Safety Policy Division Review of Pacific Gas and Electric Corporation's 2020 Safety Performance Metrics Submittal Pursuant to Decision 19-04-020

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I. Purpose

On April 1, 2020, pursuant to Ordering Paragraph 2 in Decision (D.)19-04-020 of the Safety Model Assessment Phase (S-MAP) proceeding, Application (A.) 15-05-002 et al, PG&E submitted a Safety Performance Metrics Report to the California Public Utilities Commission (CPUC or Commission). PG&E also concurrently distributed the report to members on the service list in A.15-05-002.

D.19-04-020 also directed Safety and Enforcement Division staff to review the submitted safety performance metrics reports. Since the Risk Assessment and Safety Analytics Section staff that is responsible for the evaluation of these reports has migrated from the Safety Enforcement Division to the Safety Policy Division (SPD), this report summarizes SPD staff's review of PG&E's Safety Performance Metrics Report.

II. Overview of PG&E Report

PG&E submitted data on 25 metrics as required by A.15-05-002. Their report is divided into five sections:

I. **Introduction**: Provides a narrative of PG&E's Safety Performance Metrics Report (SPMR) and its compliance with S-MAP Phase Two Decision Directives.
II. **Metrics Overview**: Provides a summary of how PG&E uses metrics to "provide valuable insight on our safety performance." This section provides narratives examples describing how 6 of the SPM have been used by PG&E.
III. **Bias Controls Overview:** Provides an overview of the nature and scope of the Bias controls that PG&E uses.
IV. **2019 Imputed Adopted Values for Safety-Related Risk Mitigation Activities:** This section provides a table showing the Risk mitigations spending level for 2019.
V. **Safety Performance Metrics**: Provides a summary and narrative of the data for each of PG&E's 25 metrics, along with the required reporting information on executive compensation and bias controls.

Observations:

SPD has reviewed the PG&E SPMR. SPD finds that PG&E has complied with the SMAP Decision as specified by ordering paragraphs 2,3, and 6. Table 1 lists each of the metrics that were submitted for review.

Table 1: Safety Performance Metrics and Associated Units

Category	Safety Performance Metric		Unit
Electric	1	Transmission and Distribution (T&D) Overhead Wires Down	Number of wire down events
	2	T&D Overhead Wires Down – Major Event Days (MED)	Number of wire down events
	3	Electric Emergency Response (911)	Percentage of time response is within 60 mins
	4	Fire Ignitions	Number of ignitions
Gas	5	Gas Dig-in	The number of 3rd party gas dig-ins per 1,000 USA tags/tickets
	6	Gas In-Line Inspection	Miles inspected
	7	Gas In-Line Upgrades	Miles upgraded
	8	Shut in the Gas Average Time – Mains	Average (median) time in mins required to stop gas flow
	9	Shut in the Gas Average Time – Services	Average (median) response time in minutes required to stop the flow of gas during incidents involving services
	10	Cross Bore Intrusions	# of cross bore intrusions per 1,000 inspections

Category	Safety Performance Metric		Unit
	11	Gas Emergency Response	Average response time in minutes
	12	Gas Storage Baseline Inspections	# of inspections
Injuries	14	Employee Serious Injuries and Fatalities (SIF)	# of Serious Injuries/ Fatalities
	15	Employee Days Away, Restricted, or Transferred (DART) Rate	DART Cases times 200,000 divided by employee hours worked
	16	Employee Lost Work-Day (LWD) Case Rate	# of LWD cases incurred for employees per 200,000 hours worked Associated with work for the reporting utility
	17	OSHA Recordables Rate	OSHA recordable times 200,000 divided by employee hours worked
	18	Contractor OSHA Recordables Rate	OSHA recordable times 200,000 divided by contractor hours worked
	19	Contractor Days Away, Restricted, or Transferred (DART) Rate	DART Cases times 200,000 divided by contractor hours worked
	20	Contractor SIF	# of Work-related serious injuries or fatalities associated with work for the reporting utility
	21	Contractor Lost Work-Day (LWD) Case Rate	# of LWD cases incurred for contractors per 200,000 hours worked Associated with work for the reporting utility
	22	Public SIF	# of Serious Injuries/ Fatalities
Vehicles	23	Helicopter/ Flight Accident or Incident	# of accidents or incidents (as defined in 49 CFR Section 830.5 "Immediate Notification")
Injuries	24	SIF Corrective Actions on time	% SIF Corrective Actions on time
Vehicles	25	Hard Brake Rate	# hard braking events per thousand miles driven
Vehicles	26	Driver Check Rate	# of Driver Check complaint calls received per 1 million miles driven

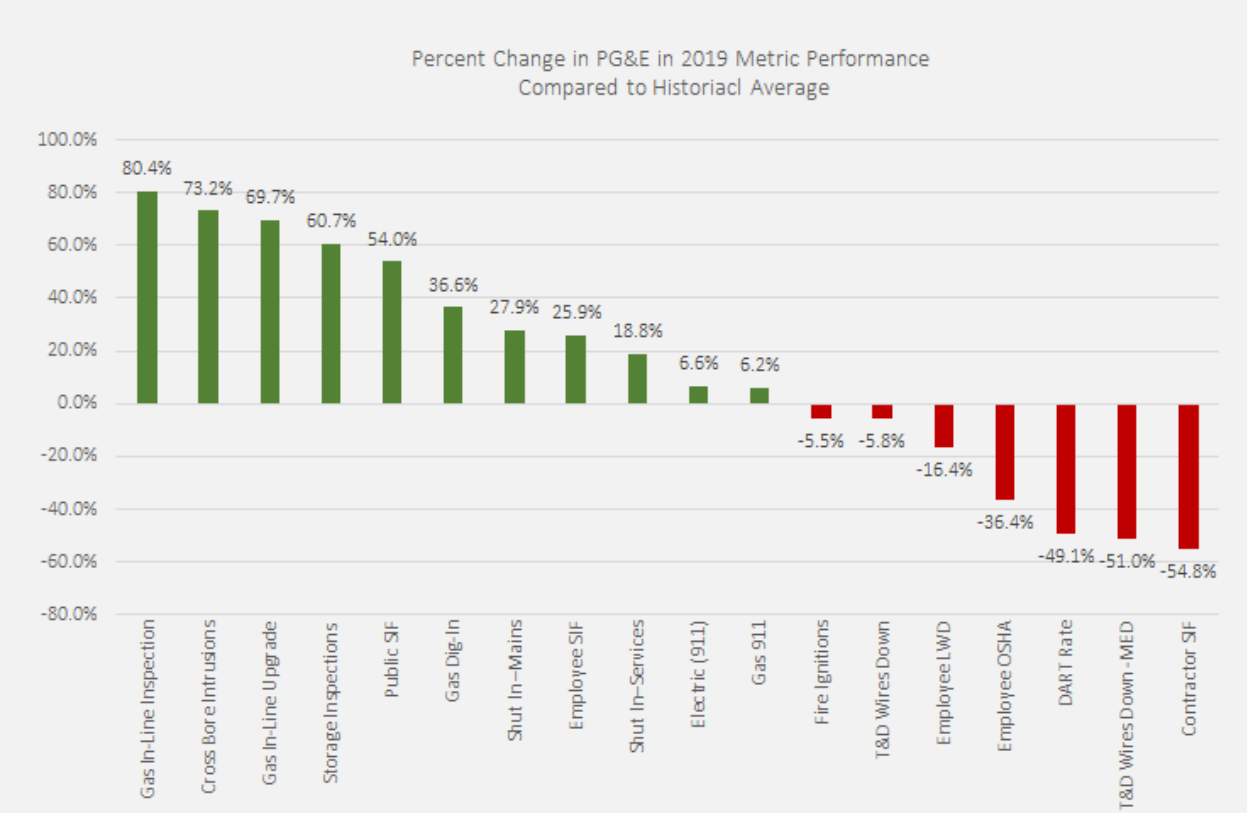
Metric performance: To make observations about performance on safety metrics SPD staff looked for discernible trends in the data. Staff also compared 2019 numbers to average prior performance for each metric that had at least 4 years of data. Charts showing performance on each metric for all of the years of data provided by PG&E can be seen in the Overview of PG&E's Safety Performance Metrics & Individual Metric Summary section of this report (below).

Overall, the PG&E's Safety Performance Metrics data shows that on eleven out of 18 tracked metrics, PG&E performed better in 2019 than the average of preceding years, and seven metrics, PG&E performed worse in 2019 than the average of preceding years. For seven metrics (Metrics 18, 19, 21,23,24,25, and 26), there were four or fewer years of data, not enough years to establish a representative historical average for benchmarking 2019 performance.

PG&E's metric performance is summarized in Figure 1. This chart depicts PG&E's performance in 2019 relative to the average performance on each metric that had more than four years of data. Metrics reflecting improved safety metrics are shown in green and metrics that reflect poorer safety outcomes compared to prior year averages are in red. If a metric that measures a negative safety event increases, that is displayed as a "negative" number to show that it is an undesirable to be above the average of prior years. For example, metric 1 (wires down) has an increase in the 2019 number of events over the 10-year average by 51%. Because more wire down events indicates a decrease in safety, we coded this metric as -51%. Conversely, Metric 4 (911 response rate) had an 6.6% increase over the 10-year average showing an improvement in safety and is shown as a positive number in green as +6.6%.

Positive values show an improvement in metric performance compared to the historic average and negative values show a decline in safety performance.

Figure 1. Summary of PG&E 2019 Metric Performance Compared to Available Historical Averages



While informative, this data should be viewed with the caveat that, for some metrics, such as Serious Injuries and Fatalities (metrics 14, 20, and 22), there is a very small number of reported occurrences relative to the risk exposure. SIF reflects a very small number of reported occurrences relative to the risk exposure which results in a higher level of uncertainty associated with the reported metric numbers. SIF numbers are so few relative to the total exposure in any given year that the reported variations cannot be presumed to indicate that operational and technical deficiencies are drivers of negative performance or that operational and technical improvements are the drivers of positive performance. For metrics with so few occurrences relative to risk exposure, observed trends over a much longer period are necessary to produce credible conclusions. For metrics with large number of data points, e.g. wire down events, the trends are more credible and are less likely due to essentially random variations.

III. Compliance with Requirements in D.19-04-20

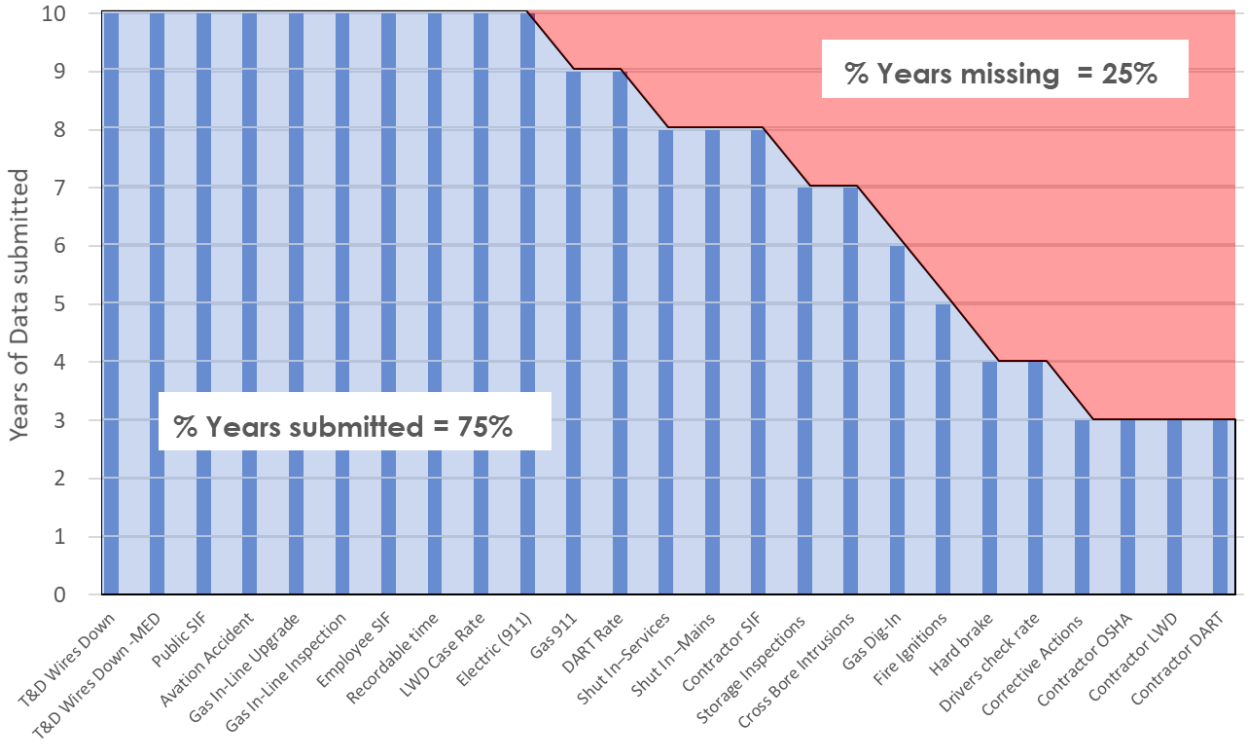
This section reviews whether the utility submitted the information required in D.19-04-20.

