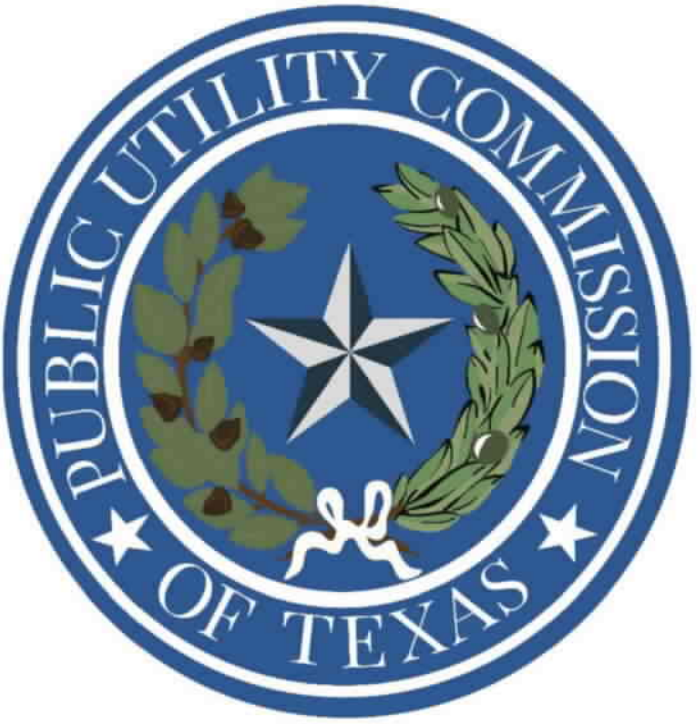

Filing Receipt

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SOAH DOCKET NO. 473-25-11558
PUC DOCKET NO. 57579

APPLICATION OF CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC FOR APPROVAL OF ITS 2026-2028 TRANSMISSION AND DISTRIBUTION SYSTEM RESILIENCY PLAN	**§ § § § §**	**BEFORE THE STATE OFFICE OF ADMINISTRATIVE HEARINGS**

March 11, 2025

Contact: Stacey Murphree
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CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-01

QUESTION:

Please provide in "live" Excel format all Figures and Exhibits in the Application, Testimony, Resiliency Plan, and Guidehouse report, along with all supporting workpapers.

ANSWER:

Please see the response to TCUC 01-01.

SPONSOR:
Nathan Brownell, Eugene Shlatz, Joseph Baugh

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-02

QUESTION:

Referring to the proposed utility-scale microgrid pilot program:

a. Does CenterPoint consider the microgrid program a part of its System Resiliency Plan under 16 TAC § 25.62?

b. Is CenterPoint intending to apply its proposed accounting language to the microgrid program?

ANSWER:

a. Yes, the Company does consider the microgrid pilot program to be a part of its system resilincy plan under 16TAC 25.62, because it supports overall system resiliency by providing energy to these customers during resiliency events.

b. Yes, CEHE does intend to apply the proposed accounting language to the microgrid pilot program.

SPONSOR:
Brad Tutunjian

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-03

QUESTION:

Referring to various places that discuss flexibility (i.e., Application at page 20, SRP at page 34, and Direct Testimony of Eric D. Easton at page 16), please summarize and restate the flexibility approval that CenterPoint is seeking from the Commission in this filing.

ANSWER:

The Company has not undertaken a search for every use of the word "flexibility" in its filing. However, the Company has generally requested two types of flexibility: flexibility to immediately begin implementation of all or portions of the Company's System Resiliency Plan (SRP) and flexibility as it relates to implementation of Resiliency Measures on a specific portion or portions of the Company's transmission and distribution system or the Company's service area.

The reference to flexibility in the Company's Application at page 20 refers to the former—flexibility to immediately begin implementation of all or portions of the Company's SRP. Depending on when the Company's SRP is approved by the Commission, there is a possibility that implementation of some Resiliency Measures could begin in 2025, as labor and material allow.

The references to flexibility in the SRP at page 34 and Direct Testimony of Eric D. Easton at page 16 refer to the second type of flexibility—flexibility as it relates to implementation of Resiliency Measures on a specific portion or portions of the Company's transmission and distribution system or the Company's service area. As Mr. Easton explains in his testimony, "the Company's execution strategy requires flexibility to pivot within each Resiliency Measure, and from one Resiliency Measure to another as constraints are encountered so that program scope and activities pursued within each Resiliency Measure may be adjusted based on the needs of the Company's transmission and distribution system, as determined by the Company's analyses of the resiliency-related investment decisions."

SPONSOR:
Nathan Brownell

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-04

QUESTION:

Referring to Figures APP-4 and APP-5, provide the same tables, but inclusive of 2024 cost.

ANSWER:

Please see the attached file "TIEC-RFI01-04 Attachment 1.xls.".

SPONSOR:
Nathan Brownell

RESPONSIVE DOCUMENTS:
TIEC-RFI01-04 Attachment 1.xls

TIEC RFI 1-4 - Figures APP-4 and APP-5, provide the same tables, but inclusive of 2024 cost

2020 - 2024 Resiliency-Related Projects (in millions)

Description	2020	2021	2022	2023	2024*	Total
IGSD Installation	1	5	12	13	17	$ 48
Transmission System Hardening	12	159	274	166	65	$ 676
Substation Flood Control	18	13	20	20	4	$ 75
Distribution Pole Replacement/Bracing	29	30	61	52	78	$ 250
Substation Physical Security	5	20	24	10	16	$ 75
S90 Tower Replacements	3	20	55	14	10	$ 102
69 kV Conversions	16	3	49	90	22	$ 180
Distribution Circuit Resiliency	-	-	40	40	17	$ 97
Distribution Resiliency - TripSaver	-	-	7	5	2	$ 14
Total 2020 - 2024	**$ 84**	**$ 250**	**$ 542**	**$ 410**	**$ 231**	**$ 1,517**

*Note: The spend associated with major storms (Derecho, Beryl, etc) were deferred to a regulatory asset, and thus are excluded.

2020 - 2024 Vegetation Management Projects (in millions)

Description	2020	2021	2022	2023	2024	Total
Scheduled VM (Proactive Tree Trimming)	25.2	26.5	28.2	35.6	132.7	$ 248.2
Unscheduled VM (Reactive Tree Trimming)	3.6	3.5	3.7	5.5	9.7	$ 26.0
Tree Risk Management (Proactive Hazard Tree Removal)	0.1	0.2	0.9	3.7	2.8	$ 7.6
Emergency and Post-Storm Activities	0.7	1.2	1.8	1.0	2.0	$ 6.7
Total 2020 - 2024	**$ 29.6**	**$ 31.4**	**$ 34.6**	**$ 45.8**	**$ 147.2**	**$ 288.6**

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-05

QUESTION:

Referring to Figure APP-6, for each action in GHRI Phase One:

a. State the transmission-related quantity and cost.

b. State whether or not any portion of the action is included in this SRP.

c. For each action which is included in this SRP per subpart (b), state the quantity and cost.

ANSWER:

a. GHRI Phase One had $0 transmission related costs.

b. There are no activities from GHRI Phase One included in this SRP.

c. Please see response to TIEC RFI1-5, b.

SPONSOR:
Nathan Brownell

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-06

QUESTION:

Referring to Figure APP-7, for each action in GHRI Phase Two:

a. State whether or not the action is on-track for completion by June 1, 2025.

b. For each action that is not on-track in response to subpart (a), state the reason for the delay.

c. State the transmission-related quantity and cost.

d. State whether or not any portion of the action is included in this SRP.

e. For each action which is included in this SRP per subpart (d), state the quantity and cost.

ANSWER:

a. GHRI Phase Two is on track for completion by June 1, 2025.

b. Please see response to TIEC RFI1-6, a.

c. GHRI Phase Two has $0 transmission related costs.

d. There are no activities from GHRI Phase Two included in this SRP.

e. Please see response to TIEC RFI1-6, d.

SPONSOR:
Nathan Brownell

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-07

QUESTION:

Referring to the Application at page 9, provide workpapers that support the statement that Phase One and Phase Two GHRI will lead to more than 125 million fewer customer outage minutes.

ANSWER:

Please see TIEC-RFI01-07 Attachment 1 - D56548 Estimated Per Unit Cost and Benefits_DRAFT.xls.

Using the estimated CMI savings for each resiliency measure in Docket 56548, a per unit annual CMI savings was calculated (Column L). That per unit value was then applied to the estimated GHRI Phase 2 anticipated units (Column N) for the following 4 measures: Distribution Pole Replacement, Trip Savers, IGSD Installations and Vegetation Management. That resulted in a calculation of approximately 136.3 million CMI saved. To be conservative, 136.3 million CMI saved was rounded down to 125 million CMI saved.

SPONSOR:
Nathan Brownell

RESPONSIVE DOCUMENTS:
TIEC-RFI01-07 Attachment 1 - D56548 Estimated Per Unit Cost and Benefits_DRAFT.xls.

System Resiliency Plan Programs / Measure	Qty/Unit	Docket 56548 2025 - 2027 Capital $ Million	BCA Ratio	CMI (million min)	Per Unit Capital $ Million	Per Unit BCA Ratio	Per Unit CMI (million min)	Annual CMI 2028+ (million min)	Per Unit Annual CMI (million min)	GHRI Phase 2 Anticipated Units	Est Annual CMI Saved (million min)
System Hardening											
Transmission System Hardening (miles)	50	376.00	6.0	206.0	7.52	0.12	4.120	87.6	1.752		
S90 Tower Replacements (towers)	30	103.80	4.9	41.7	3.46	0.16	1.390	16.4	0.547		
69 kV - 138 kV Conversion (miles)	108	268.40	1.9	46.8	2.49	0.02	0.433	20.0	0.185		
Coastal Resiliency Projects	NA	259.00	1.4	21.9	NA	NA	NA	21.9	NA		
Substation Transformer Fire Protection (barriers)	12	2.40	3.7	0.5	0.20	0.31	0.042	0.2	0.017		
Distribution Pole Replacement/Bracing (installations/bracings)	15,000	99.30	6.2	41.3	0.01	0.000	0.003	20.8	0.001	25,000	34.7
Distribution Resiliency - Circuit Rebuilds (circuits)	114	312.80	7.0	137.4	2.74	0.06	1.205	69.4	0.609		
Strategic Undergrounding/Freeway Crossings (crossings)	30	31.20	3.8	4.4	1.04	0.13	0.147	2.2	0.073		
System Hardening Total		**$ 1,452.90**	**4.5**	**500.0**	**$ 17.46**		**7.340**	**238.5**	**3.184**		
Grid Modernization											
TripSavers (installations)	7,500	58.90	61.3	240.3	0.01	0.01	0.032	122.2	0.016	4,500	73.3
IGSD Installation (devices)	450	53.80	15.7	58.1	0.12	0.03	0.129	27.7	0.062	350	21.5
Texas Medical Center Substation	NA	102.00	0.7	4.9	NA	NA	NA	4.9	NA		
Grid Modernization Total		**$ 214.70**	**21.1**	**303.3**	**$ 0.13**		**0.161**	**154.8**	**0.078**		
Flood Mitigation											
Substation Flood Control (substations)	9	30.60	7.5	14.2	3.40	0.83	1.578	6.7	0.744		
Control Center Facility Upgrade	NA	7.00	12.5	6.1	NA	NA	NA	2.5	NA		
Flood Mitigation Total		**$ 37.60**	**8.4**	**20.3**	**$ 3.40**		**1.578**	**9.20**	**0.744**		
Information Technology for Operations											
Advanced Aerial Imagery Platform/Digital Twin	NA	9.90	3.4	0.8	NA	NA	NA	0.3	NA		
Advanced Distribution Technology (meters)	1,365,000	225.80	4.8	61.1	0.00	0.00	0.000	40.6	0.000		
Digital Substation (substations)	15	25.00	1.9	1.3	1.67	0.13	0.087	0.8	0.053		
Information Technology for Operations Total		**$ 260.70**	**4.5**	**63.2**	**$ 1.67**		**0.087**	**41.7**	**41.700**		
Information Technology											
Voice & Mobile Data Radio System Refresh	NA	15.60	NA	NA	NA	NA	NA	NA	NA		
Data Center Hardware & Software Infrastructure	NA	2.90	NA	NA	NA	NA	NA	NA	NA		
Backhaul Microwave Communication	NA	12.10	NA	NA	NA	NA	NA	NA	NA		
Network Security & Vulnerability Management	NA	1.00	NA	NA	NA	NA	NA	NA	NA		
IT/OT Cybersecurity Monitoring	NA	22.50	NA	NA	NA	NA	NA	NA	NA		
Information Technology Total		**$ 54.10**									
System Security											
Physical Security Fencing (substations)	15	15.00	15.6	14.7	1.00	1.04	0.980	7.3	0.487		
Physical Security Upgrades (substations)	36	19.50	19.9	25.1	0.54	0.55	0.697	12.5	0.347		
Physical Security Total		**$ 34.50**	**18.0**	**39.8**	**$ 1.54**		**1.677**	**19.8**	**0.834**		
Vegetation Management											
Targeted Incremental O&M (miles)	2,500	25.00	1.8	13.9	0.01	0.00	0.006	4.2	0.002	4,000	6.7
Wildfire Mitigation											
Wildfire Mitigation	NA	137.15	NA	NA	NA	NA	NA	NA	NA		
Resiliency Measures Total		**$ 2,216.65**	**6.6**	**940.5**	**$ 24.20**			**468.2**	**46.542**		**136.3**

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-08

QUESTION:

Does CenterPoint expect to incur any cost related to this SRP in 2025? If yes, please provide workpapers listing each measure and the estimated capital and O&M expense to be incurred in 2025.

