part of the 2019/2020 Market Potential Study, and in support of the 2020 Integrated Resource Plan. An additional Statement of Work was signed with ODC for them to conduct research on the impact of COVID-19 on customers, trade allies, and the PY2020 programs. ODC held in depth interviews with select trade allies and then completed five follow up interviews with the full panel between April and September 2020. ODC also surveyed more than 140 past participants. As discussed in this Report, this research provides important perspective and additional evidence on the efficacy of Ameren Missouri programs during this period.

On June 10, 2021, ODC issued final evaluation reports and found that Ameren Missouri met 100% of the applicable portfolio energy efficiency goals as shown in Table ES-1:

Table ES- 1: PY2020 First Year Energy Savings

	Ex Post Net MWH	Goal Net	% of Goal
Low Income	12,560	13,858	91%
Residential	153,497	118.389	130%
Business	119,805	152.347	79%
Total	285,862	284,595	100%

On June 24, 2021, Evergreen Economics ("Evergreen") submitted its Independent EM&V Audit of the Ameren Missouri PY2020 Program Evaluations. Evergreen had five conclusions:

- **Free Ridership Adjustment for COVID-19**: Evergreen felt that the information included in the report does not meet the standard required to justify the 20% adjustment to the free ridership results for the Business Custom, Standard, and Retro-commissioning programs.
- **BizSavers Report – In Service Rate ("ISR") and Hours of Use ("HOU") parameters:** Evergreen recommended that the actual point estimates for both the ISR and HOU parameters for Business Standard, Small Business Direct Install, and Business Social Services lighting projects be used and the criterion of being statistically different from 1.0 be dropped.
- **Effective Full Load Hours ("EFLH"):** Evergreen felt that the EFLH values for the business programs Custom and Retro-commissioning programs seem potentially low.

- **Randomized Control Design**: Evergreen recommended that the randomized control trial ("RCT") approach be used for evaluating the Residential Demand Response program when the data are available, even at the expense of having an inconsistent approach across device manufacturers and/or programs.
- **Missing AMI data**: Evergreen recommended that the evaluation should verify that these are indeed active accounts in order to claim savings.

On July 1, 2021, the Staff of the Missouri Public Service Commission filed a Change Request recommending the Commission accept Evergreen's recommended changes to ODC's PY20 EM&V Report.

None of Evergreen's conclusions or recommendations explicitly stated that changes should be made to the PY2020 evaluation results. Ameren Missouri generally agrees that four of Evergreen's recommendations be included in the PY2021 evaluation:

- **BizSavers Report – In Service Rate ("ISR") and Hours of Use ("HOU") parameters:** ODC will use the actual point estimates for both the ISR and HOU parameters for Business Standard, Small Business Direct Install and Business Social Services programs.
- **Randomized Control Design**: The Randomized Control Design approach will be used for evaluating the Residential Demand Response program thermostat savings for every manufacturer where the data is available.
- **Missing AMI data**: This verification was conducted in PY2020, but this was not clearly stated in the report**.** The evaluation will continue to verify that accounts in the Business Demand Response program that do not have interval data these are indeed active accounts and will state this more clearly in PY2021.
- **Effective Full Load Hours:** Ameren Missouri would like to discuss this issue in collaborative meetings to resolve any concerns prior to the PY2021 evaluation. Ameren Missouri is hopeful additional explanation of the Company's use of coincidence factors as agreed to in the stipulation and agreement will resolve Evergreen's concerns.

In contrast, the Company strongly objects to Evergreen's recommendation regarding the disallowance of the **PY2020 COVID-19 adjustment** for select business programs. At issue is how to measure customer participation and assign attribution to the Company's programs during an unprecedented pandemic.

Measuring attribution is a critical aspect of the evaluation of energy efficiency programs. As shown in Table ES-1, Ameren Missouri's goals are based on net energy savings. There are two steps to the evaluation process. First, evaluators must determine how much energy the measures incentivized by the program save. This is done through a variety of methods including engineering algorithms, billing analysis, and building simulation models. This is the *gross energy* saved.

