

Stakeholder workshop

August 12 2020





Wildfire Safety Division August 12, 2020 Day 2 Agenda

Participants must call-in to access audio 800-857-1917 Passcode: 3827548

Geographic Information Systems Data Reporting Standards Koko Tomassian, Wildfire Safety Division	10:00 AM – 11:15 AM
Break	11:15 AM – 11:30 AM
Safety Culture Assessment Arthur O'Donnell, Wildfire Safety Division	11:30 AM – 12:15 PM
Comments Regarding Safety Culture Assessment Respondents: Angela Anderson, NorthStar Consulting Andrew Martinez, VP of Safety, Security and Business Resiliency for SCE Stakeholder comments will be read from Webex "chat box," time permitting	12:15 PM – 12:45 PM
Next Steps Discussion of process for receiving comments, key dates, etc	12:45 PM – 01:00 PM
Adjourn	01:00 PM
	a second second

GIS Data Reporting Standards

Koko Tomassian, Wildfire Safety Division



WSD Data Reporting Standards -Agenda



2 Purpose and Summary

3 Data Categories & Schema Approach



Discussion on Open Issues





Introduction



3 phases to reach our ideal data strategy

Standardized data & submission schedule

55.39,0,0,0 42826.99,0,0,0 50656.8,0,0,0 4,67905.07,0,0 66938.9,0,0 26421.04

Recording data

Understanding the past

Retrospective

analytics

Projecting the future

Predictive analytics



Purpose and Summary



WSD Data Strategy Implementation

- 2020 WMP data issues highlighted need for WSD data standards
- Data schema efforts initiated tied to WSD-002: Guidance-10
- Initial draft spatial standards were shared in July 2020
- CPUC implementing ArcGIS Enterprise to manage spatial data
- Collaborated with sister agency partners in development



Data Strategy Goals & Expectations





Updated data schema requirements and more standardized submission process



Consistent, standardized, and scheduled data updates that tie to the annual WMP update



Phased approach to roll out of updated data standards



Pushing the boundaries of current data collection and reporting



Data Categories & Schema Approach



Data categories

To discuss in workshop

Asset Point	Asset Line	PSPS Event	RISK Event	Initiative	Other Data
 Camera Connection Device Customer Meter Fuse Lighting Arrester Substation Support Structure Crossarm Detail Switchgear Transformer Transformer 	 Transmission Line Primary Distribution Line Secondary Distribution Line 	 PSPS Event Log PSPS Event Line PSPS Event Polygon PSPS Event Customer Meter Point PSPS Event Damage PSPS Event Damage Photo Log 	 Ignition Outage (T&D) Wire Down VM Outage Risk Event Asset Log Risk Event Photo Log 	 VM Inspection (Points, Lines, and Polygons) VM Inspection Log VM Project (Points, Lines, and Polygons) VM Project Log Similar structure for Asset Inspections & Grid Hardening Projects 	 Critical Facility Red Flag Warning Day Administrative Area
 Weather Station 					Sector Market

Basic structure of schemas

	Field name			Description		St 1	orage type	
	Field Name			Field Description				
Wire	eDownID		Unique ID for the wire down event. Primary key for the Wire Down Point table.				Text	
Utili	tyID		Standardized identific	ation name of the utility ("	UtilityG&E," etc.).		Text	
Wire	eDownDate		The start date of the wire down event. Use YYYY-MM-DD format. Leave blank if unknown.				Date	
Wire	eDownYear		The year that the risk event occurred.				Integer	
Sus	pectedWireDownCause	2	High-level category fo Object conta Equipment fa Wire-to-wire Contaminatio Utility work/C Vandalism/T Unknown Other – See	r wire down event cause. ct illure contact on operation heft comment.	Possible values:		Text	
Sus	pectedWireDownCause	Comment	Suspected wire down cause description not listed in the options above.				Text	
			Description of object in "SuspectedWireDown	nvolved in the contact if the Cause" is "Object contact	he value of ." Enter N/A for this field if	the		