ANSWER:

As part of its application, the Company requested that the Company be provided the flexibility to immediately begin implementation of all or portions of the Company's System Resiliency Plan (SRP). Depending on when the Company's SRP is approved by the Commission, there is a possibility that some Resiliency Measures could be implemented in 2025, as labor and material allow.

SPONSOR:
Nathan Brownell

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-09

QUESTION:

Referring to the SRP at page 51, is CenterPoint seeking approval to spend more money than what is shown in Figure APP-1 on page 2 of the Application to accomplish the scope of the measures listed in Figure APP-1? If yes, please state the amount of additional spend. If no, please elaborate as to what "additional" means in this context.

ANSWER:

No, the comment on page 51 of the SRP is simply stating that some resiliency measures may require investment beyond 2028. For example, the Substation Flood Control resiliency measure proposes to elevate 12 substations during the 2026 - 2028 time period. There will likely need to be additional substations elevated beyond 2028, however the costs proposed in the SRP are only for those 12 substations. Therefore, as stated on SRP page 51, there may be additional capital costs and additional incremental O&M expenses beyond the three-year period. Commission approval for such capital costs and incremental O&M beyond 2028 could be sought in future SRP filings.

SPONSOR:
Nathan Brownell

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-10

QUESTION:

Referring to the Transmission System Hardening Resiliency Measure in the SRP at pages 88-92:

a. State the quantity of 138 kV wooden structures being replaced.

b. State the quantity of 345 kV wooden structures being replaced.

c. Confirm that zero 69 kV wooden structures are proposed for replacement under this measure.

d. Confirm that CenterPoint will have zero remaining 138 kV and 345 kV wooden structures if this measure is executed.

e. State the current total quantity of legacy transmission steel towers in service, by vintage and by voltage.

f. State the quantity of legacy transmission steel towers that have been replaced in the past 10 years due to a resiliency event, by year, by vintage, by voltage, and by resiliency event.

g. State the quantity of legacy transmission steel towers that have been replaced in the past 10 years for reasons other than a resiliency event, by year, by vintage, and by voltage.

h. State the criteria used to define a transmission steel tower as "legacy."

i. Describe how CenterPoint determined to replace the 242 structures that are in this SRP out of the total quantity that meet its legacy criteria.

j. Describe and provide an illustration or photograph that depicts a double circuit 345 kV tangent structure that is also considered a legacy transmission steel tower.

k. Describe in more detail what "additional necessary structures" includes and excludes.

l. State the costs to replace wooden structures and to replace legacy transmission steel structures. If this does not equal the total cost listed, explain the remaining cost as well.

m. State the cost to replace "additional necessary structures."

n. What is CenterPoint's historical failure rate for non-wood transmission structures exposed to wind speeds which exceeded the Company's at-the-time design criteria?

o. What failure rate, or failure rate improvement, did CenterPoint assume for its new transmission structures in this SRP?

p. Please discuss the alternatives that were considered for the legacy transmission steel towers.

q. When did CenterPoint transition from an asset centric program-based approach?

r. Is the transition away from an asset centric program-based approach

ANSWER:

a. Approximately 651 structures.

b. 2 structures.

c. Confirmed.

d. CenterPoint Energy will have 0 energized wood structures on our transmission system if this measure is executed. There will be remaining wood structures on de-energized lines, however, these lines would likely be rebuilt with concrete or steel structures in the event they need to be energized in any permanent configuration.

e. There are currently 1267 total "Legacy Transmission Structures" identified in this resiliency measure (Internal Drawing Number 194-120-01) in service. All 1267 structures are on 345kV transmission circuits.

   Breakdown by Vintage

   1967 – 71
   1969 – 610
   1970 – 6
   1972 – 2
   1973 – 1
   1975 – 110
   1976 – 223
   1977 – 131
   1980 – 3
   1984 – 2
   1988 – 1
   1990 – 1
   1991 – 2
   1993 – 1
   1995 – 1
   1996 – 2
   1997 – 1
   1998 – 1
   1999 – 1
   2000 – 2
   2001 – 58
   2003 – 1
   2004 – 2
   2005 – 23
   2009 – 5
   2012 – 1
   2015 – 5

   Please note that while the vast majority of "legacy transmission steel towers" indicated for replacement in this SRP filing were installed in 1969, 8 of the 242 have previously been replaced.

   Breakdown of 242 legacy transmission structures to be replaced in this SRP filing by Vintage:

   1969 - 234
   1991 – 1 (Due to road relocation conflict)
   1996 – 2 (Due to railroad conflict)
   2009 – 5 (Due to thermal uprate project involving additional clearance requirements)

f. 17 legacy transmission steel towers were replaced due to damage sustained during the Derecho event in May 2024.

   Breakdown by Year, Vintage, and Voltage is below:

Replacement	Year	Vintage	Voltage
1	2024	1975	345
2	2024	1975	345
3	2024	1975	345
4	2024	1975	345
5	2024	2005	345
6	2024	1967	345
7	2024	2005	345
8	2024	1967	345
9	2024	2005	345
10	2024	1967	345
11	2024	2005	345
12	2024	1967	345
13	2024	2005	345
14	2024	1967	345
15	2024	1967	345
16	2024	1967	345
17	2024	1975	345

g. 5 total legacy steel towers were replaced in the past 10 years.

   a. 2016 – 1 Due to Highway Relocation Project.
   b. 2018 – 1 Due to new customer sub that required raising existing 345kV Circuit.
   c. 2022 – 1 Due to Relocation necessary for River Erosion.
   d. 2024 – 2 Due to clearance conflicts identified under NESC review.

h. “Legacy Transmission Steel Towers” identified in this resiliency measure have a specific Internal Drawing Number (194-120-01). These towers were modeled utilizing PLS-CADD line design software using 2023 NESC wind loading criteria (which was the current standard at the time of modeling) after the company experienced failures during the May 2024 Derecho event.

i. CenterPoint Energy made the decision to replace 242 of 1,267 “legacy transmission structures” in this SRP filing. The structures included in the filing were prioritized based on their proximity to the Gulf Coast and the expectation that additional transmission ROW would not be required. It was not feasible to replace all 1,267 legacy transmission towers in the timeline included in the

SRP filing (2026-2028). CenterPoint Energy intends to continue execution of this program in future resiliency plan filings.

j. Responsive Document "TIEC 1-10 j. Legacy Transmission Structure Image.docx" shows a legacy Double Circuit 345kV Tangent Steel Lattice Tower. The tower is 115' tall with a 27' base extension bringing the total height to 142'. This structure is one of the 242 being replaced in this SRP installed in 1969.

k. Included in "additional necessary structures" are required structure replacements to complete the scope of work on the identified projects. When replacing a transmission line structure(s), the new structure(s) must be designed to handle the necessary structural loads while maintaining the overall integrity of the line. However, if the new structure has significantly different mechanical properties, such as height, it can alter the structural load distribution along the line. This change can introduce higher forces or unbalanced tensions on adjacent structures, potentially requiring structure replacement. Detailed engineering design will determine the need to replace "additional necessary structures".

l. The total estimated project costs included in the Transmission System Hardening resiliency measure are approximately $1,468.0M.

   The estimates for the projects to replace legacy transmission steel structures total approximately $464.0M.

   The Transmission System Hardening resiliency measure includes approximately $585.6M in estimated project costs to replace wood transmission structures

   The Transmission System Hardening resiliency measure also includes approximately $418.4M in estimated costs associated with hardening projects to rebuild existing transmission infrastructure.

m. The costs included in the System Resiliency Plan filing do not distinguish between costs for individual structures, but rather, total project estimates. Based on preliminary engineering analysis, 30 additional structures have been identified outside of the 242 legacy structures identified for the projects referenced here.

n. CenterPoint Energy does not have the data to calculate the historical failure rate as requested.

   CenterPoint Energy Houston Electric has experienced approximately 83 wood transmission structure failures and approximately 28 non-wood transmission structure failures due to resiliency events dating back to Hurricane Ike in September of 2008.

o. CenterPoint Energy does not have the data to calculate the expected failure rate improvement. CenterPoint Energy has experienced no failures on transmission structures hardened in the last 10 years. For additional information regarding CenterPoint Energy hardening activities, see the storm hardening reports submitted by the Company in Project Nos. 38068 and 39339.

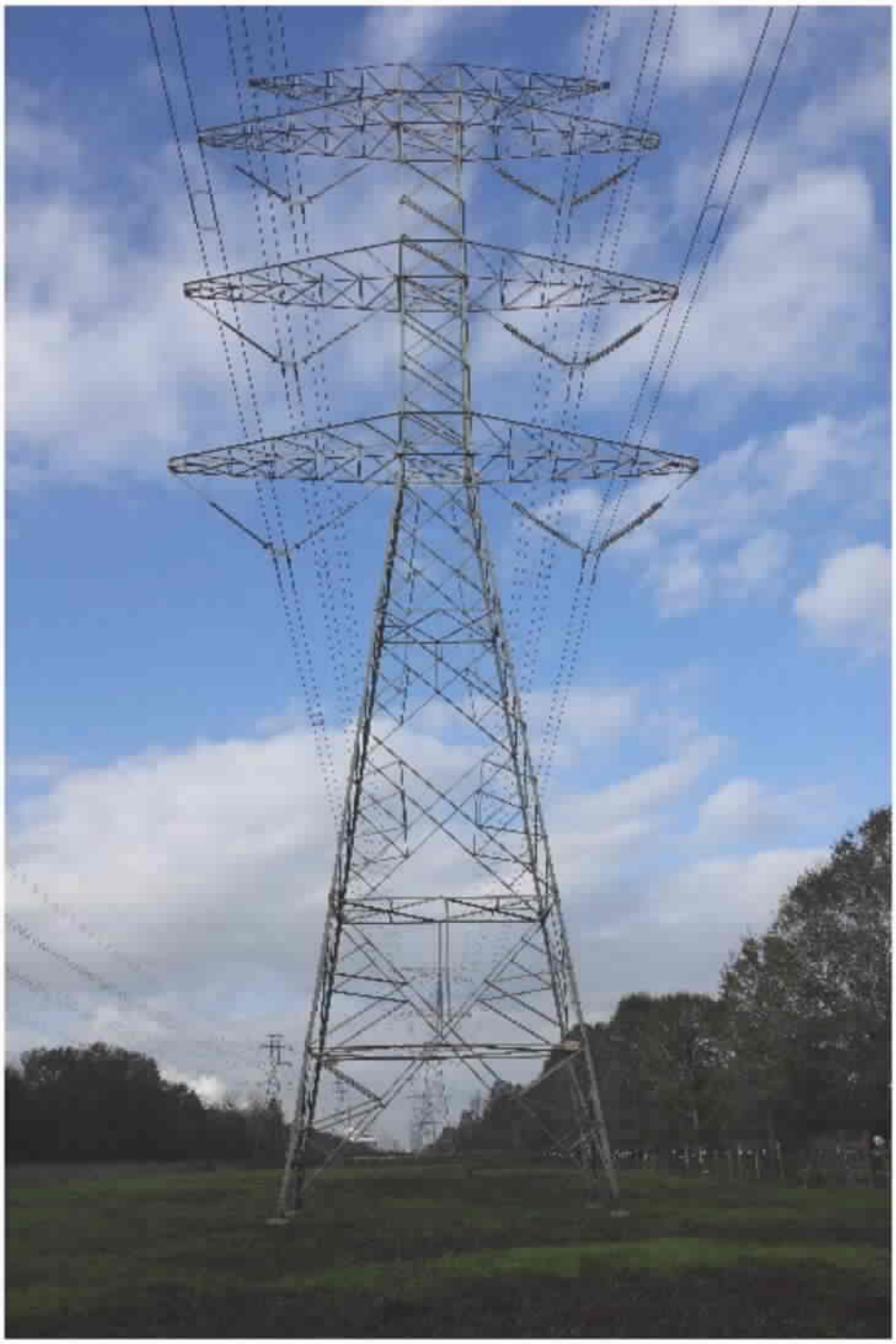
p. An alternative to replacing legacy transmission steel towers considered by CenterPoint Energy was to relocate the transmission circuits in question underground. This option was rejected as cost-prohibitive.

q. The transition from an asset centric program to project-based approach for use in developing its current System Resiliency Plan was adopted by CenterPoint Houston after the Company's System Resiliency Plan in Docket 56548 was filed in April 2024.

r. This transition is limited to resiliency plans.