The next step in the evaluation is to determine how much of the gross energy saved can actually be attributed to the program. To determine this, evaluators generally ask program participants a series of questions to determine how important the program was in their decision to install an efficient measure and what they would have done if the program did not exist. Participants who would have installed the energy efficient measure if the program did not exist are called *free riders*, and the program cannot claim their energy savings. The remaining energy that the program can claim as savings is the *net energy*.

Free ridership questions and scoring algorithms are complicated and include questions about the timing and quantity of measures that the customer would have installed without the program. These questions and the scoring algorithm were initially developed in 2019 and reviewed by Stakeholders. After completing the additional research on the impact of COVID-19 on customers, ODC realized that the pandemic was causing an increased amount of project cancellations and delays, and that BizSavers projects were experiencing fewer cancellations and delays than non-program projects. Because the program's impact on cancellations and delays was not originally factored into the free ridership scoring, ODC added an adjustment factor to account for this effect. The adjustment factor reduced the free ridership score by 20% as shown in Table ES-2:

Table ES- 2: Free Ridership with and without COVID Adjustment

Program	Free Ridership with Original Algorithm	Free Ridership after COVID Adjustment
Standard	20.3%	16.2%
Custom	23.2%	18.6%
Retro-commissioning	10.2%	8.2%

The COVID-19 adjustment as proposed by ODC is based on extensive empirical research and the preponderance of evidence. In contrast, Evergreen offers a hypothetical example of a scenario where customers that would have the lowest free ridership rates dropped out of programs, and only those customers with higher free ridership rates completed projects. Evergreen has simply provided an example of a basic math problem and has conducted no research to provide evidence that this situation occurred in 2020. The lack of evidence in Evergreen's argument should be compared to the extensive research conducted by ODC in developing their assessment of free ridership.

As described in the Company's Comments, Ameren Missouri acted on research conducted by ODC and modified its programs accordingly. These program changes helped support customers and contractors during an unprecedented economic conditions, consistent with Commission guidance. Upholding Evergreen's recommendation regarding the COVID-19 adjustment would have the opposite effect; it would suggest that the Company should not have made program changes to support participation and support local economies, consistent with Commission guidance. Removing the COVID-19 adjustment would have the practical effect of penalizing the company for doing so.

As documented in the following comments, including the adjustment for COVID-19 for PY2020 is appropriate and clearly supported by extensive market research. This is discussed in the first section of the comments. The second section of the comments provides additional information on the other conclusions presented by Evergreen where Ameren Missouri is in general agreement with the suggestions, but feels additional explanation may be beneficial.

Section I. The "COVID-19 Adjustment" was developed based on extensive market research

Evergreen's Report questions the addition of a free ridership adjustment to the Business Standard, Custom and Retro-commissioning programs due to the impact of COVID-19 on project delays and completions. The adjustment used by ODC is supported by:

- The extensive research conducted by ODC into the impact of COVID-19 on customers and trade allies, including 6 surveys completed over 3 months, as documented in a comprehensive research memo (included here as Appendix A);
- The impact on COVID-19 on PY2020 participants; and
- Program changes made in response to the pandemic, including the effect of those program changes on participation

As ODC explains in their report, such an adjustment is warranted particularly given that the original survey and net to gross algorithm did not account for the unprecedented circumstances presented by COVID-19 and the change in economic conditions for customers and trade allies in Missouri and Nationally.

In contrast, Evergreen presents a hypothetical argument regarding customer participation during an economic crisis. Evergreen's Report does not rely on any customer research or empirical data to support its position. Instead, the Report first *assumes* that free ridership would increase during an economic crisis, and uses this assumption to prove its main point. This assertion is unwarranted and unsupported.

The remainder of this section proceeds as follows. First, it provides additional detail on the extensive research conducted by ODC, including results from surveys of both trade allies and past participants. Then, this memo presents information on the impact of COVID-19 on current participants and documents program changes made during PY2020, in order to support program participation and maximize benefits to customers.

A. *A Review of the Extensive Research Conducted by ODC*

In the summer of 2020, ODC conducted extensive research on the impact of COVID-19 on business programs by:

- Interviewing program staff to understand impact on program and mitigation strategies the program was taking;
- Conducting in-depth interviews with 17 different trade allies, that are responsible for more than 40% of all projects incentivized through the BizSavers Custom, Standard, and Retro-commissioning programs; ODC completed five waves of surveys to assess impact on the BizSavers program during the period May to July; and
- Surveying more than 140 PY2019 participants to assess whether they would have completed similar projects during the current pandemic.