Snippet of Risk Event – Wire Down "feature class" (i.e., spatial) schema



"WireDownID" connects table to Wire Down feature class (spatial) table

Related tables connect additional info to feature class (i.e., spatial) data

Field Name	Field Description	Field Type
EquipmentFailureID	The unique ID for the associated asset. Primary key for the Equipment Failure Log table.	Text
WireDownID	Foreign key to the Wire Down table.	Text
FromDevice	The AssetID of the upstream structure supporting the conductor involved in the wire down event. Foreign key to all the associated asset point tables.	Text
ToDevice	The AssetID of the downstream structure supporting the conductor involved in the wire down event. Foreign key to all the associated asset point tables.	Text
IgnitionID	Foreign key to the Ignition table.	Text
StationID	Unique ID for the nearest weather station to the ignition location. Must be traceable stable ID within a weather station. Foreign key to the Weather Station table.	Text
OutageID	Foreign key to the Outages table.	Text
IsolationDeviceID	The AssetID of the device that operated to de-energize the circuit for an outage event. Should be traceable within a specific asset class. Foreign key to all the associated asset point tables.	Text
DamagedDeviceID	The AssetID of the device that failed or experienced damage which initiated the outage. Should be traceable within a specific asset class. Foreign key to all the associated asset point tables.	Text
VmOutageID	The unique ID for outage caused by vegetation.	Text
AssetID	Unique ID for asset point tables. Must be traceable stable ID within a specific asset class. Foreign key to all the associated asset point tables.	Text
CircuitID	Unique ID for the specific circuit impacted by a risk event. Must be traceable stable ID within a specific asset class. Foreign key to all the associated asset tables.	Text
SubstationID	Unique ID for the source substation feeding the circuit impacted by the outage. Must be traceable stable ID within a substation. Foreign key to the Substation table.	Text

Risk Event – Wire Down related table schema



Datasets connect to each other through ID fields

E.g.,

Field Name	
WireDownID	
UtilityID	



Entity-Relationship Diagram (ERD) for Risk Event – Wire Down



Deep Dive on Select Schemas



Risk Event ERDs (sample)



Risk Event schema (sample)

	Field Name	Field Description	Field Type
ID codes	WireDownID	Unique ID for the wire down event. Primary key for the Wire Down Point table.	Text
	UtilityID	Standardized identification name of the utility ("UtilityG&E," etc.).	Text
Date	WireDownDate	The start date of the wire down event. Use YYYY-MM-DD format. Leave blank if unknown.	Date
Dato	WireDownYear	The year that the risk event occurred.	Integer
	SuspectedWireDownCause	High-level category for wire down event cause. Possible values:	Text
	SuspectedWireDownCauseComment	Suspected wire down cause description not listed in the options above.	Text
Risk Event details	ObjectContact	Description of object involved in the contact if the value of "SuspectedWireDownCause" is "Object contact." Enter N/A for this field if the value of "SuspectedWireDownCause" is not "Object contact." Possible values: • Vegetation contact • Animal contact • Balloon contact • Vehicle contact • 3rd party contact (e.g. 3 rd party tree trimmer) • Unknown • N/A	Text
	EquimentFailure	Description of failed or damaged equipment or component involved if "Suspected/WireDownCause" value is "Equipment failure." Enter N/A for this field if the value of "Suspected/WireDownCause" is not "Equipment failure." Possible values: • Connector • Splice • Crossarm • Insulator • Lightning arrestor • Tap • Tie wire • Unknown • Other – See comment. • N/A	Text
•	EquipmentFailureComment	Equipment failure description not listed in the options above.	Text



Noteworthy data attributes in Risk Event schemas

Ignition data

- HFTD tier classification
- Outage ID
- Photographs
- Fire detection method (e.g. camera, satellite, fire agency, etc..)
- Nearest weather station
- Red Flag Warning status and details
- Fire Weather Watch status and details
- High Wind Warning status and details
- Fuel bed description (e.g. grass, brush, etc..)
- Investigation status

General Outages

- Asset IDs to relate to
 asset data
- Recloser setting status
- Isolation device type
- Expulsion fuse operation
- HFTD classification
- Major event day status
- Cause details
- Reliability metrics (CMI)