SPONSOR:
David Mercado

RESPONSIVE DOCUMENTS:
TIEC-RFI1-10 j. Legacy Transmission Structure Image.pdf



CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-11

QUESTION:

Referring to the 69kV Conversion Projects Resiliency Measure in the SRP at pages 92-95:

a. State the approximate circuit miles proposed for conversion.

b. Are new 138 kV transformers required? If yes, state the quantity.

c. State which of the proposed conversions are on circuits with NERC violations to be resolved.

d. State the NERC requirements that require CenterPoint to have "greater switching options."

e. Do the conversions allow CenterPoint to meet minimum NERC requirements, or do these options go above and beyond NERC requirements?

f. State CenterPoint's total quantity of 69 kV wooden structures.

g. State the quantity of 69 kV wooden structures that will be replaced with this measure.

h. Is the high loading on existing 138 kV circuits a NERC violation?

i. State the method in 16 TAC § 25.62 under which this measure is being implemented.

j. Was hardening the 69 kV system in its current ROW considered as an alternative? If no, please explain why it was not considered. If yes, provide the cost to harden the circuits proposed for conversion in the SRP.

ANSWER:

a. Approximately 100 circuit miles of existing 69kV will be converted to 138kv or de-energized. Approximately 55 circuits miles will be converted to 138kV and approximately 45 circuit miles will be de-energized.

b. Yes, Qty. (14) 138kV Transformers are expected to be required.

c. CenterPoint Energy recently completed the 2024 Annual Transmission Planning Assessment as required by TPL-001-5.1. The results show two concerns (one thermal loading issues on 69 kV HOC – Garden ckt 19 and low voltages at Dunlavy and Hyde Park 69 kV buses) during NERC P6 analysis. These are not to be considered violations because NERC P6 allows for consequential load loss which is the corrective action plan for these NERC P6 concerns. No other NERC Planning Events resulted in any of the 69 kV circuits to be converted to require a corrective action plan. The planned conversions will resolve the NERC P6 concerns identified in the 2024 Annual Transmission Planning Assessment.

d. There are no NERC requirements that require CenterPoint Energy to have "greater switching options". The NERC TPL-001-5.1 standard requires transmission planners to develop corrective action plans for planning events where analysis indicates a potential inability of the transmission system to meet the performance requirements for the study base cases. The greater switching options comment is related to creating greater operational flexibility. Planning analyses are limited to limited operational scenarios; therefore, situations arise during real time operations where switching of loads from one distribution substation to another distribution substation could be limited by the limited available capacity on the 69 kV system serving those distribution

substations. After converting those distribution substations currently served by the 69 kV system to 138 kV, there should be significantly more transmission capacity to allow load switching.

e. CenterPoint Energy will design the future system to meet NERC Reliability Standards, ERCOT Planning Criteria contained in ERCOT Planning Guide Section 4, and CenterPoint Energy Transmission Planning criteria. Several of the ERCOT Planning Criteria do 'raise the bar' in comparison to the NERC Reliability Standards. See Planning Guide Section 4 Table 1 ERCOT-specific Reliability Performance Criteria.

f. Approximately 176 Structures.

g. Approximately 176 Structures will be replaced or removed from the transmission system.

h. CenterPoint Energy recently completed the 2024 Annual Transmission Planning Assessment as required by TPL-001-5.1. The results show thermal loading concerns on multiple 138 kV underground cables around the Downtown Houston area for multiple planning events. The corrective action plans for these loading concerns involve generation redispatch; therefore, it is not a NERC violation. The planned conversions in the Downtown Houston area are being designed to create two new west to east 138 kV paths that will ultimately resolve these power flow concerns in the Downtown Houston area.

i. This measure is being implemented under methods (A) hardening electric transmission and distribution facilities; and (B) modernizing electric transmission and distribution facilities.

j. Hardening of the existing 69kV system was not considered as an alternative. CenterPoint Energy's new transmission design standards are for the 138kV and 345kV voltage levels. Modernizing the 69kV system would require building to current 138kV transmission design specifications.

SPONSOR:
David Mercado

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-12

QUESTION:

Referring to the S90 Tower Replacement Resiliency Measure in the SRP at pages 96-99.

a. State the quantity of S90 towers to be replaced that directly support conductors that cross major highways.

b. What is CenterPoint's historical failure rate for S90 towers exposed to wind speeds which exceeded the Company's at-the-time design criteria?

c. State the quantity of S90 towers that have been replaced in the past 10 years due to a resiliency event, by year, by vintage, by voltage, and by resiliency event.

d. State the quantity of S90 towers that have been replaced in the past 10 years for reasons other than a resiliency event, by year, by vintage, and by voltage.

e. Provide the project number and/or other locations in which the alternative of building new lines to a higher capacity are being discussed by ERCOT and other TSPs.

ANSWER:

a. No S90 towers directly support conductor that crosses a major highway.

b. The only historical failure of an S90 tower occurred in 1969 while stringing conductor on the tower. CenterPoint Energy has not yet experienced a failure on an S90 tower due to a wind event.

c. No S90 towers have been replaced as the results of a resiliency event in the last 10 years.

d. 36 S90 towers have been replaced in the past 10 years, 8 additional S90 towers are expected to be replaced in 2025.

Replacement	Year	Vintage	Voltage
1	2016	1982	345
2	2020	1969	345
3	2021	1981	345
4	2021	1974	345
5	2022	1977	345
6	2022	1982	345
7	2022	1974	345

8	2022	1974	345
9	2022	1974	345
10	2022	1974	345
11	2022	1969	345
12	2022	1969	345
13	2022	1969	138
14	2022	1974	345
15	2022	1974	345
16	2022	1974	345
17	2022	1980	345
18	2022	1980	345
19	2022	1980	345
20	2022	1980	345
21	2022	1969	345
22	2023	1965	138
23	2023	1969	345
24	2023	1969	345
25	2023	1976	345
26	2023	1976	345
27	2023	1976	345
28	2023	1976	345
29	2023	1976	345
30	2023	1980	345
31	2023	1980	345
32	2023	1975	345

33	2023	1975	345
34	2023	1975	345
35	2023	1975	345
36	2024	1976	345
37	Expected 2025	1969	345
38	Expected 2025	1969	345
39	Expected 2025	1975	345
40	Expected 2025	1975	345
41	Expected 2025	1975	345
42	Expected 2025	1975	345
43	Expected 2025	1975	345
44	Expected 2025	1975	345

e.The following language was inadvertently included in the discussion of S90 Tower Replacement alternatives and does not represent a potential alternative solution to the S90 tower replacement resiliency measure: “Another alternative that CenterPoint Houston considered is constructing new transmission lines to operate at the same or higher voltage (along the same or new rights-of-way). These new lines would be built to a higher capacity line rating to meet future load growth. This alternative is being discussed but has not yet been adopted/accepted by ERCOT and other TSPs.”

SPONSOR:
David Mercado

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-13

QUESTION:

Referring the Coastal Resiliency Upgrades Resiliency Measure in the SRP at pages 99-102:

a. State the reason that the 69 kV to 138 kV conversion in this measure was not included in the 69 kV Conversion Projects measure.

b. Are there existing NERC violations to be resolved? If yes, provide the evidence supporting this.

c. Does the measure allow CenterPoint to meet minimum NERC requirements, or does this measure go above and beyond NERC requirements?

d. Provide the cost to execute the following projects in this measure: (1) 69 kV to 138 kV conversion; (2) Installation of new underwater cable; (3) Re-routing of transmission line; and (4) Construction of new transmission circuit. If the total of the projects does not equal the total for this measure, please state the remaining cost and its purpose.

e. Has this project been proposed for ERCOT RTP? If yes, why is this project not moving forward there? If no, please explain the reason it has not been proposed.

f. Referring to Exhibit ELS-2, page 108, this project is described as mitigating low voltages, overloads, and power quality concerns – as such, explain why CenterPoint does not consider this a reliability project.

ANSWER:

a. The referenced circuit was constructed to 69kV design criteria. However, it is currently de-energized. Therefore, it was not included in the 69kV Conversion Projects Resiliency Measure.

b. CenterPoint Energy recently completed the 2024 Annual Transmission Planning Assessment as required by TPL-001-5.1. The results show numerous thermal loading and low voltage concerns during NERC P6 analysis in the Galveston area. These are not to be considered violations because NERC P6 allows for consequential load loss which is the corrective action plan for these NERC P6 concerns.

c. CenterPoint Energy will design the future system to meet NERC Reliability Standards, ERCOT Planning Criteria contained in ERCOT Planning Guide Section 4, and CenterPoint Energy Transmission Planning criteria. Several of the ERCOT Planning Criteria do 'raise the bar' in comparison to the NERC Reliability Standards. See Planning Guide Section 4 Table 1 ERCOT-specific Reliability Performance Criteria.

d.

1. 69kV to 138kV conversion – $144.6M
2. Installation of new underwater cable - $24.5M
3. Re-routing of transmission line; and 4) Construction of new transmission circuit combined $9M in engineering and other preconstruction activities. This does not include construction activities which CenterPoint currently expects to begin in 2029 and be filed in a future resiliency plan.

   Total – $178.1M

e. No, ERCOT did not identify these projects as either a reliability or economic project in the 2024

RTP. ERCOT did not see the need for either project during RTP analysis.

f. The Coastal Resiliency Measure projects mitigate potential low voltage, overload, and power quality concerns in the occurrence of a system outage due to a Resiliency Event. ERCOT did not identify these projects as either a reliability or economic project in the 2024 RTP.

SPONSOR:
David Mercado

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-14

QUESTION:

Referring to the Mobile Substation Resiliency Measure in the SRP at pages 124-126:

a. Provide a table in "live" Excel format that lists all mobile substations in CenterPoint's current inventory, along with the following information: MVA, input and output voltage configuration(s), asset age, and cost functionalization. If any are expected to be retired this year, please identify them.

b. Provide a table in "live" Excel format that lists all mobile substations that are on-order or planned to be ordered in 2025 (excluding this SRP), along with the following information: MVA, input and output voltage configuration(s), and cost functionalization.

c. Provide a table in "live" Excel format that lists the six mobile substations proposed in this SRP, along with the following information: MVA, input and output voltage configuration(s), and cost functionalization.

d. In the past 10 years, state the maximum quantity of mobile substations that were simultaneously actively supplying customers during a resiliency event. How many of the quantity listed were deployed for reasons other than the resiliency event?

e. For subpart (d), provide the date and resiliency event.

f. In the past 10 years, has CenterPoint experienced a resiliency event situation in which all of its mobile substations were deployed and it would have benefitted from additional mobile substations? If yes, please describe the resiliency event and provide relevant information that substantiates that additional mobile substation(s) would have provided incremental benefit.

g. Describe how CenterPoint will distinguish its SRP mobile substations from its current inventory.

h. In determining the type and quantity of mobile substations necessary, did CenterPoint perform any benchmarking with other utilities? If yes, please provide the benchmarking analysis.

ANSWER:

a. The company has 5 Mobile Substations. Please see TIEC RFI01-14a-b Attachment 1.

b. The company has 2 mobile substations on order in 2025. Please see TIEC RFI01-14a-b Attachment 1.

c. Please see attachment TIEC RFI01-14c Attachment 1.

d. In the past ten years, the Company has not deployed more than one mobile substation simultaneously to respond to a resiliency event. The Company has used mobile substations to provide service to customers five times during a resiliency event. (See subpart (e), below.) In one of those five instances, the Sealy microburst in May 2017, the mobile substation was initially deployed not in response to the resiliency event (microburst) but to assist with loading concerns in the area while the Company completed planned work. Similarly, in September 2022, the Company used three mobile substations to provide service to customers while performing scheduled work that was undertaken during an extreme heat event.

e. See resiliency events and dates, below.