ODC prepared memos after the trade ally in-depth interviews, after each wave of Trade Ally surveys, after the participant survey, and issued a final memo with results and conclusions from the research. The final memo was included in the workpapers associated with the evaluation provided to all Stakeholders including Evergreen. It is included again in these comments as Appendix B. The Trade Ally in-depth interview memo, the final memo on the results of the Trade Ally surveys, and the memo on the participant survey are embedded within the final memo.

As a starting point, it is worth noting one of ODC's key findings from that memo in its entirety:

> "Based on information provided by both trade allies and customers, ***the BizSavers Program is likely to experience an overall decline in participation and achieved savings as a result of the COVID-19 pandemic***. While large and small *customers* reported similar impacts of the pandemic, ***our research found greater adverse impacts on large projects compared to small projects***. Key barriers to participation, reported by PY2019 participants, include uncertainty about the future and access to financing. ***Both trade allies and customers reported that more financial support, including increased incentives and access to financing, would be key strategies the BizSavers Program could employ to help them through this crisis.*** Trade allies also highlighted temporarily closed or under-occupied facilities as a potential opportunity for the program, and our research indicates many of Ameren Missouri's customers are still experiencing temporary closures or have under-occupies facilities." (Emphasis added.)

This finding clearly speaks to broad impact from the unprecedented and unexpected conditions brought on by COVID-19.

It is important to note that ODC developed the initial survey and free ridership algorithm in the fall of 2019, nearly 6 months before the COVID-19 pandemic began. ODC correctly notes that the impact of the COVID-19 pandemic was not included within the free ridership battery. Based on the research described above, ODC found that the COVID-19 pandemic – and changes made within the BizSavers program as a response to those conditions-- had an important impact on preventing project delays and cancellations.

Clearly, then, the free ridership adjustment developed by ODC is not arbitrary, as Evergreen contends. Rather, ODC conducted extensive research with trade allies and customers. If the 20 percent adjustment is arbitrary, it is not in the direction that Evergreen's objection would imply. Indeed, ODC developed its 20 percent adjustment noting that[1]:

- Approximately one in three (33 percent) of interviewed trade allies indicated fewer cancellations among BizSavers projects compared to other similar projects and
- One of four (25 percent) interviewed trade allies indicated experiencing fewer project delays among BizSavers projects

By this measure, a 20 percent adjustment is conservative, relative to the 25-33 percent of trade allies that indicated a meaningful program impact on participation.

Translating survey responses into a single quantitative number necessarily requires the use of professional judgement, including the use of algorithms and a reliance on the preponderance of available evidence to assess the reasonableness of results. An arbitrary adjustment to the algorithm would have been to apply a 100 percent adjustment, reducing the net to gross ratio by more than half. Instead, in developing its adjustment, ODC

[1] Email correspondence from ODC to Evergreen, April 16 2021, in response to stakeholder presentation of results on April 15, 2021.

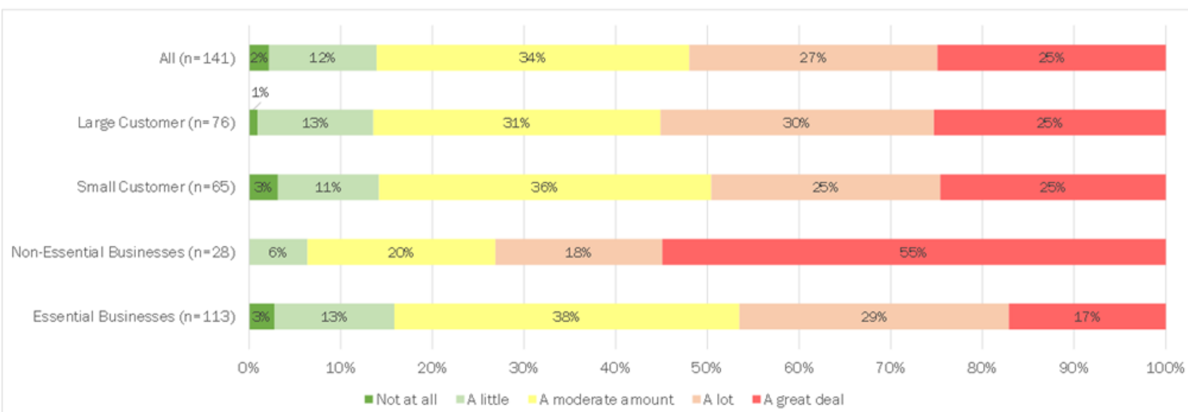
reviewed prior research and prior results. The final adjustment applied by ODC results in a net to gross ratio that is similar to and consistent with prior years. This intuitively makes sense. Ameren Missouri continued to offer the same programs, with the same implementers, with the same – and increased incentives – in 2020 as in 2019. It stands to reason that net to gross ratios should be similar, if not higher, given the outsize impact of the COVID-19 pandemic.[2]