Ordering Paragraph 2 requires data for the last ten years for all safety performance metrics for which such data exist.

Of the 25 metrics, PG&E has the full ten years of data for ten metrics (i.e. 40% of the metrics). Fifteen metrics had less than ten years of data. Four metrics had only three years of data. Figure 2 shows the number

of years of data that were submitted for each metric. As PG&E continues to collect these data, the number of missing years will decrease over time should this reporting requirement be retained.

Figure 2. Years of Data Submitted for Each of the 25 metrics.



Ordering Paragraph 3 requires the utility to submit current year data on public serious injuries and fatalities (SIF).

PG&E provided Public Serious Injuries and Fatalities data sixty days prior to the due date for this report, fulfilling this requirement. See Metric 25 for more details on this metric.

Ordering Paragraph 6 (a) requires the utility to identify all metrics linked to or used in any way for the purpose of determining executive compensation levels and/or incentives, regardless of whether or not systems are in place to control bias, and including all metrics linked to individual and group performance goals, executive compensation.

PG&E reports information about the linkage of executive compensation to each of the 25 metrics. Two of the 25 metrics are tied to compensation. In 2017, NorthStar consulting provided a number of safety culture recommendations as part of Investigation 15-08-019 on PG&E's Safety Culture. One, in particular, relates directly to this metric: "None of the [key performance indicators] currently considered for use in measuring safety culture should be included as an incentive measure (i.e., included as part of the Short-Term Incentive Program (STIP) or the Long-Term Incentive Program (LTIP). This will only serve to provide artificially inflated results or drive unintended consequences." This recommendation along with several others was required as part of Decision 18-11-050 *Ordering PG&E to Implement the Recommendations of the NorthStar Report.* As a result, PG&E changed their policies related to linking compensation to some safety metrics.

Ordering Paragraph 6 (b) requires the utility to identify the Director-level or higher executive positions to which the metric(s) is linked.

For each metric, PG&E provided a list of the positions linked to that metric - 20 of 23 metrics have identified linkages to comply with this ordering paragraph.

Ordering Paragraph 6 (c) requires the utility to describe the bias controls that the utility has in place to ensure that reporting of the metric(s) has not been gamed or skewed to support a financial incentive goal.

PG&E began the report by providing a high-level overview of their bias control efforts. This included use of "multiple bias controls and systems" including "internal and external auditing, third party data collection and resources, and state mandated reporting and safety regulation such as OSHA." (p. 3-1). They then identified and described bias controls to varying extents for each metric in the report as required.

Ordering Paragraph 6 (d) requires the utility to Provide three to five examples of how the utility has used Safety Performance Metrics (metrics) data to improve staff and/or contractor training, and/or to take corrective actions to minimize top risks or risk drivers; and provide three to five examples of how the utility is using metrics data to support risk-based decision-making as required in the Safety Model Assessment Proceeding (SMAP) and Risk Assessment Mitigation Phase (RAMP) processes.

To determine compliance, SPD staff reviewed the examples provided by PG&E and attempted to ascertain whether or not they generally fit into one or more of the categories of examples required in the ordering paragraph. Upon initial review, it appears that PG&E technically did not comply with part (d) of ordering paragraph 6. While SPD staff is aware that PG&E uses the programs described in examples 1 and 5 below as part of their risk-based decision-making, that was not clear in PG&E's "Metric Overview" section that included these examples. The ordering paragraph requires that "three to five examples of how the utility is using metrics data to support risk-based decision-making…" be provided. PG&E only provided two (contractor SIF and Cal OSHA recordable DART).

However, in ultimately determining compliance, SPD staff looked beyond the section intended to address this requirement and found additional examples of data being used to support risk-based decision-making in the 2020 RAMP. These include Employee SIF (p.5-14) and Lost Workday (LWD) metric (p. 5-47). In future submittals PG&E should more explicitly tie their examples to each requirement in this ordering paragraph to the maximum extent feasible.

The examples provided by PG&E to meet part (d) of ordering paragraph 6 include:

1. Reportable Fire Ignitions: According to PG&E, these data informed their Community Wildfire Safety Program (CWSP) initiatives targeted at reducing the number of wildfires associated with distribution equipment. PG&E indicated that, as part of their 2019 Wildfire Mitigation Plan, they have implemented a new training standard for their contractors and employees for the primary purpose of reducing ignitions related to PG&E's work and equipment in any forest, brush, or grass covered lands. While the connection is not directly demonstrated, this example appears to be intended to meet the requirement for an example of using a metric to "to improve staff and/or contractor training."
2. 911 Emergency Response metrics: PG&E states that these data informed several programs intended to improve PG&E response to emergency calls. These include the use of GPS to identify PG&E troubleman closest to 911 call locations. Another program focused on "filtering 911 calls to exclude non-electric calls" is informed by this metric and designed to improve performance.
3. Contractor SIF metric: According to PG&E, these data are used to inform both risk mitigations in their RAMP application and to assess conformance to their established contractor safety program. This example is intended to meet the "corrective action" and "risked-based decision-making" requirements.

4. Cal OSHA recordable injuries and DART cased data: PG&E uses this data to determine the efficacy of risk mitigation efforts in their RAMP filing and to implement programs that reduce risks and risk drivers. This example meets multiple required criteria.
5. Gas Dig-in Metric: According to PG&E this metric is one of several metrics involved in the "Gold Shovel certification program."
6. Helicopter Metric data: This example describes a helicopter landing incident in which PG&E and FERC employees sustained minor injuries. They list a series of changes to training and guidance documents that resulted from lessons learned as a result of the incident.

Observations: SPD staff observe that this requirement poses challenges for compliance by the utility and determination of compliance by staff. For example, PG&E cites "Reportable ignitions" as informing training for employees and contractors. Certainly, the circumstances and causes of ignitions as well as "near hit" data would inform the training. The same is true of PG&E's "helicopter metric" describing a landing incident resulting in minor injuries.

Ordering Paragraph 6 (e) requires the utility to explain how the safety metrics reflect progress against the utility's RAMP and General Rate Case safety goals.

PG&E complied with this requirement by describing if and how each metric reflects progress on General Rate Case safety goals in a subsection of every metric they reported.

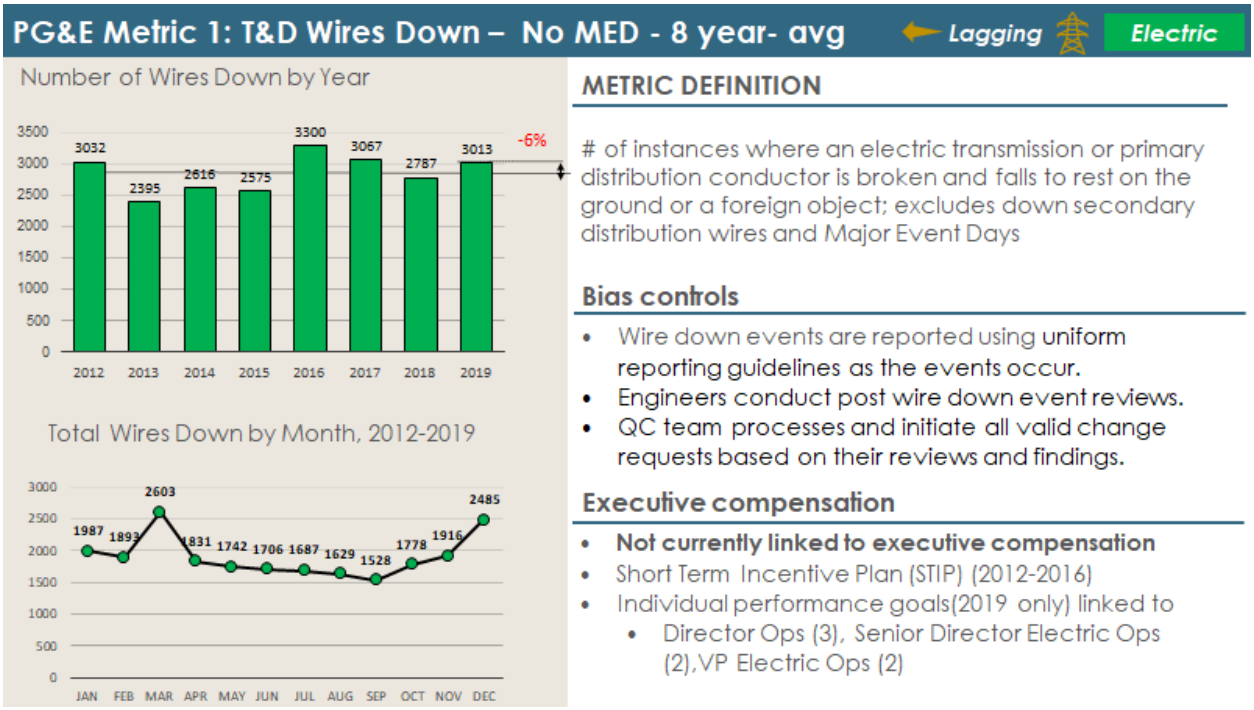
Ordering Paragraph 6 (f) requires the utility to provide a high-level summary of their total estimated risk mitigation spending level as approved in their most recent GRC.

On pg. 4-1, PG&E provided the following table that included the total estimated risk mitigation spending level as adopted in the 2017 General Rate Case for 2019 and the recorded expenditure amount to comply with this requirement.

Table 1: Safety Related Risk Mitigation Spending: Adopted and Actuals: Note This table is comprised of all Major Work Categories or Maintenance Activity Types that are related to safety-related risk mitigation activities

	Expense	Capital
2019 Imputed Regulatory Values	$865,351.06	$1,631,229.16
Recorded 2019	$1,403,021.43	$2,215,701.28

Overview of PG&E's Safety Performance Metrics & Individual Metric Summary



Observations:
PG&E submitted 10 years of monthly data (2010-2019) on Metric 1. In 2012, PG&E implemented a new "Wires Down Program" and changed the methodology for collecting wire down data. This resulted in an increase of approximately 70% in measured wires down events in 2012. PG&E attributes this increase to "more accurate measurement" of the new program. Due to this change in methodology the percent change reflected in the chart compares only those data collected after the "Wires Down Program" was implemented.

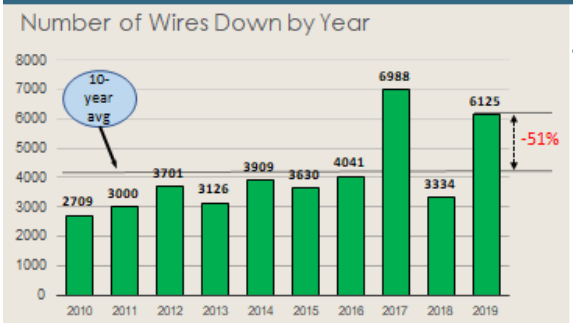
Following the shift to the new data collection methods in 2012, the number of overhead wires down stayed relatively stable. PG&E asserts that as part of the Wires Down Program, they have made an "effort to identify and mitigate the root cause of wires down incidents, Electric Operations implemented a program to visit wires down locations to gather essential data, understand the cause, and develop work plans to mitigate future wires down incidents." They further state that "work has been performed to reduce wires down, including replacing overhead conductors, vegetation clearing, hardening of distribution circuits, infrared inspections of overhead lines to identify and repair hot spots, and investigating wire down incidents and implementing learnings/corrective actions." These efforts do not appear to have resulted in a corresponding change in their performance on this metric.

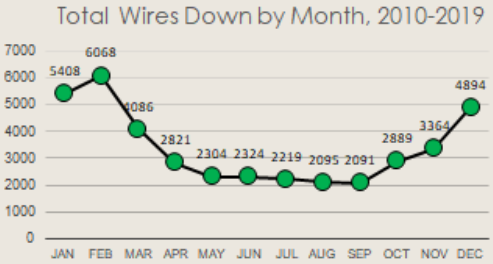
PG&E cites challenges in meeting performance targets on this metric due to "due to unfavorable weather and tree failures due in part to the impact of the extended drought."

Seasonality:
The monthly data indicates a seasonal trend with significantly more wire down events in the winter months (November to March) then the remainder of the year (April to October).

PG&E Metric 2: T&D Overhead Wires Down – w/ MED

Lagging | Electric





METRIC DEFINITION

of instances where an electric transmission or primary distribution conductor is broken and falls to rest on the ground or a foreign object; excludes down secondary distribution wires, includes Major Event Days

Bias controls

- PG&E does not focus on this metric; therefore, it does not have any bias controls in place for this specific metric.