- May 23, 2017 -- Sealy microburst
- August 25, 2017 -- Hurricane Harvey made landfall
- September 2022 – Extreme Heat
- August-September 2023 -- Extreme Heat
- June-July of 2024 – Extreme Heat

f. No

g. The Company will clearly identify the mobile substations ordered as part of the SRP with a unique identifier through the existing naming convention process used today.

h. Yes, the Company participates in the TXMAG group in which neighboring utilities in the state of Texas share industry best practices and processes to learn from each other in many different facets of an electric utility, up to and including mobile substation processes.

SPONSOR:
David Mercado

RESPONSIVE DOCUMENTS:
TIEC-RFI01-14a-b Attachment 1
TIEC-RFI01-14c Attachment 1

MOBILE SUBSTATION / TRANSFORMER						
MANUFACTURER	**UNIT #**	**EQUIPMENT TYPE**	**VOLTAGE (kV)**	**MVA**	**NOTES**	**Cost Functionalization**
DELTA STAR - microprocessor relays	7445 / 8448 / 7446	JEEP / TRANSFORMER / DOLLY	141 x 70.5 / 37.5 x 12.5	50MVA	Mobile Sub	100% Distribution
	7443	SWITCH TRAILER	141			
	7441	BREAKER TRAILER	37.5 x 12.5			
	7442	BREAKER TRAILER	37.5 x 12.5			
DELTA STAR	7252 /8251/7253	JEEP / TRANSFORMER / DOLLY	141 x 70.5 / 37.5 x 12.5	50MVA	Mobile Sub	100% Distribution
	7254	SWITCH TRAILER	141			
	7251	BREAKER TRAILER	37.5 x 12.5			
DELTA STAR	7902 / 8901 / 7906	JEEP / TRANSFORMER / DOLLY	141 x 70.5 / 37.5 x 12.5	50MVA	Mobile Sub	100% Distribution
	7932	SWITCH TRAILER	141			
	7908	BREAKER TRAILER	37.5 x 12.5			
PAUWELS	7727 / 7726 / 7725	JEEP / TRANSFORMER / BOOSTER	141 X 36	50MVA	Mobile Sub	100% Distribution
	7728	CIRCUIT SWITCH TRAILER	141			
HK PORTER	8091	CIRCUIT SWITCH / TRANSFORMER	141 x 69 - 35 x 12	25MVA	Mobile Sub	100% Distribution
DELTA STAR - microprocessor relays	TBD	JEEP / TRANSFORMER / DOLLY	141 x 70.5 / 37.5 x 12.5	50MVA	Mobile Sub (On Order for 2025)	100% Distribution
	TBD	SWITCH TRAILER	141			
	TBD	BREAKER TRAILER	37.5 x 12.5			
	TBD	BREAKER TRAILER	37.5 x 12.5			
DELTA STAR - microprocessor relays	TBD	JEEP / TRANSFORMER / DOLLY	141 x 70.5 / 37.5 x 12.5	50MVA	Mobile Sub (On Order for 2025)	100% Distribution
	TBD	SWITCH TRAILER	141			
	TBD	BREAKER TRAILER	37.5 x 12.5			
	TBD	BREAKER TRAILER	37.5 x 12.5			

MOBILE SUBSTATION / TRANSFORMER					
MANUFACTURER	***EQUIPMENT TYPE***	***VOLTAGE (kV)***	***MVA***	***NOTES***	***Cost Functionalization***
TBD - Mobile Substation	JEEP / TRANSFORMER / DOLLY	141 x 70.5 / 37.5 x 12.5	50MVA	Mobile Sub	100% Distribution
	SWITCH TRAILER	141			
	BREAKER TRAILER	37.5 x 12.5			
	BREAKER TRAILER	37.5 x 12.5			
TBD - Mobile Substation	JEEP / TRANSFORMER / DOLLY	141 x 70.5 / 37.5 x 12.5	50MVA	Mobile Sub	100% Distribution
	SWITCH TRAILER	141			
	BREAKER TRAILER	37.5 x 12.5			
	BREAKER TRAILER	37.5 x 12.5			
TBD - Mobile Substation	JEEP / TRANSFORMER / DOLLY	141 x 70.5 / 37.5 x 12.5	50MVA	Mobile Sub	100% Distribution
	SWITCH TRAILER	141			
	BREAKER TRAILER	37.5 x 12.5			
	BREAKER TRAILER	37.5 x 12.5			
TBD - Mobile Substation	JEEP / TRANSFORMER / DOLLY	141 x 70.5 / 37.5 x 12.5	50MVA	Mobile Sub	100% Distribution
	SWITCH TRAILER	141			
	BREAKER TRAILER	37.5 x 12.5			
	BREAKER TRAILER	37.5 x 12.5			
TBD - Mobile Substation	JEEP / TRANSFORMER / DOLLY	141 x 70.5 / 37.5 x 12.5	50MVA	Mobile Sub	100% Distribution
	SWITCH TRAILER	141			
	BREAKER TRAILER	37.5 x 12.5			
	BREAKER TRAILER	37.5 x 12.5			
TBD - Mobile Substation	JEEP / TRANSFORMER / DOLLY	141 x 70.5 / 37.5 x 12.5	50MVA	Mobile Sub	100% Distribution
	SWITCH TRAILER	141			
	BREAKER TRAILER	37.5 x 12.5			
	BREAKER TRAILER	37.5 x 12.5			

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-15

QUESTION:

Referring to the Digital Substation Measure in the SRP at pages 168-171:

a. Does CenterPoint have any fully deployed digital substations? If yes, list each substation and the year of completion. If no, state the reason.

b. If the answer to subpart (a) is yes, did CenterPoint rely upon its existing digital substations in determining the resiliency benefits?

c. If the answer to subpart (a) is no, how did CenterPoint determine the resiliency benefits upon which it relied?

ANSWER:

a. Yes. CenterPoint Houston has three (3) digitized substations whose digitalization was completed in 2020, 2022, and 2024, respectively.

b. Yes, a review of the installation was performed which showed resiliency improvements that included reduced outage times and included an EMP hardened and modular solution (able to move from an existing installed substation to a more critical/damaged substation if the need arises in less time than a normal rebuild) and alternate sensitive settings that can also be leveraged within high fire risk areas.

c. Please see subpart (b).

SPONSOR:
David Mercado

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-16

QUESTION:

Referring to the Wildfire Strategic Undergrounding Measure in the SRP at 174-177:

a. State the quantity of circuits, circuit miles of transmission line, and the voltages that would be converted to underground.

b. Estimate the functionalized cost of this measure.

c. Reconcile the benefit of undergrounding transmission lines in this measure with the statement in the Transmission Hardening, 69kV Conversion, and other transmission measures that undergrounding is "cost prohibitive" at "5 to 10 times more costly than overhead lines" at a cost of "$20 million per mile."

d. Describe the alternatives considered for this measure.

ANSWER:

a. CEHE has not identified any transmission lines that would be undergrounded as part of the Wildfire Strategic Undergrounding RM-23. There are five distribution circuits that were identified for RM-23. A total of approximately 8.4 miles of distribution would be converted to underground. Four circuits are 34.5kV and one is 12.47kV.

b. Transmission $0 – Distribution $50M

c. CEHE has not identified any transmission lines that would be undergrounded as part of the Wildfire Strategic Undergrounding RM-23.

d. The Company has identified and is proposing four extreme temperature (drought) wildfire Resiliency Measures—each a recognized best practice within the utility industry—as measures most likely to be useful in mitigating the risk of wildfires in the Company's service area and areas outside its service area in which it operates facilities. The Company will consider how all or some of the measures can work in combination to address most appropriately the specific service area risk confronting the Company. For description of alternatives considered related to mitigating wildfire risk to transmission lines see RM-22 and RM-24 in the SRP.

SPONSOR:
Eric Easton and David Mercado

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-17

QUESTION:

Referring to the Wildfire Vegetation Management Measure in the SRP at 177-179:

a. State the quantity of circuits, circuit miles of transmission line, and voltages that would receive vegetation management for wildfire risk.

b. Estimate the functionalized cost of this measure.

c. Describe how fire-retardant material is considered vegetation management.

d. Describe what it means for fire-retardant material to be "placed near" transmission tower structures and how that addresses wildfire risk.

e. Describe how this measure is distinguished from normal vegetation management.

f. Describe the alternatives considered for this measure.

g. Do the transmission lines that CenterPoint proposes in this measure currently meet NERC requirements for vegetation management?

h. How did CenterPoint decide which circuits to place in the Wildfire Strategic Underground Measure and which circuits to place in the Wildfire Vegetation Management Measure?

ANSWER:

a. The reference on page 177 of the SRP in the description of the Wildfire Vegetation Management Resiliency Measure (RM-24), to placing fire retardant material near transmission tower structures was inadvertent and incorrect. The Company's focus for this Resiliency Measure is the distribution system. We currently have the high fire risk areas (HFRAs) identified within our HFRA map (see Figure EE-13 within Eric Easton's Testimony) and have identified the number of distribution circuit miles associated with type of land use in the HFRA for distribution circuits (totaling approximately 550 miles). The voltage classes associated within the distribution system are 12.47 kV and 34.5 kV.

b. The functionalized cost of this Resiliency Measure is $30M Distribution and $0 Transmission.

c. See the response to subpart (a), above. Fire retardant material is not currently used within the distribution system.

d. See the response to subpart (a), above. Though not included in RM-24, fire retardant material (powder) is spread near transmission towers within the HFRA to slow the rate of a fire that could be created by an ignition source on the transmission line.

e. This measure is distinguished from normal vegetation management due to its timeframe for activation (wildfire risk "season" which is becoming a higher risk in Texas as seen by the Smokehouse Creek fires as well as the most recent wildfire in Brazoria County), its more extensive trim procedure (cut further from distribution wire to mitigate risk of ignition from distribution line sparks), and the specific targeted regions where the trim takes place (within the HFRA regions).

f. Please see the Wildfire Vegetation Management Resiliency Measure Alternatives Considered

section on page 178 of the SRP.

g. See the response to subpart (a), above. The Company's transmissions lines currently meet NERC requirements for vegetation management, but this measure focuses only on the distribution system which is not required to comply with NERC standards.

h. The Company's model evaluates all circuits within the HFRA to determine the circuit sections that would receive benefit from undergrounding (often circuit sections in difficult to access ROW areas with ignition fuels identified). Those with the highest benefit are strategically undergrounded to reduce wildfire risk. The remainder of circuits within the HFRA are then candidates for wildfire vegetation management.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-18

QUESTION:

Referring to Appendix A, page 28, please provide a copy of the referenced PUC report or the location one can be obtained.

ANSWER:

Please see the Final Report ("Investigation of Emergency Preparedness and Response by Utilities in Houston and Surrounding Communities") filed on November 21, 2024 in PUCT Docket 56822, specifically page 46 (recommendations 6-8) and page 54 (recommendation 10).
https://interchange.puc.texas.gov/Documents/56822_198_1444252.PDF

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-19

QUESTION:

Referring to Appendix A, Figure AA-40, please elaborate on the benefit of LIDAR in analyzing for tree fall risk. For example, is the analysis done automatically or with AI? Does it enable remote identification compared to field surveys? How is the LIDAR data gathered?

ANSWER:

LiDAR (Light Detection and Ranging) is a highly accurate method of digitizing 3D objects. LiDAR data for the entire CenterPoint Energy Houston service territory is captured annually using a fixed wing aircraft with LiDAR sensors. The LiDAR data is used to create a virtual representation of the physical transmission and distribution system and its dynamic interactions with external factors. Applying clearance rules to the LiDAR scan, an AI tool reveals with great accuracy all vegetation encroachments and tree fall-in zones system-wide to help prioritize the areas with the highest risks. Using the tool to remotely identify tree encroachment and fall-in risks is much more efficient and less time consuming than sending crews to conduct field inspections. Additionally, the tool can be used to run scenarios with different wind direction and speeds to determine if a tree could damage lines if it were to fall a certain direction.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-20

QUESTION:

Referring to Appendix B, page 13, does the reference to "Distribution Circuit Rebuilds" that includes transmission structures refer to a Resiliency Measure in the SRP? If yes, please elaborate on the measure being referenced and clarify if the measure being referenced includes transmission structure spend.