Comments

- Includes outage & other risk indicator data
- Grouped by trans & dist
- Unplanned outages
- Cause categories align
 with Ignition schema

VM outages

General outages data +

- Tree species
- Tree height
- Tree size (i.e., DBH)
- Distance from electrical lines

Comments

- Reported separately OutageID connects this to outage database
- Valuable insight to one of the primary drivers of utility-involved ignitions (i.e. vegetation contact)

Wire down events

- Span length
- Splice counts
- Conductor material
- Conductor size
- Conductor rating
- If downed wire was energized
- If downed wire resulted in an ignition
- If downed wire resulted in an outage
- HFTD location

Comments

 Cause categories align with Ignition schema

Initiative ERD (sample)





<u>4 initiative ERDs/schemas</u>
1. Vegetation projects
2. Vegetation inspections
3. Asset mgmt inspections
4. Grid hardening



Initiative schema (sample of asset inspections)

	Field Name	Field Description	Field Type
ID codes	AiLogID	Unique ID or job ID of an asset inspection activity. Primary key for the Asset inspection table.	Text
	VmpID	Unique ID or job ID of a vegetation management project resulting from an asset inspection. A Foreign key to the Vegetation Management Project table. Enter the corresponding VmpID if the subject asset inspection resulted in the creation of a vegetation management project. If the asset inspection did not result in the creation of a related vegetation management project, then enter "N/A" for this field.	Text
	UtilityID	Standardized identification name of the utility ("UtilityG&E," etc.).	Text
	InspectionStartDate	The date when an asset inspection began. Use YYYY-MM-DD format. Leave blank if unknown. Do not include time.	Date
Date	InspectionEndDate	The date when an asset inspection was completed. If the asset inspection was started and completed on the same day, "InspectionStartDate" and "InspectionEndDate" will have the same value. Use YYYY-MM-DD format. Leave blank if unknown. Do not include time.	Date
ſ	PerformedBy	Who performed the asset inspection? Possible values: Utility staff Contractor Other – See comment	Text
	PerformedByComment	Inspector description not listed in the options above.	
	InpsectorName	Inspector name for the asset management inspection.	Text
	InspectionType	The type of asset inspection performed. Possible values: Patrol Detailed Pole loading Other – See comment. 	Text
	InspectionTypeComment	Inspection type description not listed in the options above.	Text
Inspection information	InspectionQA	Has the inspection been checked for quality assurance? Possible values: Yes No	Text
	InspectionComments	Additional comments related to the asset management inspection.	Text
	ComplianceFinding	Did the asset inspection result in the finding of any non-compliance issues? Possible values:	Text
	InspectionMethod	The method(s) by which the asset inspection was conducted. Possible values: Drive by Walk out Aerial – drone Aerial – helicopter Remote sensing – Infrared/Thermal Remote sensing – LiDAR Other – See comment. 	Text



Noteworthy data attributes in Initiative schemas

- Broken out by VM- and asset-related initiatives; inspections and projects
- VM data has broad stakeholder interest (e.g., CAL FIRE, CARB)
- VM data reported as polygon, line, point data to align various practices

Vegetation Management (VM) inspections & projects

- Inspection and project types
- Inspection technology (e.g. ground, aerial, LiDAR, etc..)
- Treatment type (e.g. clearance, removal, etc..)
- Tree details
 - # being worked or inspected
 - Species
 - Height
 - Growth rate
 - Diameter
 - TreeID
- HFTD classification
- Parcel information
- Status (e.g. complete, in progress, etc..)
- Land designation
- Permitting details

Asset inspections & projects

Similar to VM initiatives, but tailored for asset data

- AssetID instead of TreeID
- Patrol/Detailed inspections instead of Clearance/Hazard Tree inspections
- Grid hardening data includes "change order" details as specified in WSD-002



PSPS ERD (sample)





PSPS Event schema (sample)