Executive compensation

- Not currently linked to executive compensation
- No individual performance goals

Observations:

PG&E submitted 10 years of monthly data (2010-2019) on Metric 2. Metric 2 is not linked to executive compensation or individual performance goals. PG&E states that Metric 2 "is not being used for internal reporting purposes" because "on transmission and primary distribution conductor wire down events, excluding [Major Event Days (MEDs)]." PG&E states that Institute of Electrical and Electronics Engineers (IEEE) established the Major Event Day (MED) criteria to exclude severe weather days from industry benchmarked reliability data because of the large fluctuations in weather patterns. PG&E further states that "Given the fluctuations driven in this metric from weather patterns, [they] do not view it as an appropriate metric to properly assess system performance or improvement."

Seasonality:

The monthly data indicates a seasonal trend similar to Metric 1. i.e. significantly more wire down events in the winter months (Nov – Mar) then the remainder of the year (Apr- Oct).

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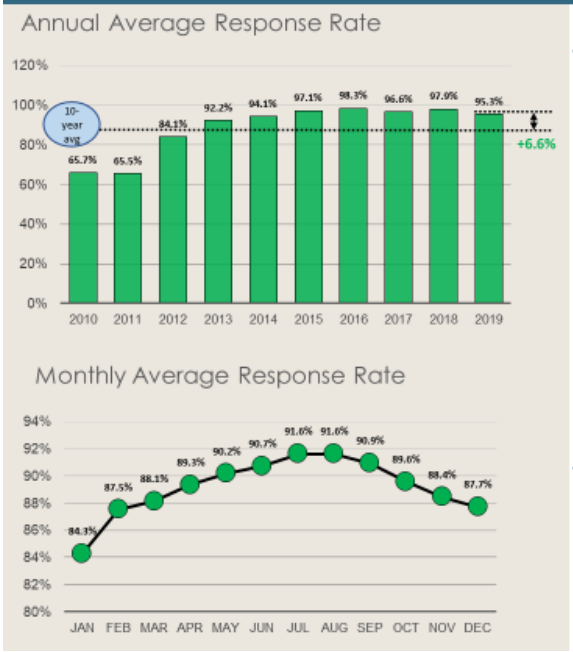
PG&E Metric 3: Electrical Emergency Response Rate

Lagging | Electric



METRIC DEFINITION

The percent of time utility personnel respond (are on-site) within one hour after receiving a 911 (electric related) call.

Bias controls

- PG&E has several controls in place for this metric that are "verified by internal audit."
- 911 data timestamps are entered into an OIS database.

Executive compensation

- **Not currently linked to executive compensation**
- Short Term Incentive Plan (STIP) (2012-2016)
- Individual performance goals linked to
  - 25 Positions

Observations:

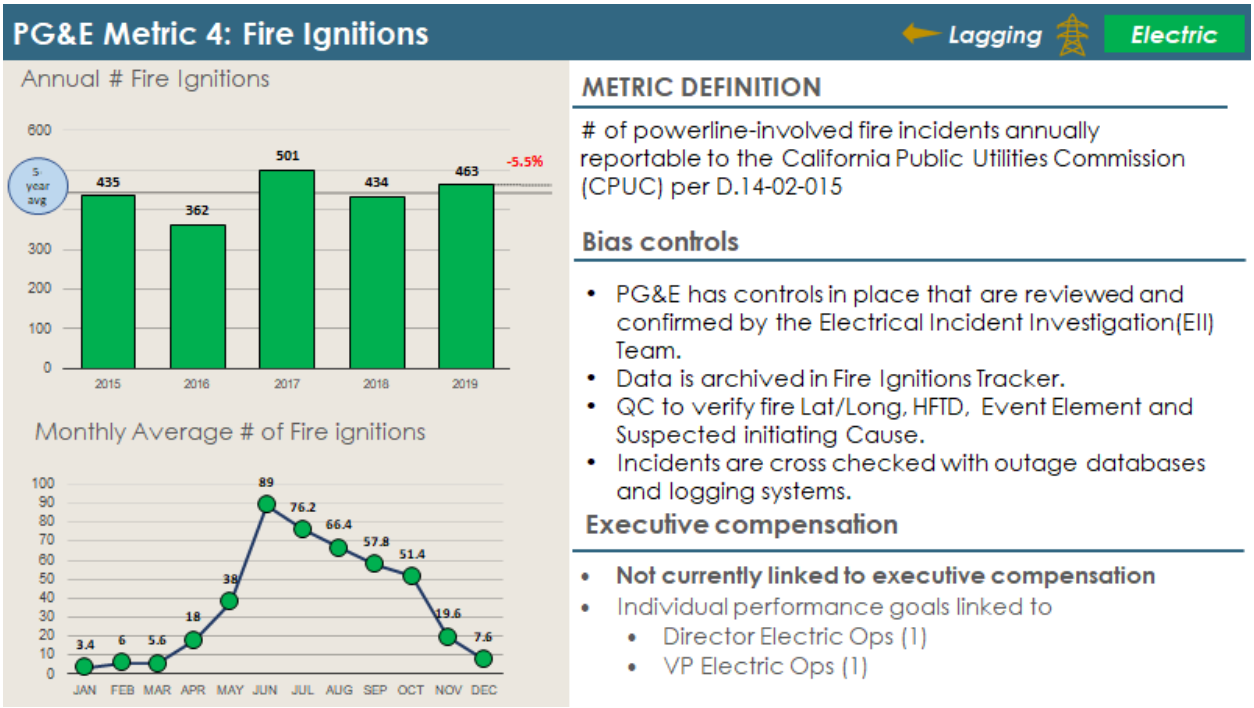
PG&E submitted 10 years of monthly data (2010-2019) on Metric 3. PG&E "began benchmarking its response to 911 calls with other utilities in 2012." They now claim to be best in class (in a cohort of 8 to 10 utilities) on this metric in some years. PG&E attributes its success to having identified several performance drivers, including accurately predicting when calls come in, ensuring that resources are on hand when they come in, and coordinating across departments. They also discuss actions taken to improve each driver. These include proactive scheduling of resources, training, coordination across lines of business and technology adoption.

They have identified performance drivers, mitigation activities that impact these drivers, and benchmarks that help calibrate their performance expectations. As with other metrics in this report, PG&E identified bias controls including a time stamping system and internal auditing.

PG&E has maintained a consistently high response rate since 2013.

Seasonality:

The monthly data indicates a seasonal trend that peaks in the summer months.



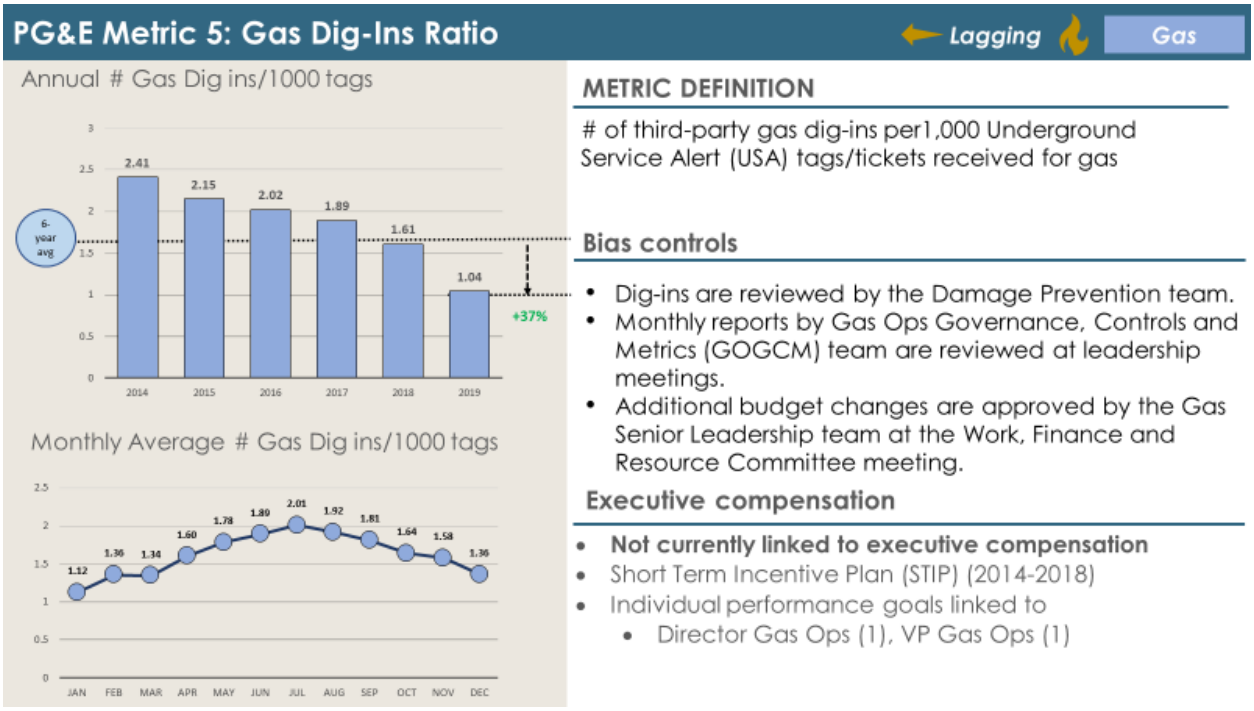
Observations:

PG&E submitted 5 years of monthly data (2015-2019) on Metric 4. PG&E views the Fire Ignition Metric as a "primary metric used to evaluate PG&E's commitment to public safety." 2019 was slightly above the average of the five-year reporting period. Fortunately, the majority of ignitions take place in non-high fire hazard threat districts. Ignitions have remained relatively flat over the period in which data is available.

The drivers of this metric are multi-faceted and are the subject of several other proceedings. Wildfire was far and away the largest risk identified in the PG&E's 2020 Risk Assessment Mitigation Phase application, which included extensive mitigation efforts directly aimed at reducing ignition risks. The data is utilized by the PG&E Wildfire Risk model. Bias controls include a number of data logging and tracking processes as well as incident investigation and other QC processes.

Seasonality:

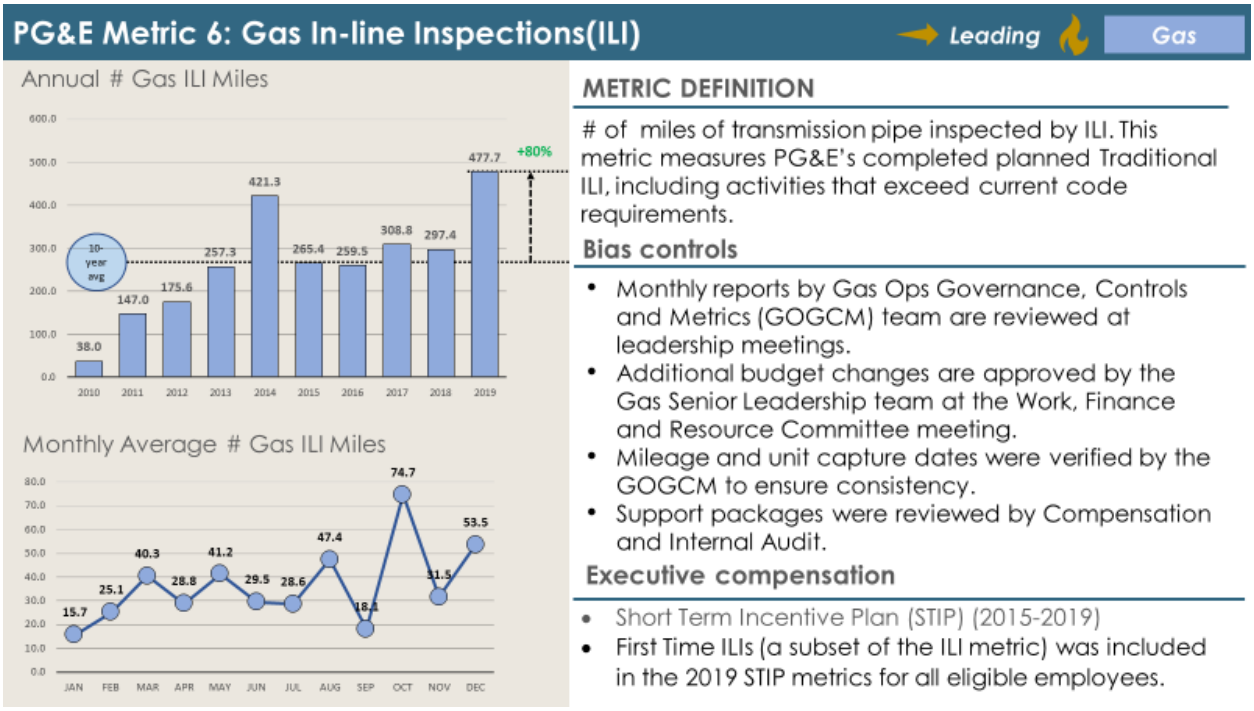
The monthly data indicates a peak of ignitions in June and tails off over the remainder of the calendar. However, some of the highest impact events that result from fire ignitions have occurred in August – November when ignition rates are significantly reduced. It may be useful to also track the impact from each fire ignition.