ANSWER:

Yes, Distribution Circuit Rebuilds is a typo and should read Distribution Circuit Resiliency (RM-1). This measure does not include transmission spend. The sentence in Appendix B, page 13 simply demonstrates the risk for both transmission and distribution structures near banks along waterways. The Distribution Circuit Resiliency measure only addresses distribution related risks.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-21

QUESTION:

Referring to page 21, line 15, through page 22, line 2:

a. Can a capital project provide benefits for more than one type of purpose? If anything other than yes, please explain in detail.

b. Can a capital project have more than one purpose? If anything other than yes, please explain in detail.

c. List all the purposes that the CenterPoint capital accounting system provides when categorizing capital projects, among which resiliency event mitigation would be one of the purposes.

d. In assigning a purpose to a capital project, does CenterPoint have formalized definitions and a process? If yes, please provide this standard or manual that contains this information, along with descriptions of where to look for this information. If no, please describe the informal process that CenterPoint uses to assign a purpose to a capital project.

e. Does the CenterPoint capital accounting system allow a capital project to be categorized under more than one purpose as listed in subpart (c)? If yes, please describe how cost is assigned to purposes in this case.

f. Describe how CenterPoint determined that the purpose of the Resiliency Measures in this SRP was to mitigate resiliency events.

g. Do the BCA calculations for any Resiliency Measure include more than a de minimis and/or ancillary amount of monetized non-resiliency benefit? If yes, state the percentage of non-resiliency benefit for each Resiliency Measure for which Guidehouse determined a BCA and provide supporting workpapers showing how the percentages were calculated.

ANSWER:

a. Yes.

b. Yes.

c. Categorization of capital projects is based on FERC accounts. Please see the response to HCC RFI 02-10 for a description of how capital costs are allocated between transmission and distribution. Categorization by resiliency event mitigation is not an accounting process. The Company categorized types of work by resiliency event mitigation specifically for presentation purposes in the SRP.

d. For presentation in the SRP, capital projects were grouped together based on the type of resiliency event the investment will mitigate most. As noted in Figuree SRP-17, resiliency measures have the potential to mitigate more that one risk.

e. Please see the response to Part C.

f. The Company determined the purpose of the resiliency measures in the SRP is to mitigate resiliency events based on Substantive Rule 25.62, specifically the definition of resiliency event in Section (b)(3) and the purpose of a resiliency plan outlined in Section (c).

g. As stated in Exhibit ELS-2, Section 5.1.3.1, Guidehouse calculated BCA values based on quantative resiliency benefits. Additional societal, environmental and other non-utility impacts were addressed qualitatively.

SPONSOR:
Nathan Brownell

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-22

QUESTION:

Referring to page 31, lines 11-14:

a. List the Resiliency Measures referenced.

b. For each Resiliency Measure in subpart (a), list the cost, quantity, and voltage of wooden transmission structures being replaced, the total cost of which should equal $1.468 billion.

ANSWER:

a. This is in reference to the Transmission System Hardening Resiliency Measure.

b. See TIEC 1-10 l. for breakdown of costs within the Transmission System Hardening Resiliency Measure.

SPONSOR:
Nathan Brownell

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-23

QUESTION:

Referring to page 32, lines 2-4, please identify the responses in CenterPoint's first SRP that are being referenced here.

ANSWER:

The responses referred to by Mr. Brownell in his direct testimony at page 32, lines 2-4, were not formal written responses or testimony, but were instead oral responses conveyed to CenterPoint Houston personnel during informal discussions with parties.

SPONSOR:
Nathan Brownell

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-24

QUESTION:

Referring to page 35, lines 10-18:

a. State the specific feedback that CenterPoint received from customers, communities, local officials, or state officials that was considered in CenterPoint's proposed transmission-related projects. Please provide detailed references and documentation and identify the specific Resiliency Measures.

b. State the specific references in the Commission's report on Hurricane Beryl that were considered in CenterPoint's proposed transmission-related projects. Please provide detailed references and documentation and identify the specific Resiliency Measures.

c. State the specific recommendations in PA Consulting's Hurricane Beryl after-action report that were considered in CenterPoint's proposed transmission-related projects. Please provide detailed references and documentation and identify the specific Resiliency Measures.

ANSWER:

a. Please see response to HCC RFP01-11.

b. In the Commission's report on Hurricane Beryl, recommendation #6 in the physical infrastructure sub-section, identified as "Utilities should assess poles constructed under prior NESC standards for replacement with poles that meet current extreme wind and ice design standards" was a consideration in two transmission-related Resiliency Measures: Transmission System Hardening and S90 Tower Replacements. Please refer to Exhibit NB-5.

c. The specific recommendations in PA Consulting's Hurricane Beryl after-action report were not considered in The Company's proposed transmission-related projects in the transmission-related Resiliency Measures. Please refer to Exhibit NB-4.

SPONSOR:
Nathan Brownell

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-25

QUESTION:

Referring to page 1:

a. Provide a table in "live" Excel format that states the change in frequency and magnitude of extreme weather events, by type, and by year, from now and extending out to cover the time horizon used to calculate the benefits used to quantify the benefits in the BCA.

b. For each Resiliency Measure, provide the BCA results if extreme weather events did not increase in frequency and magnitude, but instead were held flat to current levels.

ANSWER:

a. The benefits for resiliency measures that Guidehouse quantified via BCA ratios were derived using extreme weather values for 2030. Please see attached TIEC RFI 01-25 Attachment 1.xls that Guidehouse used to derive wind speed, flood inundation, and temperature thresholds for year 2030.

b. Guidehouse did not derive BCA ratios with extreme weather events held at current levels.

SPONSOR:
Eugene Shlatz

RESPONSIVE DOCUMENTS:
TIEC-RFI01-25 Attachment 1.xls

name	scenario	year	statistic	HT_daysEx	HT_daysEx	HT_daysEx	HT_cooling	HT_daysHi	HT_daysDa	HT_waveN	HT_waveN	HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe
Austin Cou	baseline	1995	mean	48.01124	10.65652	3.65	1840.82	99.1964	14.44135	6.765506	0.490674	20.69101	37.79326	11.17753	12.95843	16.48764	20.43034	24.3764	27.45281
Austin Cou	ssp126	2020	mean	70.32933	21.68506	5.794944	2124.584	124.5364	43.0109	23.22483	2.149551	21.80562	38.69438	12.46067	13.93933	17.62584	21.49438	25.80787	28.59438
Austin Cou	ssp126	2025	mean	73.91371	23.78596	5.906854	2153.056	126.5137	45.78315	24.01315	2.907079	21.94719	39.03483	12.61236	14.47416	17.90337	21.62921	25.86629	28.8764
Austin Cou	ssp126	2030	mean	76.51034	25.39697	6.154944	2202.978	130.8345	52.80663	23.85809	3.007978	22.24607	39.11798	12.92921	14.51348	18.31798	22.15281	26.25618	29.12135
Austin Cou	ssp126	2035	mean	78.56022	26.62708	6.449888	2242.573	134.569	58.56483	24.97787	3.129438	22.39438	39.19888	13.19326	14.53596	18.16292	22.09775	26.22697	29.07753
Austin Cou	ssp126	2040	mean	80.50596	27.80135	6.72236	2271.843	137.4881	63.86528	26.23944	3.452022	22.50449	39.31798	13.42022	14.69326	18.47416	22.21236	26.3236	29.23708
Austin Cou	ssp126	2045	mean	82.47236	29.1164	6.967528	2296.955	139.3789	67.77775	28.35798	4.010674	22.55506	39.38202	13.38764	15.00562	18.34157	22.24382	26.39101	29.39663
Austin Cou	ssp126	2050	mean	84.13315	30.27034	7.103708	2315.978	139.9329	68.78674	29.70674	5.327865	22.44831	39.42921	13.28202	14.86292	18.06629	22.35056	26.57303	29.55281
Austin Cou	ssp245	2020	mean	69.83753	21.40944	5.814719	2107.011	126.5944	45.02551	18.94011	2.543708	21.96067	38.75506	12.73146	14.21124	17.85506	21.6427	25.73933	28.6
Austin Cou	ssp245	2025	mean	73.20404	23.32011	5.916067	2133.831	128.3594	48.11292	23.26034	2.669213	22.12697	38.8236	13.13371	14.36292	17.98989	21.90112	26.08427	28.91461
Austin Cou	ssp245	2030	mean	75.94191	24.96404	6.320674	2190.73	131.8656	54.05955	27.60258	3.457865	22.22022	38.95618	13.01236	14.79551	18.22247	21.9236	26.10337	28.99551
Austin Cou	ssp245	2035	mean	79.04236	26.8773	6.733146	2248.09	135.3178	59.79067	29.6018	4.117528	22.32809	39.19551	13.25056	14.69551	18.27191	22.22697	26.45955	29.25618
Austin Cou	ssp245	2040	mean	82.45348	29.1427	7.347079	2297.348	138.6204	66.78719	30.77315	4.022584	22.47753	39.51011	13.33708	14.7618	18.33708	22.17079	26.52697	29.34944
Austin Cou	ssp245	2045	mean	85.46202	31.15888	7.88191	2335.135	141.7035	74.02348	35.06045	5.905056	22.69438	39.64494	13.22135	14.81236	18.56742	22.45281	26.60674	29.54382
Austin Cou	ssp245	2050	mean	88.63034	33.35663	8.276517	2371.034	144.6201	79.5727	38.85034	7.671461	22.80225	39.79775	13.52247	15.08876	18.50562	22.4573	26.68427	29.50449
Austin Cou	ssp585	2020	mean	70.65697	21.81	5.923708	2137.067	123.7779	43.98034	18.00775	1.601461	21.90225	38.6809	12.76292	14.54382	17.87303	21.78427	26.0618	28.92921
Austin Cou	ssp585	2025	mean	74.52876	24.05213	6.095281	2164.528	125.344	46.85472	21.22685	1.911461	22.19663	38.70225	12.85393	14.72022	18.15955	21.85393	26.11685	28.95169
Austin Cou	ssp585	2030	mean	78.2291	26.33045	6.450225	2222.292	129.4231	53.65506	26.11843	2.751124	22.45618	39.01798	12.9236	14.59551	18.31236	22.13371	26.2382	28.99775
Austin Cou	ssp585	2035	mean	82.47921	29.16124	6.810337	2279.034	133.5799	61.02281	31.42472	3.633371	22.47528	39.23596	13.2618	14.89326	18.4382	22.2382	26.40337	29.1618
Austin Cou	ssp585	2040	mean	87.09146	32.47562	7.488989	2348.18	138.9511	69.8791	35.07955	4.445843	22.69888	39.60562	13.44607	14.8	18.42472	22.52584	26.68315	29.49438
Austin Cou	ssp585	2045	mean	92.11506	36.17157	8.449438	2428.539	144.7416	79.44236	39.15854	6.247191	22.9427	39.89438	13.68539	15.22809	18.62472	22.74382	26.69663	29.55169
Austin Cou	ssp585	2050	mean	97.62225	40.36933	9.444045	2515.022	150.6758	89.72124	43.32202	9.723258	23.34382	39.9382	13.65056	15.47303	19.04831	23.03933	27.21236	29.80225
Brazoria Cc	baseline	1995	mean	21.47872	2.090372	3.65	1848.011	104.9945	16.5791	0.7275	0.548298	21.16117	35.44309	12.57234	14.17234	17.24096	20.88298	24.58989	27.36223
Brazoria Cc	ssp126	2020	mean	36.61484	5.283245	5.587234	2106.229	128.5231	44.51229	4.430479	2.628936	22.2383	36.17021	13.84681	15.03191	18.36011	21.85851	25.79894	28.43298
Brazoria Cc	ssp126	2025	mean	39.55426	5.98883	5.692606	2132.186	130.249	47.58223	5.180319	3.978511	22.40479	36.46436	13.94415	15.50904	18.5883	22.0617	25.95585	28.51596
Brazoria Cc	ssp126	2030	mean	41.72048	6.594574	5.962074	2178.84	134.1295	54.73883	5.297553	4.36234	22.64362	36.61968	14.34255	15.75904	19.02979	22.50053	26.29521	28.85266
Brazoria Cc	ssp126	2035	mean	43.37734	7.065532	6.227872	2217.628	137.5268	60.83457	5.928511	4.966649	22.75426	36.65213	14.53723	15.72713	18.89574	22.47234	26.22128	28.86915
Brazoria Cc	ssp126	2040	mean	45.03181	7.481755	6.533138	2247.649	140.3648	66.45739	6.782181	5.79734	22.90426	36.83032	14.78457	15.7367	19.17819	22.5984	26.42394	29.02021
Brazoria Cc	ssp126	2045	mean	46.85803	7.928989	6.769043	2271.691	142.2298	70.03883	7.146383	6.369574	22.88245	36.86649	14.7016	15.97553	19.05638	22.63191	26.44947	29.13404
Brazoria Cc	ssp126	2050	mean	48.37197	8.360851	6.865904	2288.053	142.9305	70.86207	8.297926	8.394149	22.91436	36.81436	14.66383	15.94043	18.92181	22.79574	26.58617	29.23351
Brazoria Cc	ssp245	2020	mean	36.29064	5.093191	5.519787	2093.191	129.4724	46.23207	3.964309	3.247606	22.52553	36.2016	14.10691	15.36968	18.56277	22.09681	25.86755	28.44149
Brazoria Cc	ssp245	2025	mean	38.94787	5.737553	5.720691	2120.218	131.0653	49.45	4.975266	3.770053	22.57872	36.38617	14.37713	15.44947	18.72713	22.21915	26.1734	28.6516
Brazoria Cc	ssp245	2030	mean	41.18585	6.348936	6.207713	2175.777	134.4036	56.03106	6.038032	4.905798	22.62819	36.48085	14.41755	15.66223	18.90479	22.35266	26.16649	28.83457
Brazoria Cc	ssp245	2035	mean	43.75835	7.07016	6.68617	2230.106	137.8756	62.44181	7.292872	6.655266	22.73404	36.67819	14.52819	15.74947	19.05851	22.54255	26.4367	29.02713
Brazoria Cc	ssp245	2040	mean	46.83995	7.861915	7.300426	2274.718	141.1056	69.41059	8.072181	6.989415	22.83457	36.90213	14.65638	15.68085	19.01117	22.50904	26.56489	29.16383
Brazoria Cc	ssp245	2045	mean	49.49686	8.666968	7.786489	2308.819	144.0533	75.76532	10.51766	9.484947	23.0617	37.09468	14.65745	15.96596	19.3484	22.7484	26.57926	29.19202
Brazoria Cc	ssp245	2050	mean	52.36261	9.583936	8.056809	2342.122	146.8032	80.23973	13.15803	13.46686	23.19202	37.12553	14.78777	16.08138	19.23032	22.88245	26.72181	29.30798
Brazoria Cc	ssp585	2020	mean	36.78032	5.31883	5.679628	2118.952	127.7541	45.28335	3.284681	2.435266	22.34894	36.1484	14.20532	15.59894	18.56862	22.20106	26.13404	28.66862
Brazoria Cc	ssp585	2025	mean	39.89	6.071064	5.887979	2146.372	129.3976	48.76702	4.230426	3.383351	22.63191	36.19043	14.26383	15.72128	18.75638	22.33936	26.12606	28.75957
Brazoria Cc	ssp585	2030	mean	43.00527	6.916489	6.277553	2202.713	133.338	56.18574	5.992926	5.210053	22.88032	36.45745	14.30798	15.67447	18.93564	22.43457	26.28245	28.79468
Brazoria Cc	ssp585	2035	mean	46.78729	7.984734	6.72633	2258.117	137.4177	64.08096	8.011064	7.073191	22.89149	36.74096	14.55904	15.86649	19.0117	22.60106	26.44415	29.0133
Brazoria Cc	ssp585	2040	mean	51.10665	9.280957	7.347128	2322.191	142.4589	72.6242	9.998032	8.442287	23.05798	37.03138	14.72979	15.85372	19.15479	22.87766	26.66968	29.35106
Brazoria Cc	ssp585	2045	mean	55.92053	10.80596	8.185372	2394.33	147.9337	81.53617	12.29915	11.12457	23.31383	37.26223	14.92074	16.17128	19.33883	22.95372	26.71862	29.36702
Brazoria Cc	ssp585	2050	mean	61.29064	12.64851	9.095479	2471.707	153.5458	91.12638	15.54989	16.6084	23.61968	37.34628	14.87979	16.39734	19.64043	23.33777	27.24043	29.64894
Chambers	baseline	1995	mean	17.82789	1.886711	3.65	1755.316	97.04184	14.94776	0.465132	0.584737	20.77105	35.71974	11.88026	13.43026	16.69605	20.51184	24.46974	27.14474
Chambers	ssp126	2020	mean	32.14145	4.955789	5.697237	2016.171	121.9989	41.30855	2.792895	2.333026	21.85395	36.53684	13.12105	14.42763	17.86184	21.56316	25.70395	28.36184