	Field Name	Field Description	Field Type
	EventID	A unique standardized identification name of the unique event. Primary key enabling connection to PSPS event feature classes.	Text
Event Circuit and	CircuitID	A unique standardized identification name of the circuit that was de-energized. Foreign key to all the related asset line tables.	Text
Event, Circuit, and	CircuitName	Name of circuit associated with asset.	Text
other ID codes	ParcelAPN	ID of parcel affected by PSPS event. Use the format: ### #### #####. For example, "006-0144-029-0000".	Text
	UtilityID	Standardized identification name of the utility ("UtilityG&E," etc.).	Text
	SubstationID	A unique standardized identification name of the substation/feeder feeding the circuit that was de-energized during the PSPS event. Foreign ley to the Substation table.	Text
	SubstationName	Name of substation associated with asset.	Text
	IsolationDevice	The device which isolated the circuit during the PSPS event. Possible values: Circuit Breaker Fuse Switch Other – See comment.	Text
	IsolationDeviceComment	Isolation device not listed in the options above.	Text
	IsolationDeviceID	A unique standardized identification name of the isolation device. Should match the value in the "AssetID" field of the isolation device's point data in the "Switchgear" feature class. A foreign key. AKA AssetID.	Text
	EOCActivationDate	Date IOU's emergency operation center (EOC) was activated in YYYY-MM-DD format. Do not include time.	Date
	EOCActivationTime	Time IOU's emergency operation center was activated. Must be in the "hh:mm:ss" format.	Date
	StartDate	Start date of the PSPS event in YYYY-MM-DD format. Do not include time.	Date
Event Information	StartTime	Start time of the PSPS event (i.e. when the first de-energization occurred). Must be in the "hh:mm:ss" format.	Date
	AllClearDate	Date the weather event precipitating the PSPS event cleared the area, and the utility began inspection and restoration efforts. Must be in YYYY-MM-DD format. Do not include time.	Date
	AllClearTime	Time the weather event precipitating the PSPS event cleared the area, and the utility began inspection and restoration efforts. Must be in the "hh:mm:ss" format.	Date
	AllLoadUpDate	Date last customer was fully restored following the PSPS event. Must be in YYYY-MM-DD format. Do not include time.	Date
	AllLoadUpTime	Time the last customer was fully restored following the PSPS event and "All Load Up" was declared. Must be in the "hh:mm:ss" format.	Date
	PredictedDurationMinutes	Anticipated duration of PSPS event's circuit shutoff after it is initiated. Must be reported in whole number minutes.	Float
	ActualDurationMinutes	Actual duration of PSPS event's circuit shutoff. This would be determined after restoration and must be reported in whole number minutes.	Float
	DurationPredictionError	"PredictedDurationMinutes" minus "ActualDurationMinutes" Positive values indicate shorter than predicted PSPS outage duration; negative values indicate longer than predicted PSPS outage duration.	Float
	TotalCustomerMinutes	"ActualDurationMinutes" multiplied by "TotalCustomers" This field features total customer minutes impacted across the circuit.	Float
Impact	TotalCustomerHours	"TotalCustomerMinutes" divided by 60 This field features total customer hours impacted across the circuit.	Float
	TotalCustomers	Total impacted customers. This is not necessarily a sum of all customer category values listed below because medical baseline customers may also be in other	Integer



Noteworthy data attributes in PSPS schemas

- Data accuracy > realtime access
- Two schemas PSPS events & damages
- PSPS event boundaries align w parcels affected
- Line & point data for PSPS events
- PSPS damages schema aligns with CAL FIRE damage assessments

PSPS events

- EOC activation date and time
- "All Clear" date and time
- Predicted outage duration
- Duration prediction error
- Critical infrastructure impacts
 - Number of impacted facilities
 - Duration
- Factors impacting decision

PSPS damages

- HFTD location
- Photo(s) of damage asset(s)
- Photo(s) of fuel bed
- Asset IDs
- Asset age
- PRC exemption status
- Details similar to Wire Down events
 for conductor damage
- Damage description

Which attributes are feasible in 10-day post-event report vs QR?