While the free ridership algorithm appropriately captures program influence on the initial timing of projects (in addition to efficiency and quantity), ODC appropriately noted that it does not address program influence on preventing project delays and cancellations. Both trade allies and PY2019 participants indicated that COVID impacted project delays and cancellations. As such, an adjustment to correct for this un-measured program influence is warranted and reasonable and supported by extensive customer research.

1. *PY2019 Participant Surveys*

Evergreen commented that the evaluation has an "over-reliance on contractor opinions on the influence of the program," however program contractors are in direct contact with customers and have insights into why projects are being delayed/canceled. In addition, the adjustment did not rely on Trade Ally opinion alone. Almost all of the PY2019 BizSavers participants surveyed for the COVID-19 research reported that the pandemic had an impact on their business:

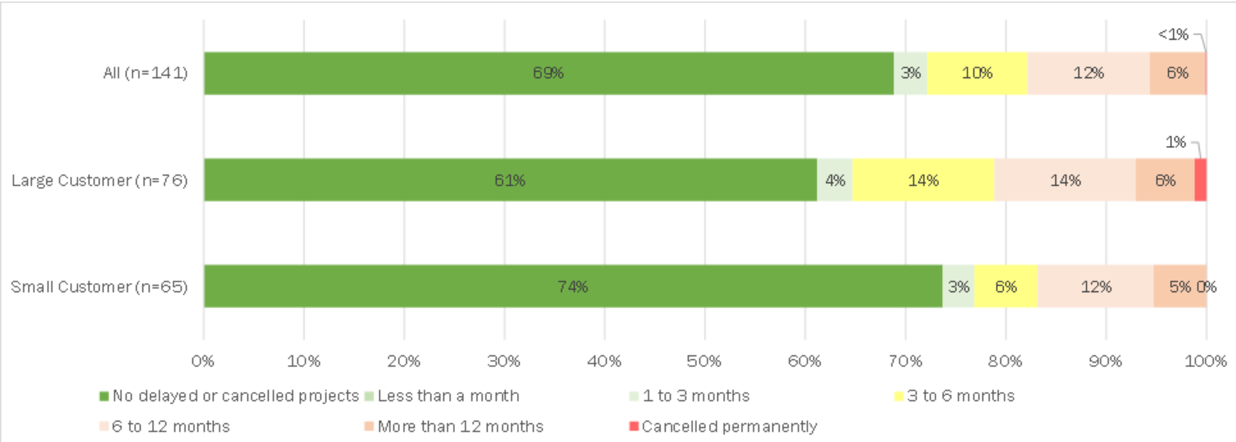
Figure 1: Overall Impact on Business, by Customer Size and Essential Business



Almost one-third of PY2019 BizSavers participants (31%) postponed a planned investment project in 2020, with many (18%) expecting delays of six months or more:

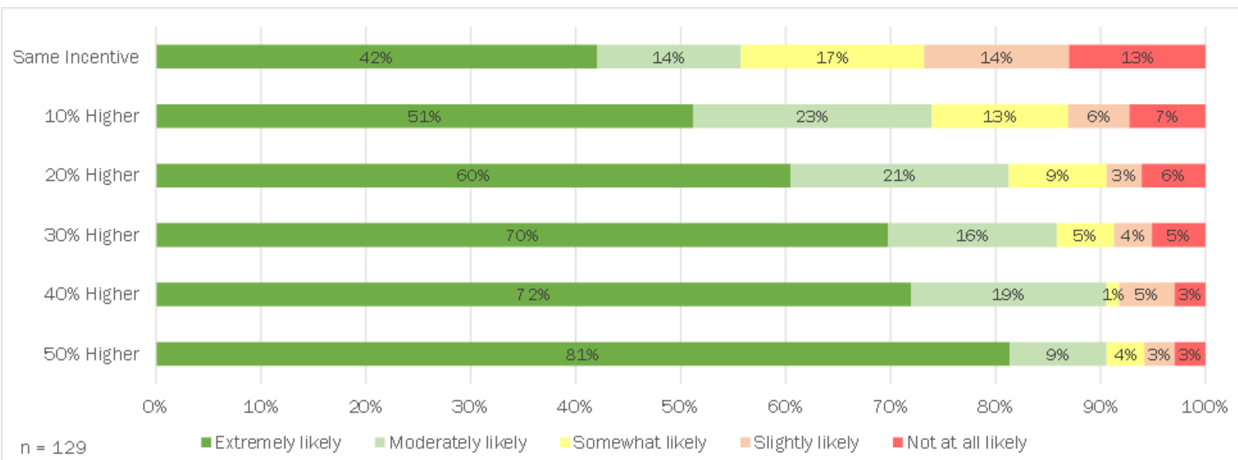
[2] This is not to argue that results should be exactly the same year-to-year; some variation may in fact be expected. However, large changes in results from year–to-year should be reviewed and assessed for reasonableness, to ensure that the methodology employed remains relevant to the conditions at hand.

Figure 2: Delayed and Canceled Projects, by Customer Size



Less than half of PY2019 participants (42%) noted that they would be extremely likely to complete their project in PY2020 with the same incentive they received in PY2019.

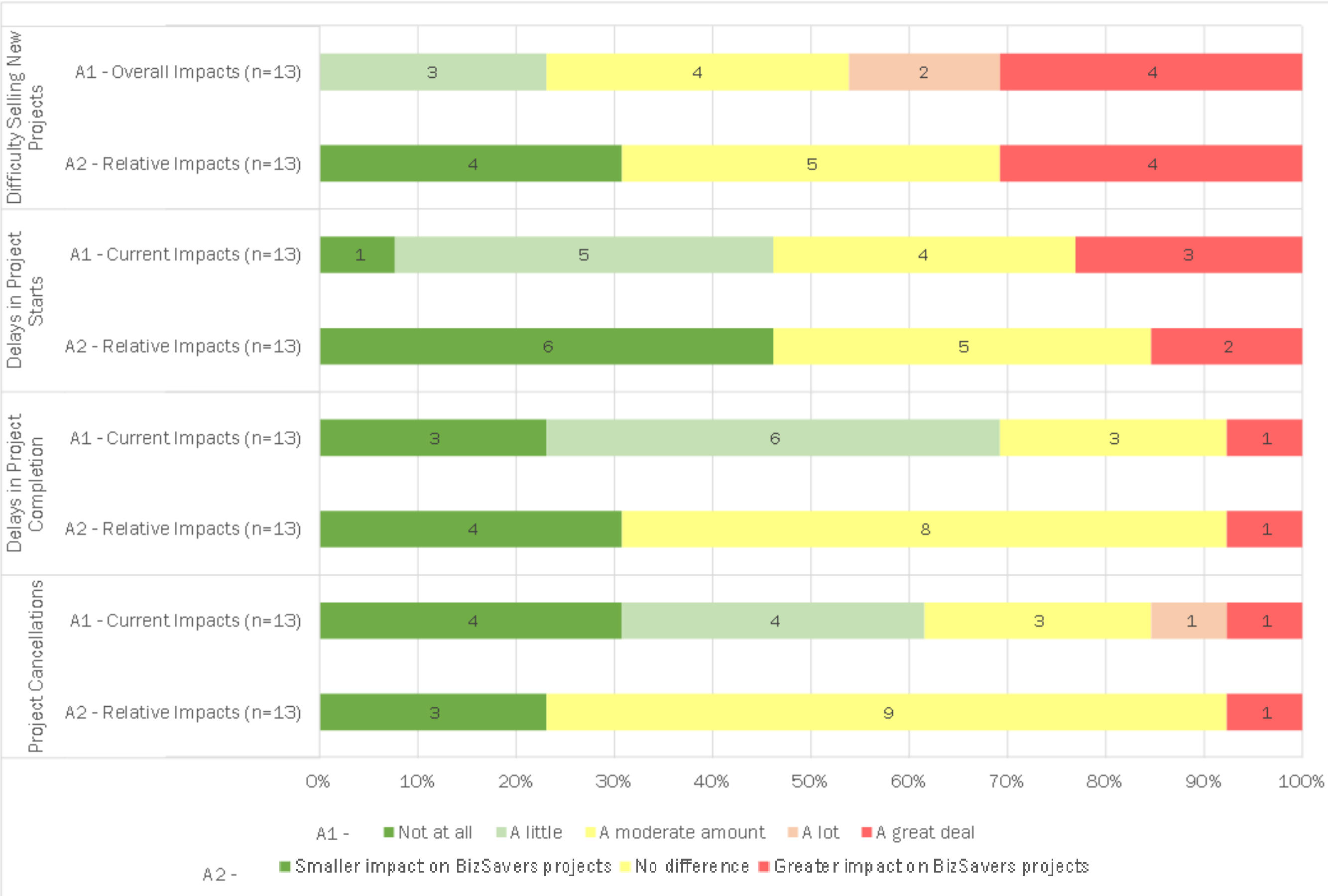
Figure 3: Likelihood of Project Completion, by Incentive Scenario