name	scenario	year	statistic	HT_daysEx	HT_daysEx	HT_daysEx	HT_cooling	HT_daysHi	HT_daysDa	HT_waveM	HT_waveM	HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe
Chambers	ssp126	2025	mean	34.80171	5.586053	5.819342	2042.539	123.8451	44.25868	3.329474	3.445395	22.02368	36.84079	13.31579	14.82368	18.09868	21.81711	25.75658	28.35658
Chambers	ssp126	2030	mean	36.81211	6.1275	6.112632	2089.342	127.6522	50.65921	3.474211	3.550132	22.275	36.96053	13.62105	15.02895	18.48684	22.18553	26.11974	28.79474
Chambers	ssp126	2035	mean	38.33895	6.553289	6.375263	2127.579	130.8236	55.76566	3.914605	3.960132	22.43421	37.04474	13.85263	15.00921	18.43947	22.13684	26.06184	28.74211
Chambers	ssp126	2040	mean	39.83592	6.928816	6.654211	2157.184	133.4293	60.38224	4.293947	4.4925	22.56053	37.19868	14.10921	15.07763	18.68421	22.26184	26.22632	28.975
Chambers	ssp126	2045	mean	41.51342	7.326447	6.854737	2180.987	135.2604	63.655	4.618158	4.829605	22.55	37.21842	13.99342	15.26579	18.55921	22.27368	26.27368	29.05526
Chambers	ssp126	2050	mean	42.93079	7.721842	6.942763	2197.987	136.185	64.78039	5.825526	6.582105	22.59342	37.17105	13.98026	15.25395	18.43289	22.44605	26.41579	29.11711
Chambers	ssp245	2020	mean	31.79632	4.783553	5.636842	2000.447	122.6718	41.80908	2.710658	2.888421	22.12105	36.52105	13.34079	14.76053	18.10921	21.78684	25.76842	28.24605
Chambers	ssp245	2025	mean	34.23092	5.363684	5.844474	2027.566	124.1086	44.37776	3.331711	3.311053	22.18026	36.64737	13.64605	14.83026	18.24342	21.89474	26.04474	28.59211
Chambers	ssp245	2030	mean	36.29474	5.908026	6.440789	2085.039	127.3479	49.97105	4.100789	3.768553	22.25	36.82763	13.69342	15.00263	18.45789	22.04474	25.94737	28.71579
Chambers	ssp245	2035	mean	38.70263	6.569211	7.017763	2140.553	130.5013	55.50895	4.797895	4.811447	22.38026	37.05658	13.91579	15.07105	18.57763	22.26053	26.27237	28.94737
Chambers	ssp245	2040	mean	41.56105	7.303684	7.683026	2185.382	133.7158	61.76776	5.337632	5.144211	22.49474	37.35789	13.83158	15.01447	18.51579	22.11053	26.48158	29.07368
Chambers	ssp245	2045	mean	43.98395	8.021579	8.143816	2218.632	136.8066	67.80526	6.968684	6.749342	22.74868	37.51974	13.82632	15.25789	18.82368	22.43684	26.45921	29.09605
Chambers	ssp245	2050	mean	46.56539	8.842237	8.493421	2251.579	139.5268	72.43592	8.748289	9.835263	22.86974	37.54605	14.09737	15.48947	18.70921	22.56053	26.60658	29.18816
Chambers	ssp585	2020	mean	32.33171	4.994211	5.781842	2028.776	121.3253	42.15921	2.138684	2.019868	21.99474	36.47763	13.53026	14.90658	18.04868	21.88289	25.95789	28.61974
Chambers	ssp585	2025	mean	35.17658	5.677895	6.006184	2055.763	122.9713	45.39395	2.696579	2.696447	22.30132	36.49342	13.51053	15.06842	18.28158	22.01974	25.89737	28.58684
Chambers	ssp585	2030	mean	38.02026	6.437105	6.461184	2111.132	126.7676	52.08697	3.971053	4.004079	22.53684	36.85395	13.56711	14.98026	18.45526	22.09737	26.15395	28.74868
Chambers	ssp585	2035	mean	41.52053	7.401316	6.906447	2165.197	130.6007	59.10618	5.099342	5.089211	22.51579	37.12895	13.83553	15.21579	18.50132	22.26842	26.32368	28.93026
Chambers	ssp585	2040	mean	45.53816	8.582237	7.551711	2228.605	135.5472	67.13882	6.626842	6.003684	22.75395	37.45658	14.02105	15.18421	18.68553	22.53816	26.43289	29.21711
Chambers	ssp585	2045	mean	50.01026	9.990526	8.414737	2301.553	141.0412	75.89539	8.249474	8.163684	22.97105	37.73684	14.16447	15.53947	18.89605	22.60263	26.61579	29.26316
Chambers	ssp585	2050	mean	54.97671	11.66934	9.365789	2379.882	146.5868	85.29987	10.7325	12.25211	23.25789	37.75921	14.24211	15.76316	19.13158	22.99211	27.11316	29.61184
Colorado C	baseline	1995	mean	49.78211	11.26955	3.65	1885.947	101.2895	14.75917	7.597293	0.470677	20.89624	37.86391	11.45489	13.27444	16.76241	20.71203	24.57293	27.54887
Colorado C	ssp126	2020	mean	71.53511	22.29286	5.719323	2164.97	126.4144	43.66436	25.19917	2.077744	21.99023	38.68947	12.69098	14.24211	17.91278	21.74135	25.94286	28.63383
Colorado C	ssp126	2025	mean	75.12301	24.40714	5.832932	2192.82	128.3939	46.63331	26.39105	2.787143	22.16241	39.03609	12.92331	14.75338	18.13835	21.87444	26.02556	28.93609
Colorado C	ssp126	2030	mean	77.72639	26.02481	6.08	2242.068	132.7506	53.97	26.03316	2.758045	22.43008	39.13308	13.26692	14.83083	18.59173	22.40752	26.39098	29.16992
Colorado C	ssp126	2035	mean	79.78962	27.2615	6.371053	2281.436	136.5292	60.07075	26.52962	2.968571	22.61504	39.16917	13.50075	14.85564	18.43158	22.38722	26.36541	29.15338
Colorado C	ssp126	2040	mean	81.7488	28.44218	6.625414	2310.361	139.5058	65.47211	28.49526	3.510827	22.67744	39.33158	13.69774	15.00075	18.76541	22.49774	26.48797	29.33233
Colorado C	ssp126	2045	mean	83.72429	29.75789	6.850451	2335.045	141.4062	69.27812	30.86647	4.273985	22.7203	39.40301	13.68947	15.3391	18.57444	22.51805	26.50677	29.44662
Colorado C	ssp126	2050	mean	85.39353	30.91113	6.949398	2353.639	141.9448	70.0306	31.7891	5.496316	22.62782	39.43759	13.57669	15.13609	18.32632	22.62331	26.7015	29.6188
Colorado C	ssp245	2020	mean	71.03789	22.01504	5.717218	2149.556	128.6223	46.07541	20.26684	2.56203	22.15263	38.77895	13.03459	14.49474	18.14662	21.88421	25.90075	28.68496
Colorado C	ssp245	2025	mean	74.41075	23.93895	5.837594	2176.195	130.3653	49.45278	24.90008	2.688571	22.3203	38.87068	13.43083	14.65714	18.25789	22.18045	26.23083	28.97143
Colorado C	ssp245	2030	mean	77.15789	25.5906	6.228872	2232.571	133.8946	55.81053	29.5097	3.501504	22.40451	38.93383	13.25338	15.13759	18.45714	22.20376	26.2782	29.10602
Colorado C	ssp245	2035	mean	80.27639	27.51323	6.620602	2289.444	137.3964	61.78271	31.90406	4.227293	22.4985	39.22406	13.54737	15.01805	18.55113	22.47368	26.58647	29.33684
Colorado C	ssp245	2040	mean	83.70602	29.77729	7.208421	2338.541	140.7295	68.78083	32.52917	4.057444	22.6782	39.48271	13.64211	15.04586	18.58722	22.46316	26.66165	29.41128
Colorado C	ssp245	2045	mean	86.72571	31.80556	7.733835	2376.338	143.7941	75.86135	36.81722	5.95812	22.8812	39.61429	13.51955	15.08722	18.8188	22.73083	26.77895	29.6218
Colorado C	ssp245	2050	mean	89.90301	34.02571	8.105338	2412.323	146.7256	81.25098	41.14256	7.951278	22.98271	39.78647	13.76316	15.43308	18.74662	22.78421	26.81955	29.56992
Colorado C	ssp585	2020	mean	71.86835	22.41669	5.892857	2178.887	125.6235	44.6818	19.8382	1.53609	22.09323	38.7218	13.04887	14.85639	18.1406	22.03985	26.19474	28.96617
Colorado C	ssp585	2025	mean	75.75083	24.67211	6.057744	2206.346	127.2076	47.71805	23.30338	1.868421	22.40376	38.75714	13.21128	15.01353	18.41504	22.13008	26.26391	28.97669
Colorado C	ssp585	2030	mean	79.46579	26.96526	6.400075	2264.06	131.3333	54.81744	27.82857	2.559323	22.65789	39.05639	13.23158	14.89173	18.56917	22.38346	26.38947	29.08346
Colorado C	ssp585	2035	mean	83.72947	29.80474	6.769173	2320.992	135.6102	62.43669	33.48038	3.449023	22.62857	39.24361	13.62857	15.16541	18.66767	22.50902	26.54211	29.23233
Colorado C	ssp585	2040	mean	88.35414	33.11729	7.437744	2389.88	141.0528	71.30977	37.21677	4.476992	22.89699	39.58346	13.75865	15.0812	18.69323	22.79774	26.79248	29.56917
Colorado C	ssp585	2045	mean	93.40504	36.81045	8.375263	2469.895	146.9099	80.82	41.36316	6.322105	23.11805	39.83233	13.98947	15.48571	18.89774	22.9797	26.82481	29.61128
Colorado C	ssp585	2050	mean	98.94827	41.00857	9.325714	2555.962	152.8585	91.06263	45.60158	9.937068	23.49774	39.88421	13.96466	15.7782	19.31729	23.28872	27.33158	29.87669
Fort Bend (	baseline	1995	mean	38.42802	6.266033	3.65	1855.843	105.0678	17.65223	2.856116	0.410248	20.9405	36.92397	11.84959	13.66694	16.99587	20.76281	24.59835	27.44132
Fort Bend (	ssp126	2020	mean	59.0514	13.86463	5.653223	2127.041	128.9663	47.60628	13.17769	2.073223	22.03636	37.74793	13.18182	14.56198	18.11405	21.76198	25.89835	28.54959
Fort Bend (	ssp126	2025	mean	62.61793	15.41364	5.76405	2154.24	130.7946	50.61438	14.30446	2.909339	22.19339	38.06529	13.28347	15.12893	18.35537	21.96942	25.97769	28.69587
Fort Bend (	ssp126	2030	mean	65.21231	16.63752	6.021736	2202.438	134.865	57.82298	14.28793	2.995124	22.45207	38.19587	13.66033	15.21157	18.79504	22.4438	26.3876	29.02231