Discussion on Open Issues



IOUs may have limited time to prepare Sept. 9 Quarterly Reports







Final data schemas released after public comment period

Quarterly Reports due Sept. 9th, giving IOUs limited time to prepare data



Phased approach to introduce data schemas for Quarterly Report submissions

WSD will provide "status report" templates based on schemas to identify submission compliance for all data required for QRs

	Dic data	l the IC a in the ′es / N	OU report the e current QR? o / Partially		Planned & t to collect &	aken ac report	tions data	Y/N - i confid	s data ential?
Field Name	Field Description	Field Type	Field Data Provided in Latest QR?	Utility Ava	ailability Comments Util	ity Actions Com	ments Estimated I	Delivery Timeframe	Confidential?
	Unique ID for the wire down event. Primary key for the Wire								
WireDownID	Down Point table.	Text			x	_			
UtilityID	Standardized identification name of the utility ("UtilityG&E," etc.)	. Text				,			
	The start date of the wire down event. Use YYYY-MM-DD format		Explain	ı wny	data is not l		vvnen v	vSD can	
WireDownDate	Leave blank if unknown.	Date	nar	tially	availablo		ovno	ct data	
WireDownYear	The year that the risk event occurred.	Integer	par	lially	available		evhe	ci uala	
SuspectedWireDownCaus	e High-level category for wire down event cause. Possible values:	Text							
SuspectedWireDownCaus	e Suspected wire down cause description not listed in the options	Text							
	"SuspectedWireDownCause" is "Object contact." Enter N/A for								
7	this field if the value of "SuspectedWireDownCause" is not								
ObjectContact	"Object contact." Possible values:	Text							

Of the following data categories, which should be quarterly vs. annual submissions?



Asset point



Asset line



PSPS event



Risk event



Initiative



Other data



For discussion: Cut-off date for initiative data reported in QRs

Data reported needs to have a standardized start & end date. What is feasible to report by submission date?



Illustrative

Seeking stakeholder feedback

Submit schema edits via redline of original documents

Field Name	Field Description	Field Type
	Unique ID for the wire down event. Primary key for the Wire Down	
WireDownID	Point table.	Text
UtilityID	Standardized identification name of the utility ("UtilityG&E," etc.).	Text
	The start date of the wire down event. Use YYYY-MM-DD format.	
WireDownDate	Leave blank if unknown.	Date
	The date of identifying a wire down event. Use YYYY-MM-DD	
WireDownReportDate	format. Leave blank if unknown	Date
WireDownYear	The year that the risk event occurred.	Integer
SuspectedWireDownCause	High-level category for wire down event cause. Possible values:	Text
	Suspected wire down cause description not listed in the options	
SuspectedWireDownCause	above.	Text





 Accepting comments on draft data reporting standards (via redline) until August 26th, 2020

2 WSD to publish final draft of WSD Data Reporting Standards with other final staff proposals

- 3 Quarterly report submission September 9th
- WSD to provide file GDB and Excel "status report" templates next week for use in first QR







Safety Culture Assessment

Arthur O'Donnell, Wildfire Safety Division



Status of Safety Culture Olls and Distinguishing WSD assessment per AB 1054



Description of WSD Safety Culture Proposal



<u>Context:</u> Safety Culture Assessment is one of five inputs to the Safety Certificate for Wildfire Mitigation

PUC §8389e





Statutory mandate for Safety Culture Assessment

Statutory mandate per PUC §8389d-e

(d) By December 1, 2020, and annually thereafter, the commission, after consultation with the division, shall adopt and approve...

(4) A process for the division to **conduct annual safety culture assessments** for each electrical corporation

(e) The executive director of the commission shall issue a safety certification to an electrical corporation if the electrical corporation provides documentation of ...

2) ... The electrical corporation is in good standing, which can be satisfied by the **electrical corporation having agreed to implement the findings of its most recent safety culture assessment, if applicable**.