2. *Trade Ally Survey Results*

In addition to the impacts reported by PY2019 participants, Trade Allies also reported that the COVID-19 pandemic impact their ability to sell, start, and complete projects:

Figure 4: Current Impacts and Relative Impacts on BizSavers Projects



Evergreen interpreted these to results to say "One could just as easily have concluded that a majority of contractors (7 of 13) reported no effect on project delays or cancellations."

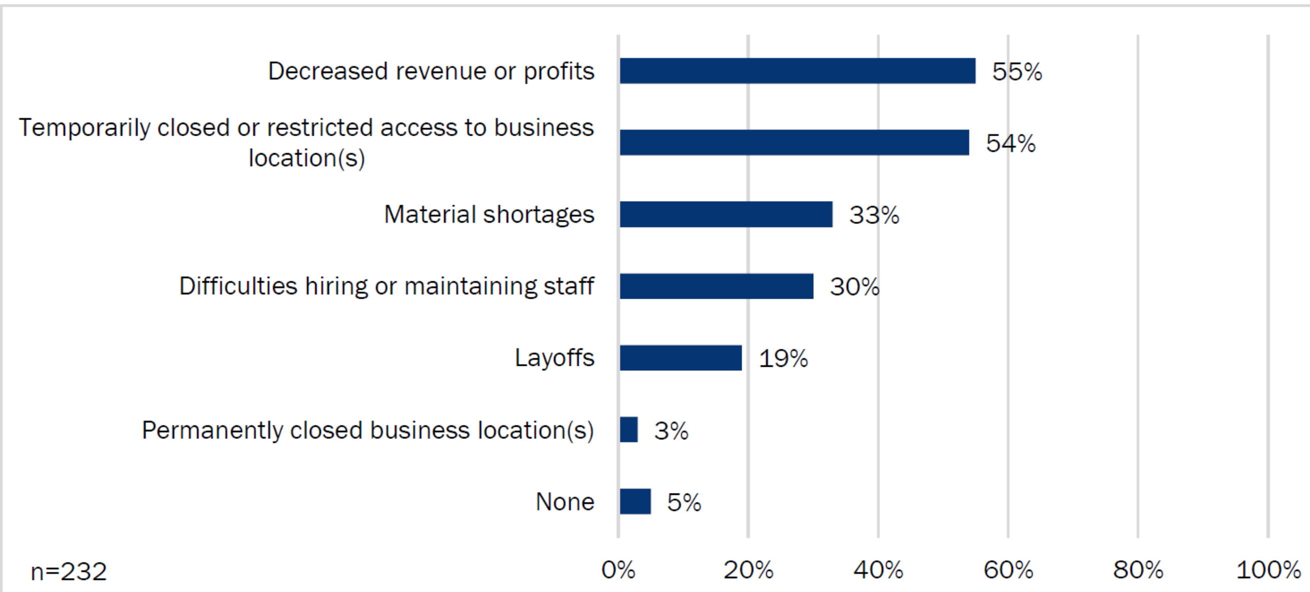
This interpretation unfortunately misconstrues the information presented. From Figure 4 (above), it is apparent that not a single contractor said that COVID had *no* impact on their ability to sell projects. Similarly, only one contractor said there was no impact on delaying project starts, only three said there was no impact on delaying completions, and only four said there was no impact on project cancellations. The results also show that the impact of COVID on BizSavers projects was far less than the impact on projects in general, meaning that more projects would have been delayed or canceled without the BizSavers program.