Observations:
PG&E submitted 6 years of data (2014-2019) on Metric 5. PG&E has demonstrated a consistent and significant reduction in the gas dig-in rate.

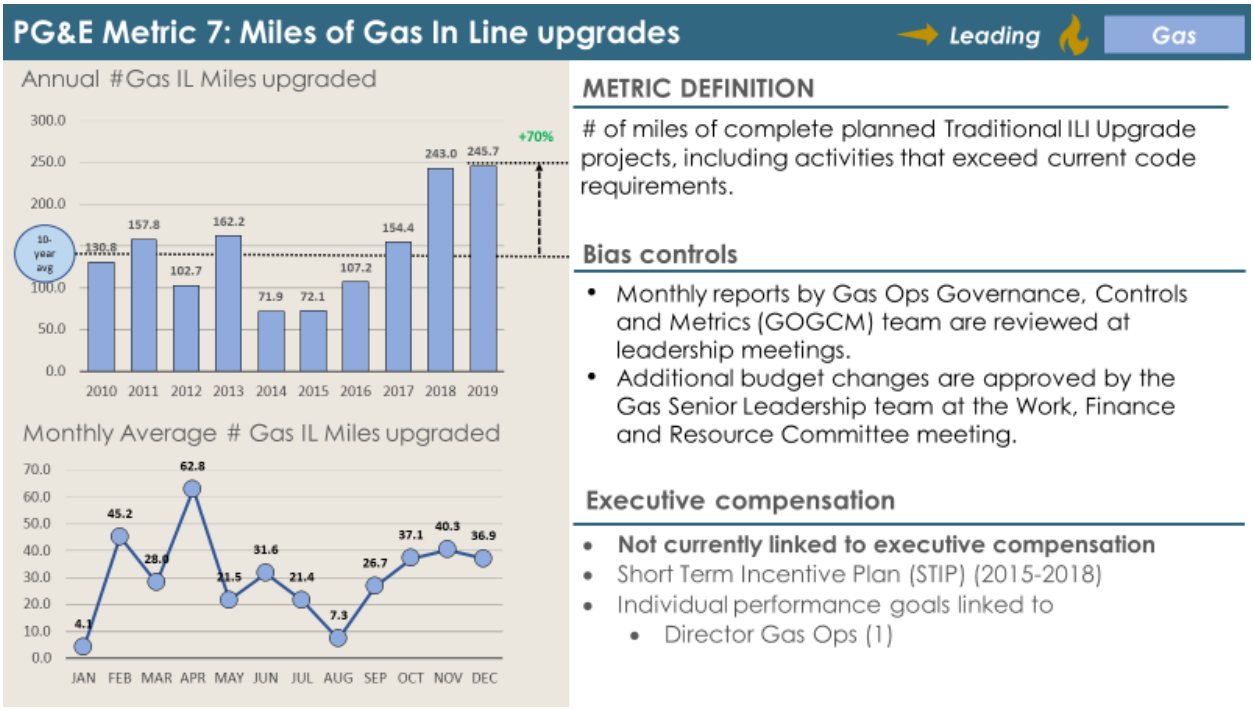
They attribute the reduction to damage reduction programs, such as their Gold Shovel program. PG&E has developed a number of bias controls that includes targets, target setting, and management reviews. PG&E apparently has quantitative measures (e.g., targets) that help inform their assessment of the gas dig-in programs.

Seasonality:
The monthly data indicates a seasonal trend that peaks in the summer months.



Observations:
PG&E submitted 10 years of monthly data on Metric 6. PG&E plans to perform traditional ILIs on approximately 65 percent of its transmission pipeline system by the end of 2027.

Seasonality:
The monthly data fluctuates throughout the year with a spike in the fall, presumably related to inspections of upgrades.

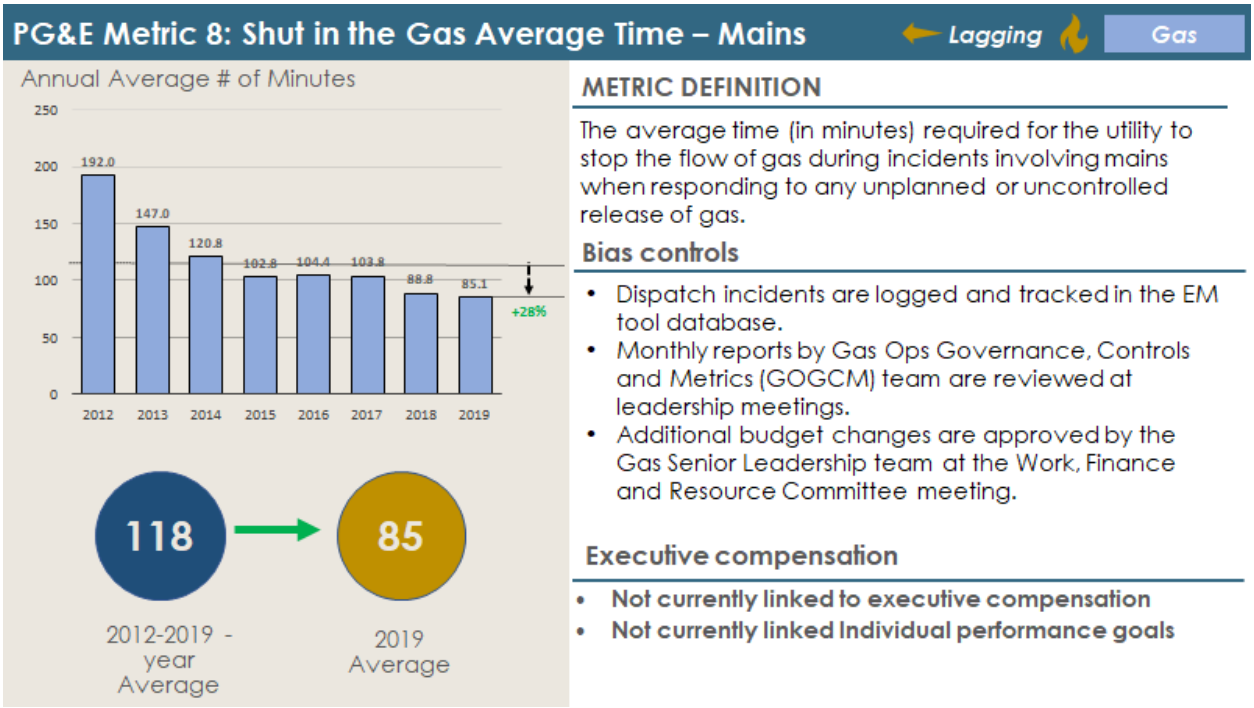


Observations:

PG&E submitted 10 years of monthly data on Metric 7. This metric tracks progress on the upgrades to the existing pipeline systems. PG&E refers to this as "Traditional ILI Upgrades," which involve capital improvements to make the pipelines "piggable." PG&E notes that "D.11-06-017, as codified by Public Utilities Code (Pub. Util. Code) Section 958, requires natural gas transmission pipelines in California to be capable of [in-line inspections], where warranted."

Seasonality:

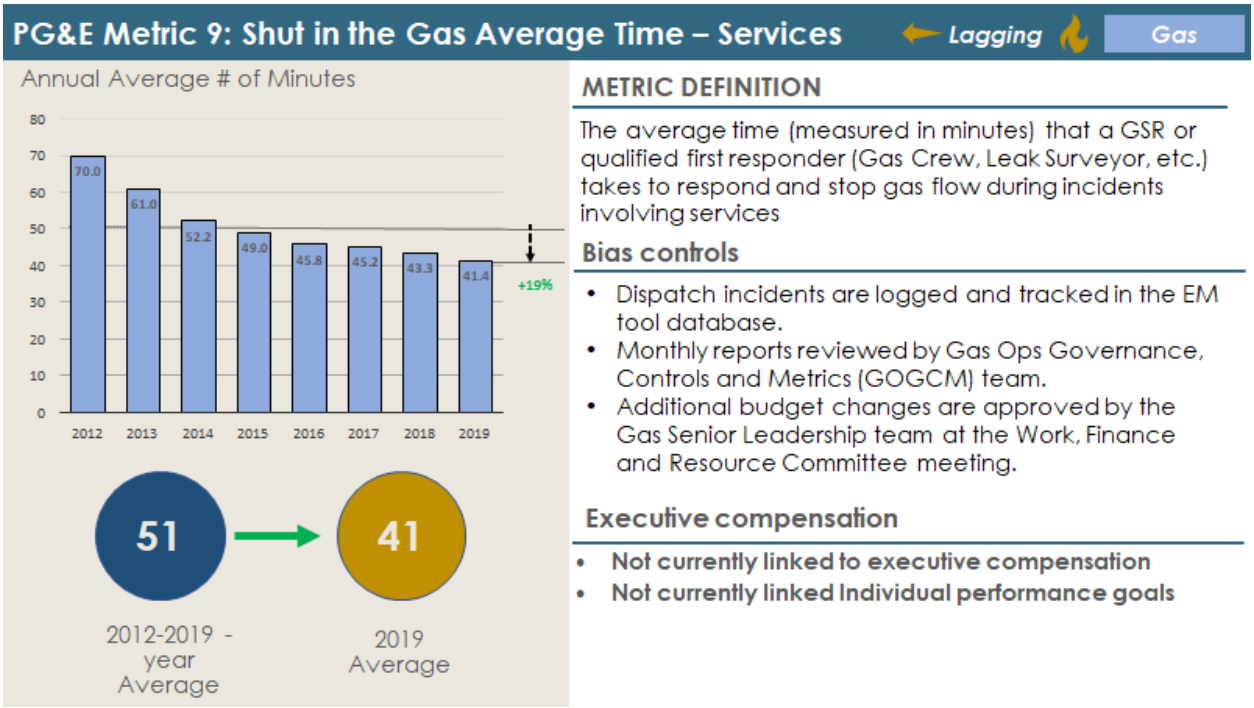
The monthly data appears to be quasi-random pattern of upgrades, but could be related to patterns of gas demand, avoiding interruptions in service, or weather considerations during excavation.



Observations:
PG&E submitted 8 years of data (2012-2019) on Metric 8. Monthly data was not provided. PG&E has demonstrated a consistent and significant reduction in the Shut-in time for Mains.

They attribute the reduction in average gas shut-in time to several activities including, enhanced plastic squeeze capability, training, access to emergency equipment, operational and process improvements, incident review process. PG&E has developed a number of bias controls that include targets, target setting, and management reviews. PG&E apparently has quantitative measures that help inform their assessment of the gas shut-ins response times.

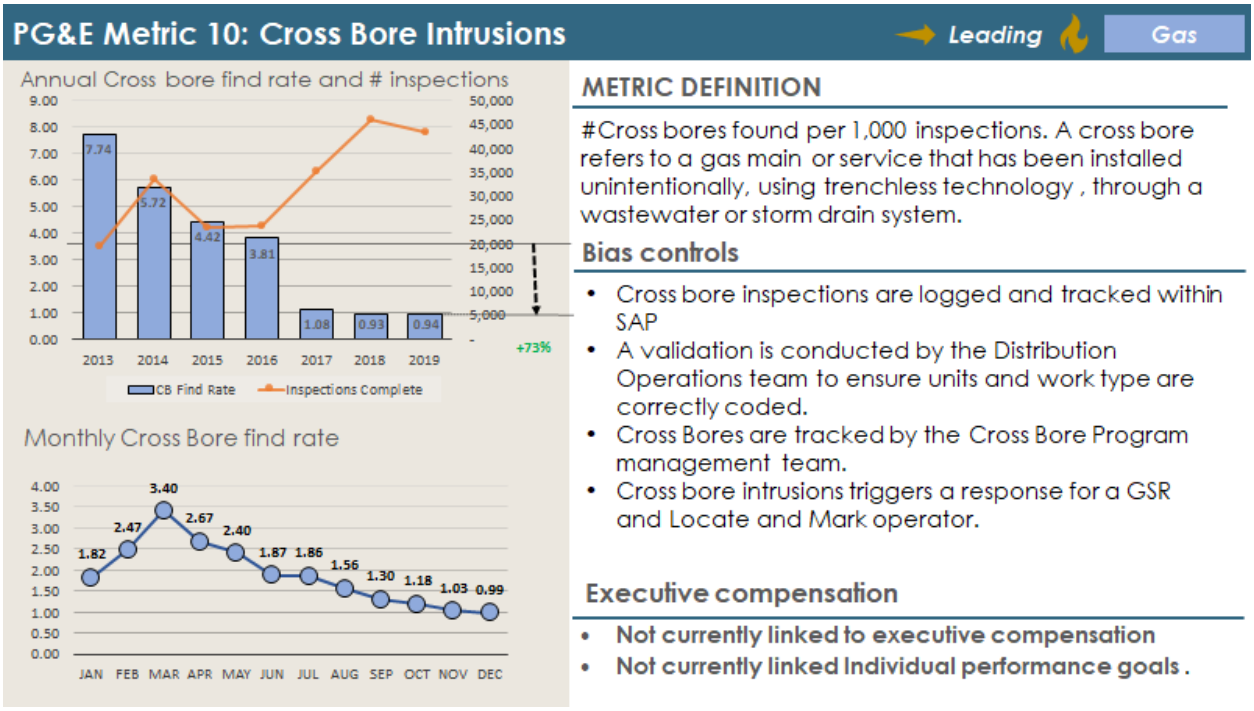
Seasonality:
No seasonal data was provided.