Culture is how we behave in our context

Who we hire/fire/promote How we set goals What we talk about in key meetings Which heroes we make What projects we fund What we measure and incentivize How we react to incidents ... or more simply 'how work gets done'

Vision for WSD SCA

Assess <u>baseline for culture</u> against which improvement can be <u>measured over time</u>

Set foundation for <u>data-driven</u> insight informed by on-theground reality and <u>known outcome metrics</u>

Ground assessment in cultural <u>drivers of wildfire risk</u>

Focus on <u>wildfire safety</u>, but consider cultural elements which are relevant to broader safety outcomes

Foster continuous and collaborative improvement and learning – driving towards a <u>culture of practicing safety</u>



WSD SCA will likely measure two different things: Culture and **Organizational Foundation**





Culture: measure throughout the organization via survey; keep survey targeted to ensure wildfire focus

Foundation: Measure through reporting by leadership



Note that scope of assessment for both culture and foundation will focus on wildfire context



Culture is how we behave in our context

Proposed scope for WSD SCA:

Elements of culture which influence <u>wildfire safety</u> <u>outcomes broadly</u>

- Proven methods for assessing culture apply
- These elements may also be relevant for broader safety outcomes

Utility employees who conduct activities <u>related to</u> <u>wildfire safety</u> as defined by <u>WMP initiatives</u>

5b Organizational foundation

Organizational foundation – structure, governance, and sustaining systems – influence and sustain culture, but are distinct from culture itself

Proposed scope for WSD SCA:

Elements of organizational foundation which are particularly important in a wildfire and/or broader safety context



Proposed outcome metrics for SCA tie to broader WSD objectives

Drive down Aggregate Risk from Wildfire and PSPS for the public



Drive down safety risk for employees conducting wildfire mitigation activities



- Deaths
- OSHA injuries



Note: Not all utility related safety outcome metrics are proposed as focus of WSD SCA

Focus of WSD SCA

Not focus of WSD SCA



• Examples: Gas explosions, etc.



42 Source: 2020 WMP data

<u>Proposed approach to SCA:</u> Assess culture through proven methods and evaluate links to wildfire safety performance

Collect utility submission in three parts; augment with interviews and observational visits



Leverage WMP outcome metrics to conduct assessment

Analyze results together with outcome metrics and knowledge of WMP initiatives; communicate assessment results If applicable, communicate requirements as a result of findings





Proposed submission detail: Guideline response

Objectives

Understand lessons learned, safety strategy, and other elements of management safety narrative and context

Verify compliance to directives in prior commission proceedings¹, generalized to all utilities, e.g.

- Each utility should have a Safety Committee at the Board of Directors, responsible for WMPs, PSPS, and reporting to Board and Commission about safety matters
- Qualifications for candidates for Board of Directors should include safety expertise and risk management expertise
- Utilities should employ a chief safety officer

Illustrative conclusions

- All requirements laid out in other commission decisions or proceedings related to safety culture are met
- Utility has provided credible vision and objectives, to improve organizational foundation



Proposed submission detail: Management self-assessment and plan

Objectives

Assess specific elements of organizational foundation in a way that is standardized, objective, auditable, and enables tracking of progress over time

Gather measurable targets and plan, expressed briefly and simply through a questionnaire

Illustrative conclusions



Management has clear perspective on strengths and areas where further growth is needed, with specific targets and plan to get there



Lower



Hiaher



Illustrative

Proposed submission detail: Employee survey or other tool

Objectives

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Assess <u>culture</u>, or how work gets done

Measure behaviors (and motivations) throughout organization, e.g.

- Are procedures followed?
- Do employees feel comfortable raising safety concerns?
- Do they feel management values safety?

Acknowledged best practice amongst industries seeking "Source of truth" for cultural baseline

Illustrative conclusions

Lower



- In general, procedures are followed across the organization, but less so by employees doing vegetation management activities
- Most employees across the organization feel that their insights and opinions on safety are somewhat valued



Hiaher

Illustrative

Interviews and/or observational visits proposed to augment utility submission

Objectives:

Add nuance and depth to WSD's understanding of each utility's context and/or goals

Make WSD's assessment more holistic and accurate



Comments regarding Safety Culture Assessment

Angela Anderson, NorthStar Consulting Utility Representative TBD



Upcoming dates

August 26, 2020

Deadline to share your comments for consideration by the WSD

- 20 page limit
- Please email comments to <u>wildfiresafetydivision@cpuc.ca.gov</u> and to service list 18-10-007

October 31, 2020

WSD submits WMP guideline and SCA process recommendations to CPUC

December 1, 2020

Statutory deadline for Commission consideration of WMP guideline and SCA process updates