name	scenario	year	statistic	HT_daysEx	HT_daysEx	HT_daysEx	HT_cooling	HT_daysHi	HT_daysDa	HT_waveN	HT_waveN	HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe
Fort Bend	ssp126	2035	mean	67.25298	17.5557	6.300744	2241.95	138.4071	63.80496	15.58198	2.980331	22.57355	38.24132	13.92066	15.2314	18.63388	22.3843	26.32314	29.03967
Fort Bend	ssp126	2040	mean	69.20793	18.42388	6.585537	2271.843	141.2778	69.32595	17.34223	3.238264	22.70413	38.40579	14.13388	15.27025	18.92149	22.51736	26.46694	29.14132
Fort Bend	ssp126	2045	mean	71.21537	19.43058	6.82719	2296.62	143.1389	73.05355	18.19612	3.755785	22.69835	38.48264	14.05702	15.58926	18.80331	22.57603	26.47851	29.2405
Fort Bend	ssp126	2050	mean	72.91785	20.32397	6.952562	2313.901	143.7379	73.93223	19.53636	5.273719	22.70331	38.44132	14.01074	15.47603	18.57521	22.6843	26.66281	29.40413
Fort Bend	ssp245	2020	mean	58.5919	13.62058	5.660744	2111.983	130.3498	49.39612	11.07694	2.426281	22.29339	37.79835	13.47025	14.8562	18.30496	21.99339	25.91736	28.56198
Fort Bend	ssp245	2025	mean	61.92331	15.00388	5.808678	2138.917	132.0331	52.58554	14.02876	2.415702	22.35289	37.94215	13.7562	14.9562	18.47934	22.19504	26.20992	28.7876
Fort Bend	ssp245	2030	mean	64.63926	16.23975	6.259917	2195.405	135.4392	58.9405	16.83074	3.227769	22.44628	38.01157	13.7438	15.27851	18.66446	22.26694	26.22066	28.95207
Fort Bend	ssp245	2035	mean	67.75182	17.6719	6.707934	2250.909	138.8745	65.0976	18.78645	4.06314	22.54628	38.24876	13.93306	15.30248	18.7876	22.47851	26.5405	29.16942
Fort Bend	ssp245	2040	mean	71.23868	19.39273	7.317851	2297.744	142.1217	72.0643	20.45107	4.129669	22.63388	38.51901	14.05868	15.25124	18.81074	22.43636	26.64628	29.30083
Fort Bend	ssp245	2045	mean	74.29983	20.95777	7.811074	2332.785	145.1138	78.66463	24.47579	6.028264	22.86364	38.71901	13.97355	15.46364	19.10165	22.69669	26.65289	29.40413
Fort Bend	ssp245	2050	mean	77.5586	22.6819	8.139587	2367.058	147.9285	83.51149	28.36446	8.396364	22.98099	38.78595	14.20744	15.58099	18.9595	22.7876	26.77273	29.43223
Fort Bend	ssp585	2020	mean	59.36372	13.92182	5.787107	2139.545	128.1233	48.45306	9.627686	1.513967	22.11405	37.73223	13.52314	15.16116	18.3314	22.11901	26.19835	28.82231
Fort Bend	ssp585	2025	mean	63.21529	15.54504	5.977107	2166.893	129.7028	51.68223	11.84587	1.951653	22.4281	37.72479	13.59587	15.33223	18.52231	22.24132	26.21322	28.88843
Fort Bend	ssp585	2030	mean	66.92562	17.26727	6.342066	2223.669	133.695	58.86934	15.73107	2.826942	22.67438	38.01157	13.65785	15.24298	18.76281	22.39752	26.34298	28.93058
Fort Bend	ssp585	2035	mean	71.24876	19.45529	6.732314	2279.702	137.7992	66.55331	20.3057	3.879504	22.69752	38.28926	13.91818	15.42066	18.83967	22.54132	26.51074	29.08843
Fort Bend	ssp585	2040	mean	75.99207	22.0895	7.360661	2345.868	143.0094	75.22372	24.50298	4.968595	22.88099	38.63802	14.09669	15.42231	18.95372	22.79504	26.77603	29.45537
Fort Bend	ssp585	2045	mean	81.18331	25.06628	8.24157	2422.132	148.5964	84.27587	28.85512	6.639752	23.14545	38.8843	14.3124	15.74215	19.09669	22.94876	26.77934	29.50661
Fort Bend	ssp585	2050	mean	86.89628	28.48802	9.17157	2503.512	154.3602	93.92	32.75727	10.43777	23.5562	38.98099	14.24876	15.99587	19.46364	23.29835	27.32727	29.74793
Galveston	baseline	1995	mean	11.3242	0.759	3.65	1770.08	94.4968	12.1584	0.325	0.643	21.086	34.192	12.476	13.884	16.94	20.636	24.428	27.186
Galveston	ssp126	2020	mean	22.3354	2.3202	5.7222	2026.4	120.0832	34.7832	2.0026	2.9572	22.152	34.97	13.74	14.816	18.07	21.65	25.638	28.328
Galveston	ssp126	2025	mean	24.5794	2.6704	5.8474	2052.28	121.8598	37.6044	2.396	4.289	22.334	35.238	13.892	15.224	18.362	21.88	25.796	28.342
Galveston	ssp126	2030	mean	26.2894	3.0034	6.1488	2097.92	125.761	43.963	2.4564	4.534	22.56	35.402	14.25	15.472	18.748	22.284	26.104	28.73
Galveston	ssp126	2035	mean	27.568	3.2792	6.4206	2136.3	129.0984	49.3766	2.6864	5.1102	22.706	35.448	14.446	15.426	18.652	22.238	26.044	28.674
Galveston	ssp126	2040	mean	28.8416	3.4982	6.7226	2165.9	131.9214	54.336	3.05	5.944	22.832	35.608	14.738	15.484	18.898	22.368	26.214	28.942
Galveston	ssp126	2045	mean	30.3456	3.6876	6.9608	2190.14	133.8078	57.7042	3.1932	6.58	22.826	35.626	14.596	15.702	18.766	22.38	26.26	28.982
Galveston	ssp126	2050	mean	31.606	3.9154	7.0678	2206.46	134.6428	58.7392	4.0404	8.73	22.882	35.592	14.57	15.662	18.716	22.556	26.382	29.092
Galveston	ssp245	2020	mean	22.0588	2.1718	5.6452	2012.44	120.8478	35.9708	1.9558	3.5368	22.442	34.946	13.978	15.136	18.328	21.874	25.716	28.258
Galveston	ssp245	2025	mean	24.0486	2.516	5.8608	2039.28	122.4184	38.6456	2.3756	4.2174	22.492	35.128	14.218	15.212	18.476	21.936	26.004	28.536
Galveston	ssp245	2030	mean	25.7964	2.8506	6.4176	2095.16	125.7946	44.2672	2.7918	5.0342	22.548	35.28	14.296	15.378	18.658	22.148	25.92	28.714
Galveston	ssp245	2035	mean	27.8074	3.2758	6.9466	2149.16	129.1588	49.9228	3.3406	6.7492	22.676	35.468	14.442	15.488	18.82	22.288	26.242	28.902
Galveston	ssp245	2040	mean	30.324	3.6706	7.5942	2193.1	132.438	56.35	3.7594	7.2192	22.754	35.71	14.468	15.426	18.754	22.244	26.4	29.076
Galveston	ssp245	2045	mean	32.457	4.126	8.0872	2226.08	135.5412	62.5912	4.9904	9.2632	23.004	35.916	14.484	15.728	19.06	22.478	26.424	29.036
Galveston	ssp245	2050	mean	34.749	4.676	8.427	2258.8	138.2732	67.318	6.301	13.1802	23.114	35.91	14.638	15.88	18.936	22.668	26.566	29.176
Galveston	ssp585	2020	mean	22.4158	2.362	5.7864	2038.52	119.5194	35.7434	1.514	2.628	22.288	34.922	14.12	15.332	18.31	21.98	25.93	28.574
Galveston	ssp585	2025	mean	24.757	2.7678	6.005	2065.46	121.2296	38.915	1.8788	3.6722	22.572	34.94	14.16	15.402	18.49	22.128	25.894	28.55
Galveston	ssp585	2030	mean	27.1922	3.2292	6.4586	2120.7	125.2102	45.6442	2.741	5.64	22.808	35.236	14.184	15.42	18.658	22.196	26.104	28.68
Galveston	ssp585	2035	mean	30.2776	3.7998	6.9354	2175.16	129.2366	52.992	3.6016	7.1838	22.79	35.53	14.44	15.606	18.708	22.34	26.262	28.898
Galveston	ssp585	2040	mean	33.9428	4.4758	7.6024	2238.22	134.3042	61.3104	4.5144	8.0636	23.02	35.84	14.638	15.6	18.9	22.642	26.446	29.166
Galveston	ssp585	2045	mean	38.0816	5.289	8.4838	2309.9	139.8442	70.3148	5.5376	10.6472	23.24	36.102	14.754	15.932	19.106	22.692	26.546	29.214
Galveston	ssp585	2050	mean	42.7456	6.3066	9.4568	2386.32	145.467	80.2422	7.4898	15.939	23.498	36.166	14.806	16.176	19.338	23.054	27.052	29.564
Harris Cou	baseline	1995	mean	35.08042	5.784576	3.65	1780.966	101.5778	17.1278	1.760381	0.454322	20.59449	36.87076	11.42966	13.21271	16.59407	20.43475	24.32797	27.17458
Harris Cou	ssp126	2020	mean	55.44771	13.21038	5.790847	2055.559	125.8801	46.94873	9.539958	2.144364	21.71568	37.77797	12.77754	14.15975	17.73814	21.47119	25.68686	28.36356
Harris Cou	ssp126	2025	mean	58.86415	14.67877	5.907542	2083.229	127.7565	49.81873	10.38733	2.973178	21.86949	38.09153	12.88517	14.74661	17.97203	21.68729	25.71992	28.47839
Harris Cou	ssp126	2030	mean	61.35839	15.84581	6.18089	2132.157	131.8067	56.64919	10.60886	3.163898	22.15127	38.22246	13.20975	14.78051	18.38475	22.13263	26.12585	28.84025
Harris Cou	ssp126	2035	mean	63.30136	16.72784	6.471653	2172.068	135.2516	62.16674	11.73169	3.227161	22.27754	38.30042	13.49449	14.81144	18.2911	22.05169	26.08051	28.85339
Harris Cou	ssp126	2040	mean	65.16127	17.55936	6.769831	2202.432	138.0065	67.38928	12.8036	3.454746	22.41017	38.425	13.72119	14.87246	18.60381	22.19703	26.19025	28.92669