Observations:
PG&E submitted 8 years of data (2012-2019) on Metric 9. Monthly data was not provided. PG&E has demonstrated a consistent and significant reduction in the Shut-in time for Services.

Just as with Metric 8, PG&E attributes the reduction to several activities including, enhanced plastic squeeze capability, training, access to emergency equipment, operational and process improvements, incident review process. PG&E has developed a number of bias controls that include targets, target setting, and management reviews. PG&E apparently has quantitative measures (e.g., targets) that help inform their assessment of the gas shut-ins response times.

Seasonality:
No seasonal data was provided.

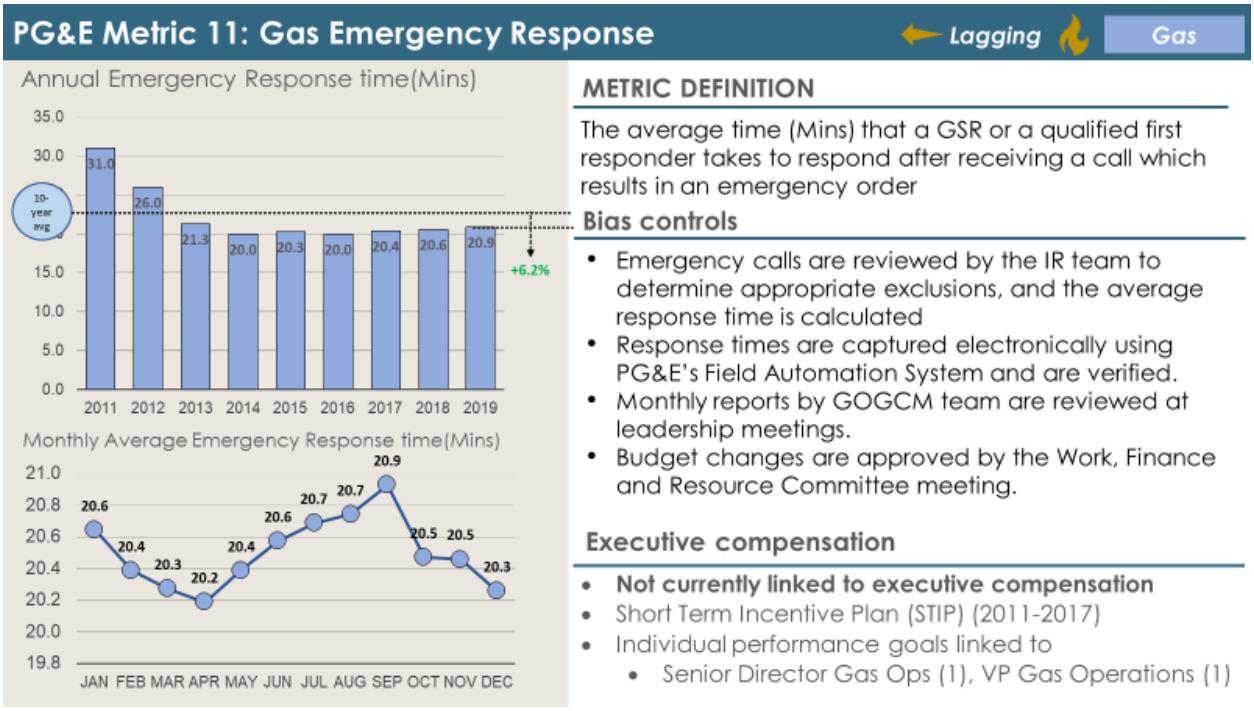


Observations:

PG&E submitted 7 years of data (2013-2019) on Metric 10. PG&E has demonstrated a consistent and significant reduction in the Cross Bore intrusion rate.

PG&E suggests that the reduction is due to inspection frequency – increasing inspection rates lead to decreasing cross bore find rates. PG&E has developed a number of bias controls including work type verification, data logging and tracking. PG&E apparently has quantitative measures that help inform their assessment of the cross bore find rate.

Seasonality:
No seasonal data was provided.



Observations:

PG&E submitted 9 years of monthly data (2011-2019) on Metric 11. PG&E made significant improvement on this metric between 2011 and 2013. Since that time, they have consistently sustained an approximately 20-minute response time.

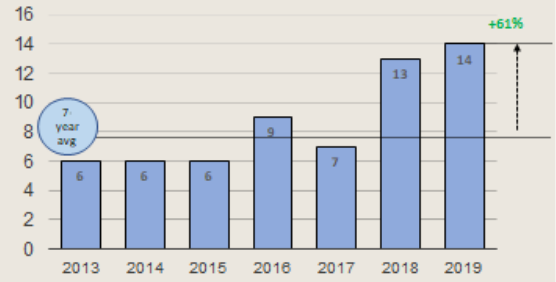
PG&E has developed a number of bias controls that includes targets, target setting, and management reviews. PG&E apparently has quantitative measures (e.g., targets) that help inform their assessment of the gas dig-in programs.

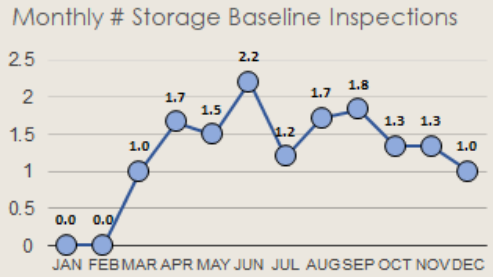
Seasonality:

The monthly data shows a slightly higher response time in summer month, but is variability is less than one minute throughout the year.

PG&E Metric 12: Natural Gas Storage Baseline Inspections

Lagging | Gas





METRIC DEFINITION

Natural Gas Storage Baseline Inspections Performed – Tracks the progress of completing baseline and reassessment inspections that were expected to be completed within a given year.

Bias controls

- Project completion tracked in the P6 scheduling database.
- Reservoir Engineering team responsible for validating the assessment.
- California Geologic Energy Management (CalGEM) is also responsible for validating work.

Executive compensation

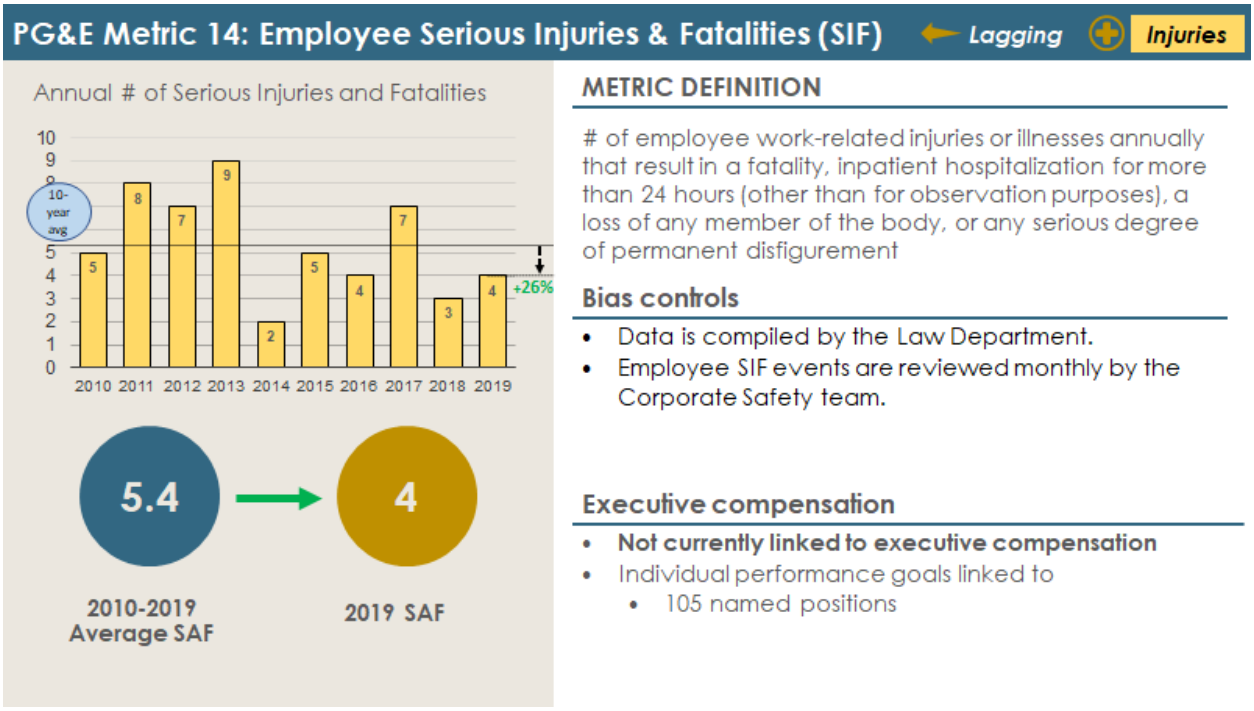
- **Not currently linked to executive compensation**
- Individual performance goals linked to
  - Director Gas Ops (1),

Observations:

PG&E submitted 7 years of monthly data on Metric 12. PG&E's goal is to complete baseline well production casing assessments on 111 wells by 2025 and to have 40 percent of these assessments complete by 2023. Underground gas storage regulations overseen by the California Geologic Energy Management Division require regular inspections as well as mechanical integrity testing including annual noise and temperature logs, casing measurement using multi-arm caliper tools, and periodic pressure testing of all gas storage wells.

Seasonality:

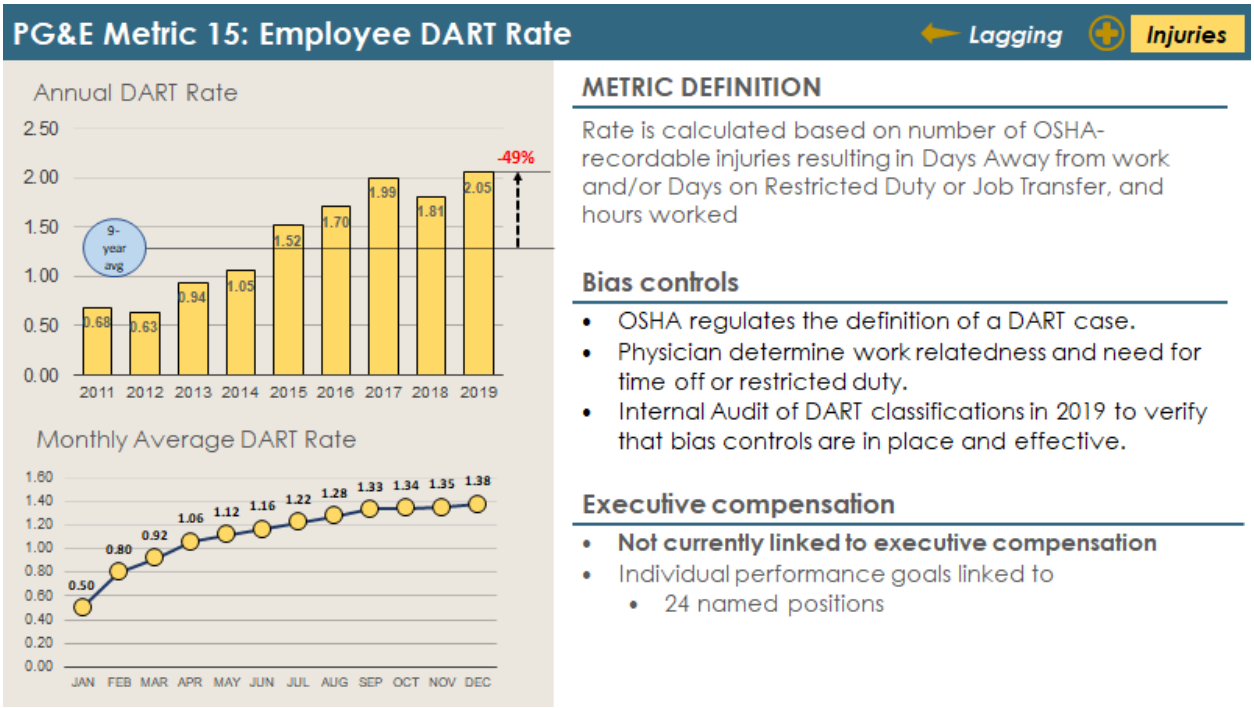
The monthly data does not show a pattern for when inspections occur. It may vary based on availability of rigs and regulatory personnel available to witness and verify testing results.