B. *COVID-19 had a measurable impact on PY2020 Participants*

Evergreen's Report also alleges that the PY2020 participants had a stronger financial position than prior participants and therefore, are more likely to be free riders. Evergreen's Report does not provide an empirical data or research to support this assumption. Instead, by starting with this assumption, Evergreen's Report proves the result it hopes to find.

In contrast, research conducted by ODC did assess customer's financial conditions. Respondents to the PY2020 Custom and Standard participant survey reported experiencing decreased revenue or profits (55%) and temporarily closed businesses (54%) due to COVID-19. Only 5% reported no impacts on their operations due to COVID-19. Evergreen's Report fails to account for these findings.

Figure 5: Impact of COVID-19 on PY2020 Participants



C. *Ameren Missouri implemented multiple program changes in response to the pandemic, to the benefit of customers*

Most programs made changes in response to COVID-19. For the BizSavers programs, these changes included:

- The $3,500 SBDI project incentive cap was increased to $5,000
- Additional measures were offered including occupancy sensors, commercial kitchen ventilation measures, and additional variable frequency drive measures
- An additional $2M incentive budget was approved to provide a 10% increase incentive bonus for interior lighting measures and a 15% increase incentive bonus for HVAC
- Several changes were made in guidelines in order to provide customers and Trade Allies a more reasonable opportunity to complete projects within our program, making it easier for our customers to participate.

  - Additional time allowed to submit Fast Track applications
  - Threshold at which the incentive amount requires additional review increased from $10,000 to $15,000
  - Customers allowed to proceed with purchase and installation of equipment as soon as they receive the offer letter instead of needing to fill out additional paperwork indicating acceptance of the offer
  - Pre-incentive simple payback of projects was reduced from 18 months to 12 months
- 2020 Exterior Lighting Package was offered to re-energize the market and increase customer participation by creating a bundled package of exterior and interior lighting.

These changes were all intended to increase participation and to better support customers during unprecedented economic conditions and a global pandemic. As described above, ODC found that the BizSavers program, including these changes, led to fewer cancellations and delays than non-program projects

D. *Evergreen's Report is based on a hypothetical example and is not supported by empirical research or data*

In contrast to the extensive market research completed by ODC, Evergreen offers a hypothetical example of a scenario where customers that would have the lowest free ridership rates dropped out of programs, and only those customers with higher free ridership rates completed projects. This results in a higher average free ridership rate for the program than it would have been if the low free ridership customers had not dropped out. Evergreen has simply provided an example of a basic math problem and has conducted no research to provide evidence that this situation occurred in 2020. One could just as easily argue that the changes the program made to increase participation during the pandemic could just as easily encouraged more of the low free ridership customers to participate, thus lowering overall free ridership.

The lack of evidence in Evergreen's argument should be compared to the extensive research conducted by ODC in developing their assessment of free ridership. The preponderance of evidence presented above clearly supports including the free ridership adjustment for COVID-19 for PY2020.

Section II. Response to additional recommendations

The remaining comments provide additional clarification on the other issues suggested by Evergreen. Evergreen's suggestions on these issues appear to be intended to resolve issues for the PY2021 evaluation rather than to change anything in the PY2020 results. These comments are mainly to provide further explanation and clarifications around technical issues.