Observations:
PG&E submitted 10 years of monthly data on Metric 14. PG&E states that events are generally trending down over the 2013-2019 time period with an increase in 2017 and 2019. Due to the small number of events relative to risk exposure, it is difficult to identify any long-term trends from the data.

Like all employers, PG&E is required to report serious injuries and fatalities immediately to Cal OSHA, so all of their data is separately recorded. Additionally, their bias controls include review by the legal department and management.

Seasonality:
No monthly data provided.

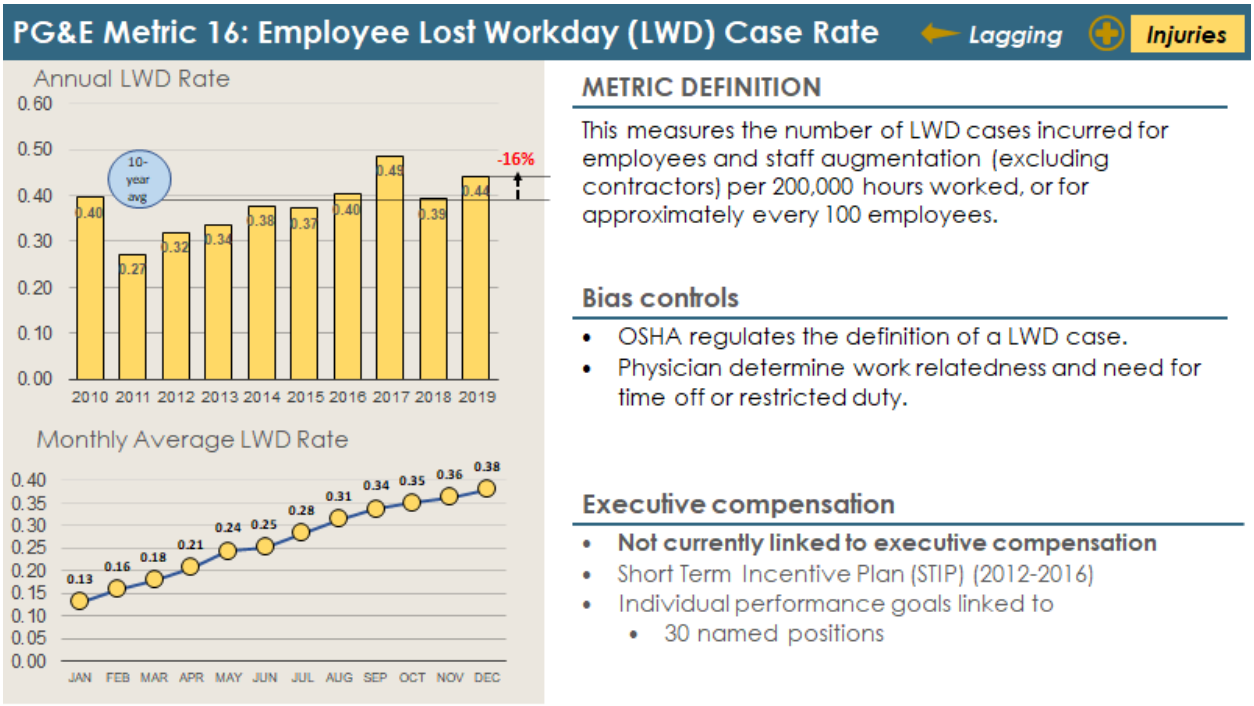


Observations:
PG&E submitted 9 years of monthly data (2011-2019) on Metric 15. PG&E states that the 2012 -2017 rates are driven primarily by restricted duty cases related to sprains and strains.

Mitigation actions include implementation of a task bank, an onsite clinic, mobile medic program, increasing Athlete Specialists hours.

Beginning in 2013, PG&E saw a relatively continuous upper trend with a plateau beginning in 2017.

Seasonality:
The monthly data indicates that the maximum DART rate occurs in December and the minimum occurs in January.



Observations:

PG&E submitted 10 years of monthly data on Metric 16. PG&E states incline from 2011 until 2017driven primarily by injuries related to falls, lifting, repetitive motion and motor vehicle incidents.

PG&E has not identified drivers of LWD cases. Mitigation actions include implementation of a task bank, an onsite clinic, mobile medic program, increasing Athlete Specialists hours.

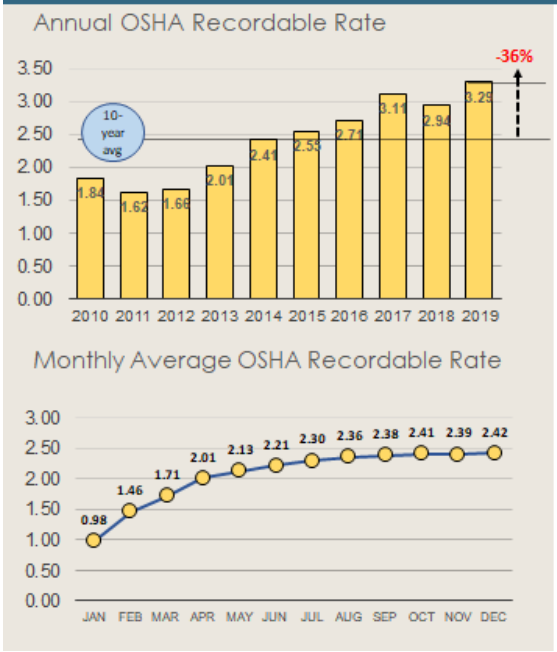
Bias controls are primarily determined by OSHA, PG&E also preforms an Internal audit.

Seasonality:

The monthly data indicates that the maximum LWD rate occurs in December and the minimum occurs in January. PG&E did not provide any context for this trend.

PG&E Metric 17: OSHA Recordable Rate

Lagging — Injuries



METRIC DEFINITION

An occupational (job-related) injury or illness that requires medical treatment beyond first aid, or results in work restrictions, death or loss of consciousness. OSHA recordable rate is calculated as OSHA recordable times 200,000 divided by employee hours worked.

Bias controls

- OSHA regulates the definition of a case.
- Physicians determine work relatedness and treatment.

Executive compensation

- **Not currently linked to executive compensation**
- Short Term Incentive Plan (STIP) (2010-2011)
- Individual performance goals linked to
  - 15 named positions

Observations:

PG&E submitted 10 years of monthly data on Metric 17. PG&E states that the increase in 2011 -2019 rates "is primarily attributable to an increase in injuries related to strains, falls and repetitive motion."

PG&E has not identified drivers of the recordable rate. Mitigation actions include implementation of a task bank, an onsite clinic, mobile medic program, increasing Athlete Specialists hours.

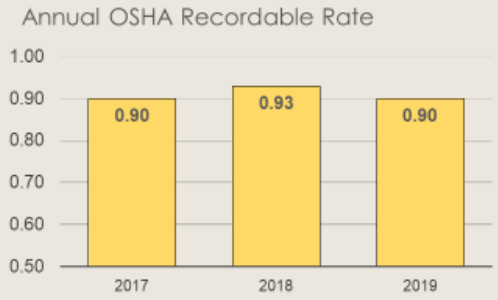
Bias controls are primarily determined by OSHA regulations.

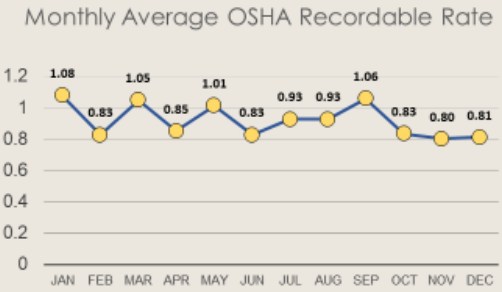
Seasonality:

The monthly data indicates that the maximum DART rate occurs in December and the minimum occurs in January. PG&E did not provide any context for this trend.

PG&E Metric 18: Contractor OSHA Recordable Rate

Lagging — Injuries





METRIC DEFINITION

An occupational (job-related) injury or illness that requires medical treatment beyond first aid, or results in work restrictions, death or loss of consciousness. OSHA recordable rate is calculated as OSHA recordable times 200,000 divided by employee hours worked.

Bias controls

- OHA regulates the definition of a case
- The PG&E specific information is self-reported by the contractors.
- The contractor company OSHA logs are verified annually by an external third party.

Executive compensation

- **Not currently linked to executive compensation**
- Individual performance goals linked to
  - 15 named positions

Observations:

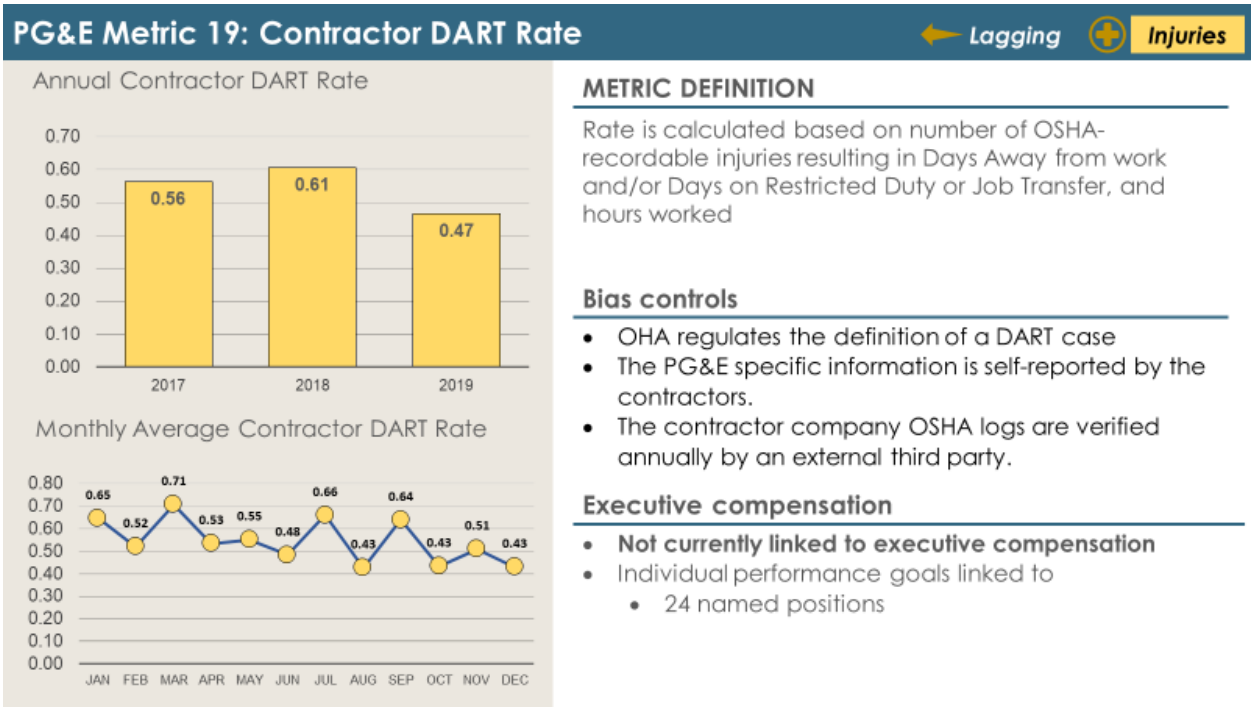
PG&E submitted 3 years of monthly data on Metric 18. Due to the small number of reported years, it is difficult to identify any long-term trends from the data.

PG&E has not identified drivers of the recordable rate. Mitigations include a Contractor Safety Program being evaluated as part of the 2020 RAMP Report and a Contractor work management system.

Bias controls are primarily determined by OSHA regulations and are verified annually by an external third party.

Seasonality:

The monthly data does not indicate any significant seasonal trend.

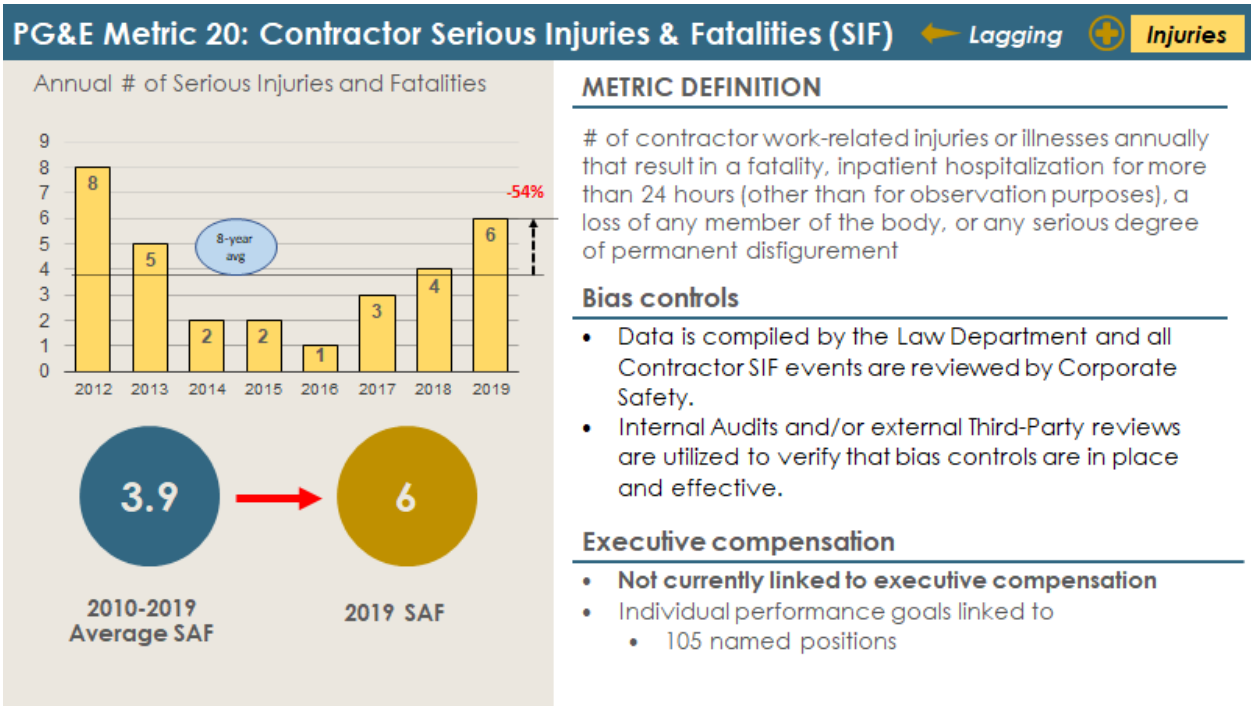


Observations:
PG&E submitted 3 years of monthly data on Metric 19. Due to the small number of reported years, it is difficult to identify any long-term trends from the data.

PG&E has not identified drivers of the Contractor DART rate. Mitigations include a Contractor Safety Program being evaluated as part of the 2020 RAMP Report and a Contractor work management system.

Bias controls are primarily determined by OSHA regulations and are verified annually by an external third party.

Seasonality:
The monthly data does not indicate any significant seasonal trend.



Observations:

PG&E submitted 8 years of data (2012-2019) on Metric 20. PG&E states that "contractor serious injuries have been trending upwards due to the increase in work considered high risk, including vegetation management associated with the wildfire mitigation response." They also increased the exposure to this risk with an increase in the total number of contractors and contractor hours worked.

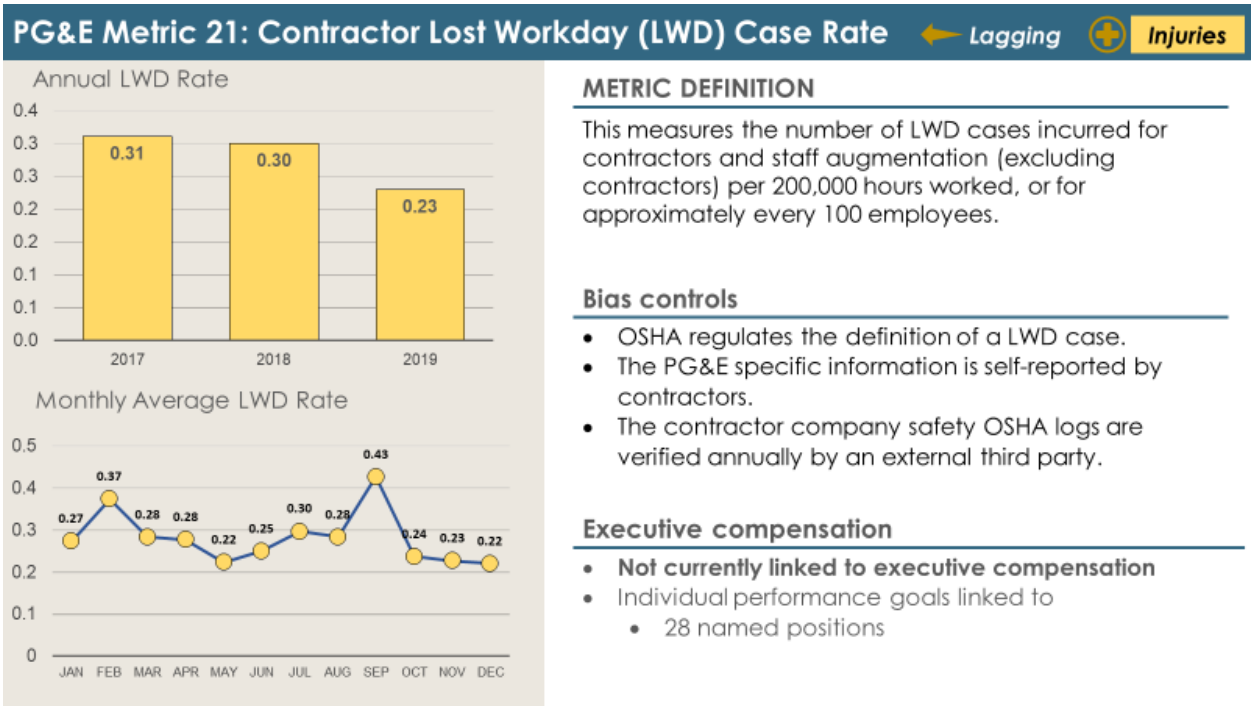
PG&E has identified potential drivers of the Contractor SIF metrics (E.g., Increase in hazardous work activities). Mitigation activities include investigating all Contractor SIF incidents, communicating results across the enterprise, tracking all corrective actions to closure.

Bias controls include a monthly review by management and are verified by an external third party and required reporting to Cal OSHA.

As noted previously and in the conclusion, the SIF value that the small number of reported occurrences relative to the risk exposure results in a higher level of statistical uncertainty. SIF numbers are so few relative to the total risk exposure that the reported variations from year to year do not necessarily represent improvements or worsening of safety performance. To assess trends with low numbers, longer assessment times are needed to provide credible findings. Additionally, it would be more useful to collect SIF data as a rate for example, how frequently SIF events occur for every 200,000 hours worked, or for approximately every 100 employees. This would allow for comparisons across utilities with substantially different populations of contractors and control for differences in the number of contractor hours worked in each year.

Seasonality:

Monthly data was not provided



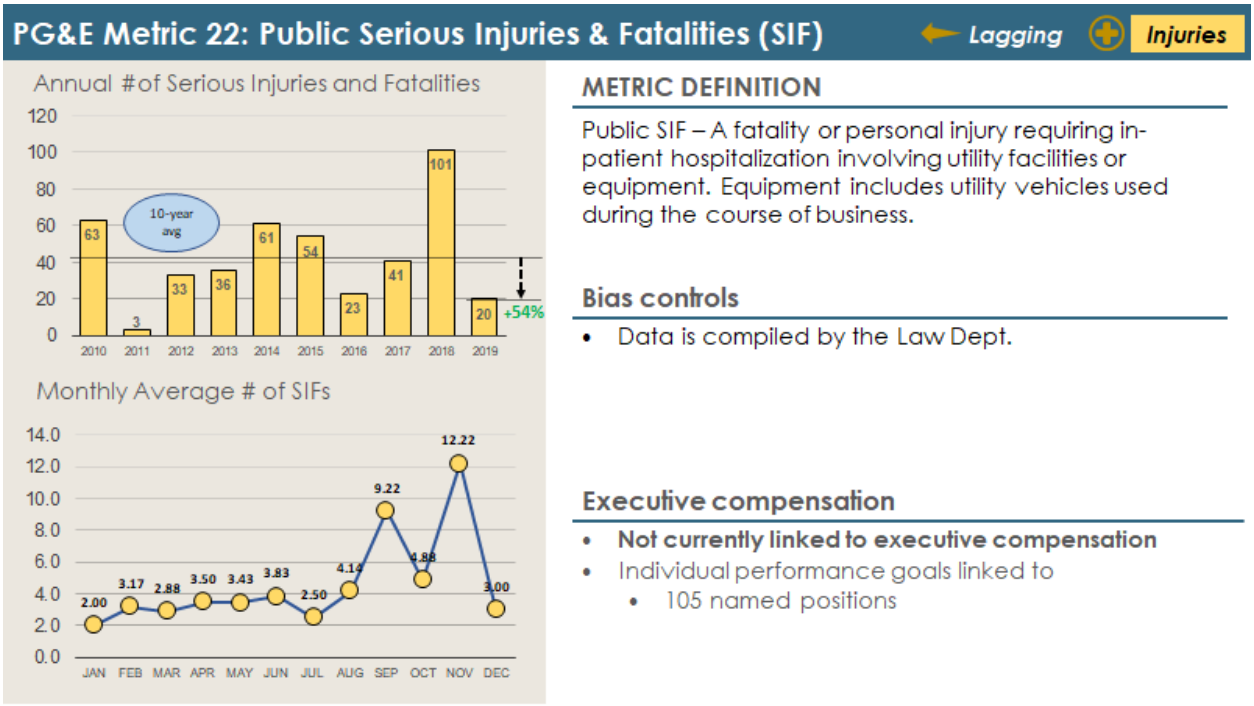
Observations:

PG&E submitted 3 years of monthly data on Metric 21. Due to the small number of reported years, it is difficult to identify any long-term trends from the data.

PG&E has not identified drivers of the Contractor DART rate. Mitigations include a Contractor Safety Program being evaluated as part of the 2020 RAMP Report and a Contractor work management system.

Bias controls are primarily determined by OSHA regulations and are verified annually by an external third party.

Seasonality:
The monthly data does not indicate any significant seasonal trend.



Observations:

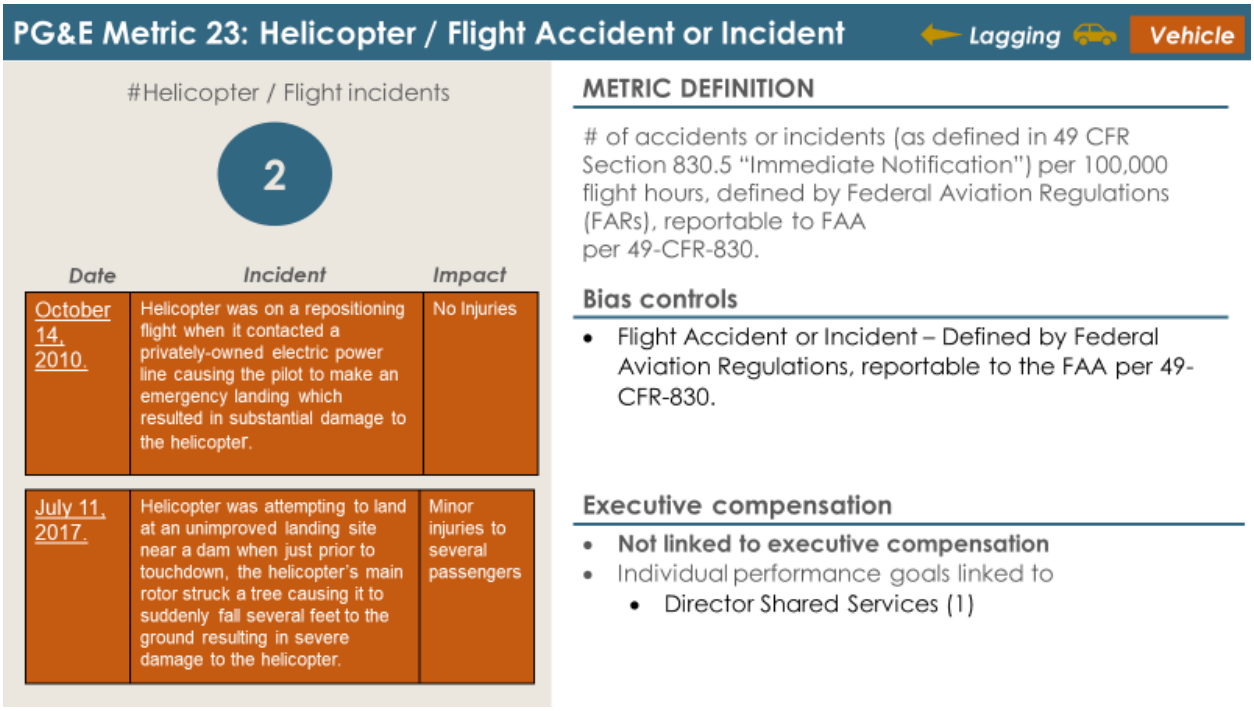
PG&E submitted 10 years of monthly data on Metric 22. PG&E states that "counts have varied across years with a significant uptick in 2018 due to the wildfires." The largest spike is associated with the Camp Fire, which resulted in the death of 86 people.