A. *ISR/HOU Adjustment*

Evergreen recommends that future evaluations should use actual ISR and HOU adjustments derived from PY2019 desk reviews rather than use 1.0. These adjustments apply only to lighting measures in the Standard, SBDI, and BSS programs. The PY2020 evaluation plan explained that ODC would develop program-specific adjustment values based on PY2019 results. If this value was statistically significantly different from 1.0 (at 90% confidence), ODC would apply it to the PY2020 projects. ODC explained in the evaluation report that they had investigated the ISR and HOU adjustments found in PY2019 and they were not significantly different than 1.0. Consequently, ODC used 1.0.

In addition, the TRM does not currently include these adjustment factors. ODC is currently updating the TRM to include these factors. The default values for these adjustment factors will be the results from the analysis of the PY2019 results:

Table 1: Results of PY2019 HOU and ISR adjustment analysis

Program	HOU Adjustment	ISR Adjustment	Combined
Standard	99.4%	99.6%	99.0%
SBDI	100.7%	99.2%	99.9%
BSS	100.0%	100.1%	100.1%

However for PY2020, the adjustment factors of 1.0 were appropriate because the analysis of the PY2019 results were not significantly different than 1.0 and were consistent with the algorithms in the existing TRM.

B. *Effective Full Load Hours*

Evergreen's Report includes a discussion of Effective Full Load Hours in the Demand Response program and the use of coincident peak demand adjustment factors. In the case of Business Demand Response, demand savings are based on interval meter data. It would not make sense to use coincident peak demand adjustment factors in this case.

Evergreen's Report then transitions into a discussion of the EFLH in BizSavers energy efficiency programs, claiming that some seem potentially low. For energy efficiency programs, coincidence factors are used. These factors have been in place since MEEIA 2016-2018 where they were discussed at length with Stakeholders. The methodology to develop these was included in the 2014 IRP.

The coincident factors represent the fraction of connected load expected to be coincident with a particular system peak period, on a diversified basis, and is based on the ratio of the system coincident peak to annual energy by end use. Coincidence factors are provided for summer peak periods. Tables of coincidence factors for each end use are included in Volume 1 of the TRM. All measures in the TRM designate which end use and coincidence factor to use. Coincidence factors are highest for measures which are most likely to be running during the summer peak, with Cooling End Use having the highest coincidence factor and the Heating End Use having the lowest coincidence factor of 0.

Coincidence factors are based on the typical customer load shape. Any particular customer or measure may have usage which differs from that load shape, and could have actual demand savings at the time of system peak either higher or lower than that determined by the use of a coincidence factor.

The system of coincidence factors was agreed to by Stakeholders and all goals, the earnings opportunity and customer incentives have been designed using these coincidence factors. Changing the methodology for determining demand savings mid-cycle is not appropriate without allowing time to also adjust goals and incentives. NREL is leading an effort to update load shape profiles which is expected to conclude at the end of 2021. It may be appropriate to include their results in a future filing.

C. *Randomized Control Design*

Evergreen's Report recommends that ODC use the Randomized Control Design for evaluating Residential Demand Response whenever possible, although this could result in an inconsistent approach among different thermostat manufacturers. ODC intended to use Randomized Control Design, however the MV_DAY_TYPE data field for Nest devices did not allow for accurate classification of customers in the treatment and control groups without labor intensive telemetry data exploration and participant classification. While ODC chose to use the same model for all manufacturers in 2020, they will agree to use the Randomized Control Design whenever possible in 2021. Ameren Missouri is interpreting Evergreen's recommendation as being for future years since it did not explicitly state the change should be made for 2020.

D. *Missing AMI Data*

Evergreen's report comments on what he calls "missing billing data" for demand response events. The report suggests verifying that these are active accounts before claiming savings.

This is a simple misunderstanding of the issue. Ameren Missouri is in the process of rolling out AMI/smart meters. As such, many customers still have meters which do not provide interval data. When a customer enrolls in the Business Demand Response program, they are added to the schedule to receive an interval meter. In some cases, the interval meter has not been installed by the time an event is called. There may also be times when an interval meter fails around the time of an event and has not been replaced prior to the event. In both cases, the customer is an active customer that has indicated they will participate in the event, but interval data is unfortunately unavailable for the evaluation. ODC will verify and state in future reports that the customers with missing interval data are active customers and participants in the program.