PG&E has identified wildfires, electrical contact and motor, vehicles incidents with PG&E assets as primary drivers of this metric. Mitigations include actions to "leverage LOB controls."

Bias controls include review by the Law Department.

Seasonality:

The monthly data is significantly impacted by the fall wildfire season.

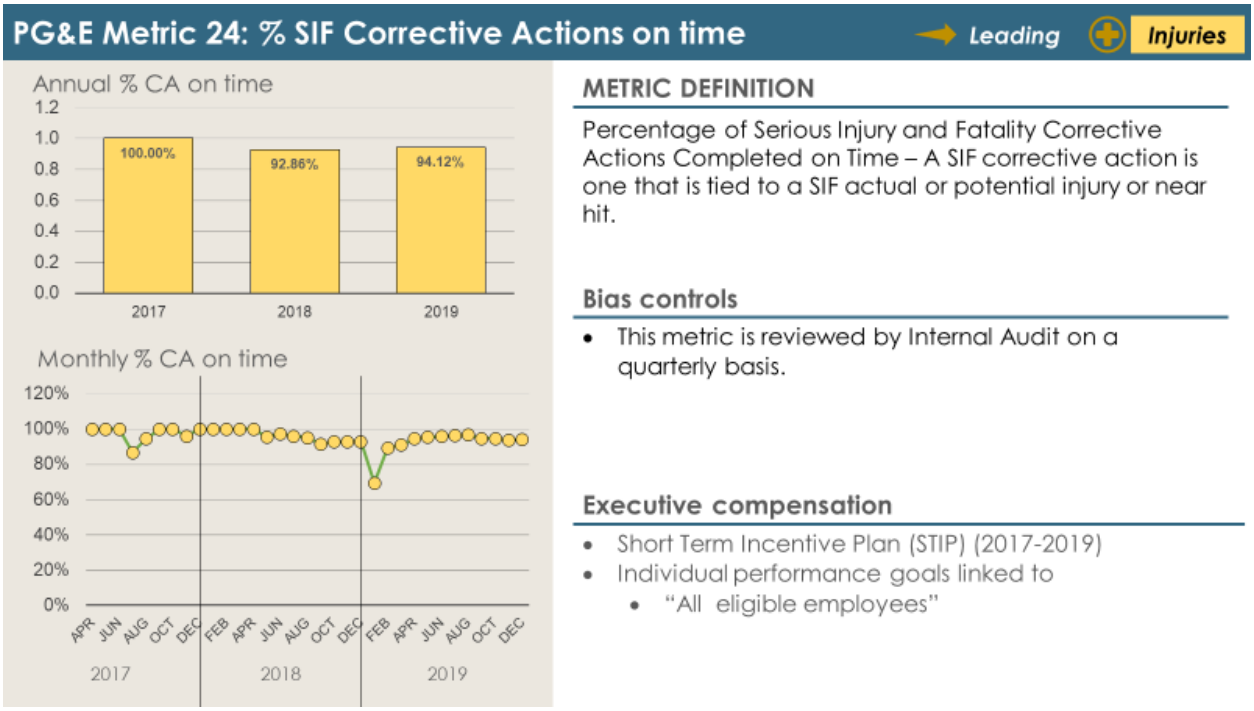


Observations:
PG&E submitted 10 years of data consisting of just 2 events.

PG&E has not identified root causes for these incidents. However, FAA reports and NTSB investigations provide detailed information and review of each incident.

PG&E does not state any internally defined bias controls; however, bias controls are dictated by FAA reporting and investigation regulations.

Seasonality:
There are only two incidents. One in October and one in July. An additional incident, resulting in three deaths occurred in June of 2020 (outside of this reporting period).



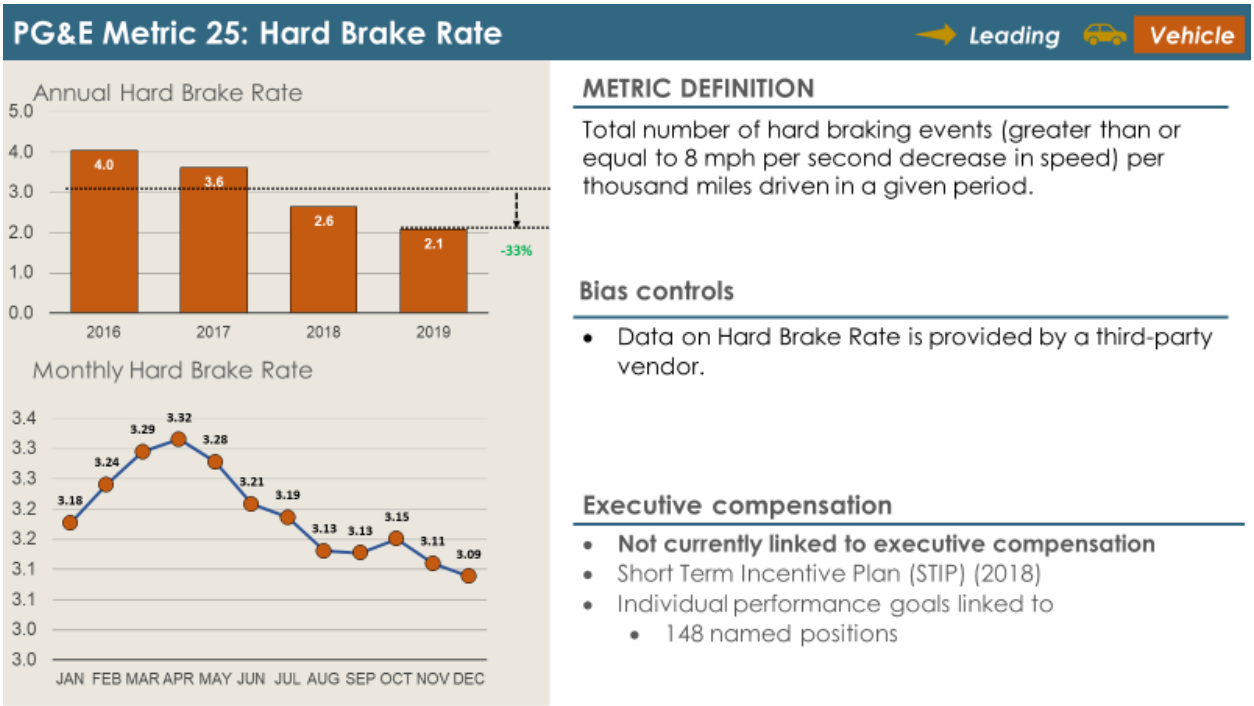
Observations:

PG&E submitted 3 years of on Metric 24. PG&E states that "2017 was the first year that this metric was tracked and included Electric, Gas and Generation. At the end of that year, 69 corrective actions were part of the metric. In 2018 and 2019, there were over 150. "

PG&E has identified an increase in resources to track actions, frequent communications on upcoming actions, and participation of the sponsors as drivers of this metric.

Seasonality:

The monthly data shows no clear trend.

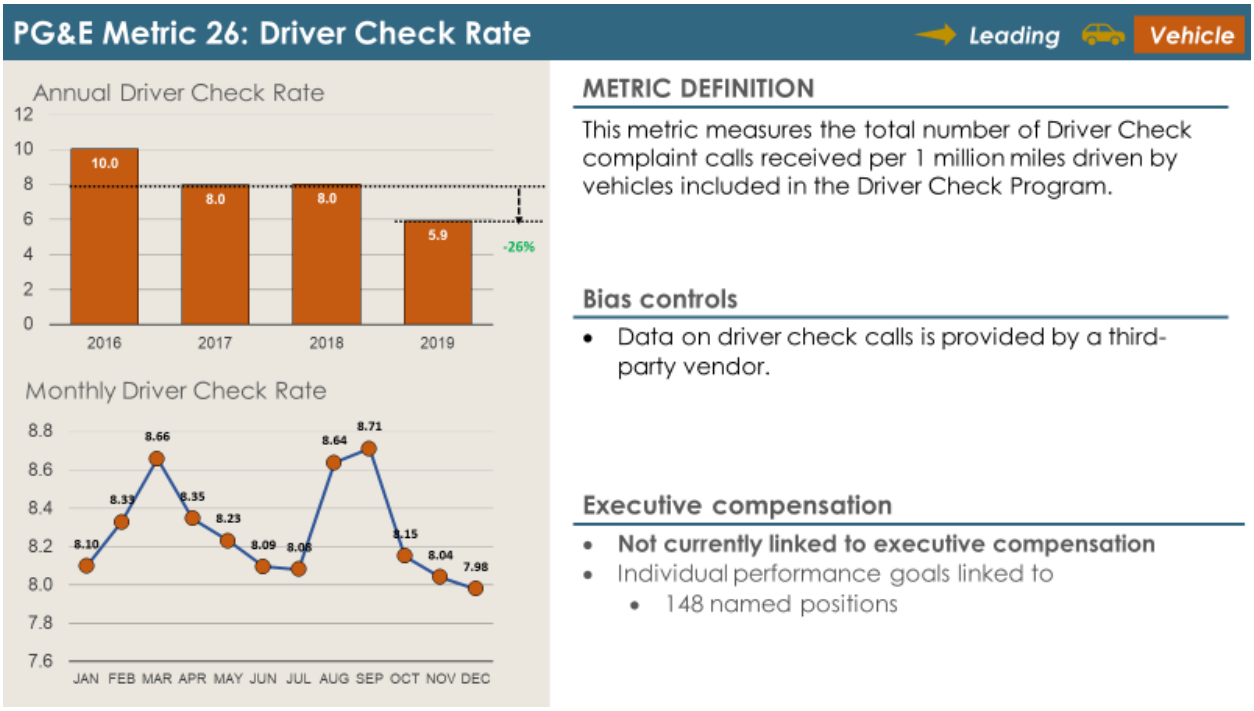


Observations:
PG&E submitted 4 years of data on Metric 25. PG&E states "The hard brake rate has been in steady decline between 2016 and 2019. During the 2017-2019 time period, the number of vehicles tracking hard braking increased from 6,500 to approximately 8,000."

PG&E identified targets consistent with the PMVI Rate of 1.74 and Safe Driving Rate of 4.5 to be met by 2020.

Bias control is managed by the third-party vendor that provides the HBR data.

Seasonality:
The monthly data shows no clear seasonal trend.



Observations:
PG&E submitted 4 years of data on Metric 26. PG&E states the driver complaint rate has dropped 40 percent since 2016. For every complaint there is an e-mail to the Supervisor, which requires follow-up and coaching with the employee. "

PG&E has not identified any drivers of this metric. They have specified supervisor follow-up and coach as mitigations. They have also identified targets consistent with the PMVI Rate of 1.74 and Safe Driving Rate of 4.5 to be met by 2020.

Bias control is managed by the third-party vendor that provides the HBR data.

Seasonality:
The monthly data shows no clear seasonal trend. While there are spikes on the chart in March and August/September, over the course of the year, the variation is less than one driver check per 1 million miles.

Conclusion & Recommendations

PG&E 's first SPM Report complies with requirements in D.19-04-020.

PG&E's performance metrics show a pattern of sustained improvement on safety metrics associated with their gas operations. This is likely the result of an increased emphasis on gas safety following the San Bruno pipeline explosion and other safety incidents as well as recent changes in underground gas storage statutes and regulations. The metrics also reveal a pattern of improvements with respect to vehicle safety, which could be attributable to PG&E's deployment of automated vehicle fleet tracking and reporting systems operated by a third party. Areas demonstrating a need for improvement include wildfire risk drivers, such as distribution and transmission wires down. Employee DART, LWD, and OSHA reportable events warrant continued scrutiny as 2019 exceeded the 10-year average.

SPD recommends PG&E consider the following changes in subsequent SPM reports:

- More explicitly tie examples intended to comply with ordering paragraph 6 (d) to each requirement to the maximum extent feasible.
- While not required, provide additional context to metrics to explain variation and compare to peers in the industry.

The CPUC is considering the development of Safety and Operational Metrics as part of the S-MAP proceeding (R.20-07-013) that could supersede these Safety Performance Metrics. Such a framework could include adding leading indicators for PG&E to proactively anticipate trends in their safety culture (most metrics are lagging indicators), requiring utilities to compare their metrics to short and long-term trends, and require utilities to set targets metrics where appropriate.

As noted earlier in the report, some metrics such as SIFs would be more useful for comparison and contextual purposes if they were expressed as rates rather than raw numbers. For example, PG&E's employee SIFs are not comparable to SDG&E's SIFs because PG&E has substantially more employees and thus more exposure. It is also important to note that for SIFs, it is not possible at this point to draw conclusions about trends or predict future year SIFs based on reportable data because the population of incidents relative to exposure is so small. It will take several years to discern meaningful patterns on low this type of low populations metric.