name	scenario	year	statistic	HT_daysEx	HT_daysEx	HT_daysEx	HT_cooling	HT_daysHi	HT_daysDa	HT_waveN	HT_waveN	HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe
Harris Cou	ssp126	2045	mean	67.09695	18.51352	7.020678	2227.623	139.8324	71.11089	13.45386	3.685805	22.4089	38.47585	13.6339	15.13602	18.45593	22.22627	26.26059	29.06398
Harris Cou	ssp126	2050	mean	68.73657	19.36907	7.172331	2245.47	140.493	72.12644	15.14843	5.131737	22.39703	38.47627	13.58263	15.09619	18.23347	22.3572	26.41229	29.19237
Harris Cou	ssp245	2020	mean	55.00729	12.96949	5.824025	2039.089	127.1371	48.12331	7.926144	2.525127	21.96229	37.80678	13.01229	14.49576	17.92585	21.7089	25.67288	28.29407
Harris Cou	ssp245	2025	mean	58.19208	14.29153	5.97072	2065.61	128.7682	50.96576	10.46288	2.559746	22.04788	37.89534	13.33602	14.59619	18.11568	21.86398	25.97119	28.60466
Harris Cou	ssp245	2030	mean	60.7939	15.47059	6.48572	2122.788	132.1123	56.80648	12.73432	3.046822	22.14534	38.05678	13.33602	14.88136	18.34915	21.94449	25.92797	28.74958
Harris Cou	ssp245	2035	mean	63.76826	16.85233	6.984237	2178.907	135.3937	62.60233	14.52144	3.788008	22.23305	38.25508	13.53475	14.86483	18.40508	22.18008	26.27797	28.9661
Harris Cou	ssp245	2040	mean	67.11919	18.50441	7.64161	2226.487	138.6009	69.41229	15.94585	3.899364	22.32288	38.59195	13.60127	14.86737	18.41822	22.07797	26.40975	29.10085
Harris Cou	ssp245	2045	mean	70.05716	19.98797	8.130847	2261.614	141.6479	76.01619	19.44411	5.515975	22.60254	38.77161	13.49788	15.06102	18.71949	22.375	26.43051	29.2161
Harris Cou	ssp245	2050	mean	73.17847	21.61835	8.514703	2295.983	144.4746	80.97534	22.54712	7.835847	22.71271	38.82542	13.81653	15.23051	18.61356	22.48347	26.56907	29.2322
Harris Cou	ssp585	2020	mean	55.73877	13.27928	5.912203	2067.716	125.0191	47.80377	6.824153	1.686144	21.81144	37.72924	13.10508	14.7178	17.95424	21.78644	25.95593	28.63432
Harris Cou	ssp585	2025	mean	59.41665	14.83398	6.116822	2094.996	126.5918	50.83881	8.472839	2.09072	22.11398	37.69322	13.12246	14.9661	18.19619	21.90678	25.9411	28.67797
Harris Cou	ssp585	2030	mean	62.96606	16.47309	6.520975	2151.322	130.5186	57.64572	12.0864	2.873983	22.37161	38.01822	13.21356	14.79915	18.37585	22.06525	26.11822	28.75508
Harris Cou	ssp585	2035	mean	67.13119	18.55466	6.922203	2206.919	134.4707	64.87898	15.67669	3.818941	22.425	38.30085	13.44788	15.01314	18.47712	22.20212	26.2589	28.89788
Harris Cou	ssp585	2040	mean	71.7272	21.06072	7.594915	2273.403	139.6391	73.35873	19.21411	4.730381	22.58856	38.71017	13.66737	15.03517	18.5678	22.49322	26.48771	29.26059
Harris Cou	ssp585	2045	mean	76.74394	23.90559	8.526102	2350.733	145.2267	82.31886	22.75203	6.44072	22.85424	39.01059	13.87458	15.37966	18.75975	22.62034	26.54153	29.3072
Harris Cou	ssp585	2050	mean	82.26237	27.16928	9.52339	2433.085	151.014	91.83669	26.88699	9.845042	23.19831	39.06102	13.87373	15.59619	19.0911	22.99534	27.12203	29.57627
Liberty Cou	baseline	1995	mean	30.72593	5.05497	3.65	1712.317	98.38126	17.31503	1.051617	0.541257	20.23293	36.86647	11.0479	12.81677	16.26647	20.16228	24.13533	26.87665
Liberty Cou	ssp126	2020	mean	50.04287	11.75216	5.803174	1984.108	122.946	46.56222	6.88006	2.207844	21.36108	37.82216	12.40419	13.87066	17.42575	21.23713	25.52934	28.16168
Liberty Cou	ssp126	2025	mean	53.2297	13.02228	5.933293	2011.97	124.8543	49.37988	7.72515	3.030838	21.50958	38.11976	12.53413	14.37725	17.65629	21.49281	25.48922	28.18263
Liberty Cou	ssp126	2030	mean	55.57299	14.03054	6.21515	2061.096	128.7528	55.72323	8.233713	3.218503	21.80898	38.2006	12.81198	14.42934	18.08204	21.90898	25.93952	28.64132
Liberty Cou	ssp126	2035	mean	57.3806	14.80222	6.494491	2100.874	132.031	60.69365	9.151317	3.633114	21.94072	38.3509	13.13772	14.47066	18.00838	21.79521	25.8994	28.62275
Liberty Cou	ssp126	2040	mean	59.11635	15.5318	6.783293	2130.976	134.629	65.39593	9.606527	3.924192	22.1018	38.45749	13.34311	14.50778	18.30539	21.94551	25.97365	28.71018
Liberty Cou	ssp126	2045	mean	60.95671	16.36132	6.995629	2155.838	136.4542	68.92012	10.54539	3.805389	22.09401	38.48683	13.23114	14.76766	18.14132	21.93353	26.09102	28.87665
Liberty Cou	ssp126	2050	mean	62.51204	17.10701	7.11988	2173.659	137.291	70.05647	12.54629	5.107066	22.07665	38.49281	13.21497	14.78383	17.90719	22.12754	26.22455	28.93234
Liberty Cou	ssp245	2020	mean	49.62964	11.54102	5.782695	1967.263	123.9113	47.07581	5.411437	2.607545	21.63234	37.78683	12.60838	14.22874	17.61617	21.47545	25.50898	27.99341
Liberty Cou	ssp245	2025	mean	52.60192	12.68581	5.946108	1994.299	125.4223	49.61671	7.74521	2.774611	21.71377	37.87425	12.97425	14.3006	17.80778	21.61257	25.82814	28.42814
Liberty Cou	ssp245	2030	mean	55.0412	13.71042	6.537066	2053.222	128.6761	55.09497	9.923952	3.143413	21.80359	38.0479	12.97784	14.52335	18.08982	21.69162	25.72096	28.49162
Liberty Cou	ssp245	2035	mean	57.82832	14.91581	7.142216	2110.952	131.8328	60.61329	11.43144	3.864431	21.8479	38.29341	13.18802	14.53533	18.08024	21.9521	26.06228	28.7497
Liberty Cou	ssp245	2040	mean	60.99677	16.36018	7.867425	2159.371	135.085	67.05419	12.3709	3.985868	22.02874	38.68084	13.15749	14.50898	18.1006	21.79281	26.20539	28.8503
Liberty Cou	ssp245	2045	mean	63.76126	17.65928	8.359641	2195.018	138.2178	73.32168	15.6909	5.425868	22.31317	38.81796	13.06347	14.69341	18.37186	22.1491	26.2521	28.97186
Liberty Cou	ssp245	2050	mean	66.68826	19.08413	8.742275	2229.653	141.0119	78.06641	18.74479	7.851497	22.42156	38.88383	13.44192	14.91437	18.31976	22.22934	26.43054	29.00599
Liberty Cou	ssp585	2020	mean	50.31497	11.81269	5.948263	1998.808	122.1581	47.26102	4.962455	1.828204	21.51497	37.74671	12.76946	14.37605	17.64012	21.52096	25.7479	28.38323
Liberty Cou	ssp585	2025	mean	53.7412	13.1621	6.172156	2025.862	123.7159	50.31701	6.297066	2.076766	21.80299	37.69641	12.72994	14.61557	17.92814	21.67305	25.72216	28.39581
Liberty Cou	ssp585	2030	mean	57.05557	14.58749	6.640299	2082.102	127.4895	56.86551	9.678683	2.889521	22.02695	38.10778	12.81437	14.41018	18.05749	21.78084	25.9521	28.56108
Liberty Cou	ssp585	2035	mean	60.98491	16.39772	7.067246	2137.425	131.286	63.69491	12.51198	3.713713	22.08503	38.36467	13.00419	14.67365	18.16407	21.95269	26.11976	28.70898
Liberty Cou	ssp585	2040	mean	65.36216	18.58754	7.765389	2204.186	136.3443	71.74862	15.12623	4.874491	22.25449	38.77665	13.28263	14.67605	18.23772	22.22275	26.2503	29.0521
Liberty Cou	ssp585	2045	mean	70.14719	21.10419	8.710539	2282.108	141.9072	80.42018	18.60581	7.036287	22.52216	39.11916	13.46886	15.04731	18.47605	22.3503	26.41916	29.06886
Liberty Cou	ssp585	2050	mean	75.42653	24.00796	9.714551	2364.659	147.5554	89.58305	23.23144	10.17754	22.81677	39.1	13.54311	15.25749	18.77485	22.71856	26.94371	29.37605
Matagorda	baseline	1995	mean	21.27152	1.860265	3.65	1905.801	104.517	13.45503	0.775166	0.681126	21.47285	35.32318	13.00596	14.52517	17.56093	21.18079	24.83245	27.53907
Matagorda	ssp126	2020	mean	36.43192	4.68596	5.503642	2162.934	128.8745	39.91709	4.461987	3.303377	22.5404	35.95828	14.28212	15.45828	18.6543	22.14437	25.98477	28.55232
Matagorda	ssp126	2025	mean	39.47523	5.343775	5.631523	2188.967	130.6645	43.20695	5.162119	4.772384	22.70199	36.24503	14.46026	15.86291	18.88278	22.30397	26.24106	28.68344
Matagorda	ssp126	2030	mean	41.70689	5.921523	5.911921	2235.974	134.7295	50.81219	5.376026	5.320795	22.94371	36.37881	14.84967	16.16225	19.30927	22.76689	26.51457	28.98013
Matagorda	ssp126	2035	mean	43.43305	6.370795	6.200464	2275.298	138.3205	57.41219	5.962583	6.110199	23.06159	36.4245	15.01854	16.13974	19.23907	22.7702	26.41589	29.00464
Matagorda	ssp126	2040	mean	45.17205	6.761987	6.477748	2305.404	141.323	63.29046	6.800464	7.22053	23.17351	36.59868	15.20464	16.16291	19.52119	22.89669	26.63907	29.14106
Matagorda	ssp126	2045	mean	47.07086	7.183907	6.691523	2328.907	143.2537	66.8549	7.298874	8.29649	23.18278	36.64636	15.1702	16.42848	19.34305	22.95298	26.67947	29.3
Matagorda	ssp126	2050	mean	48.63728	7.599868	6.748079	2344.675	143.8646	67.28603	8.218212	10.1557	23.19735	36.6053	15.12715	16.36291	19.1894	23.11126	26.80331	29.34106

name	scenario	year	statistic	HT_daysEx	HT_daysEx	HT_daysEx	HT_cooling	HT_daysHi	HT_daysDa	HT_waveM	HT_waveM	HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe
Matagorda	ssp245	2020	mean	36.11113	4.500662	5.532517	2151.974	130.2235	42.2253	3.990066	3.894106	22.79073	36.0457	14.57152	15.73377	18.85629	22.36159	26.08411	28.61854
Matagorda	ssp245	2025	mean	38.86245	5.100331	5.747815	2178.603	131.9034	45.87728	5.047219	4.643907	22.88146	36.20397	14.89536	15.86093	19.05099	22.55828	26.41523	28.80662
Matagorda	ssp245	2030	mean	41.18139	5.680464	6.217086	2233.417	135.3884	52.99225	6.082384	6.093841	22.90795	36.26954	14.87682	16.08742	19.14768	22.6596	26.43046	28.97881
Matagorda	ssp245	2035	mean	43.83689	6.371854	6.681391	2287.94	138.989	59.76391	7.245828	8.021126	23.02914	36.47815	15.02715	16.23245	19.40132	22.80861	26.67947	29.19868
Matagorda	ssp245	2040	mean	47.0053	7.129536	7.29702	2333.775	142.2585	67.02795	7.852053	8.318742	23.15629	36.68079	15.14503	16.08874	19.27682	22.86225	26.79007	29.26623
Matagorda	ssp245	2045	mean	49.79464	7.90245	7.811523	2369.815	145.2226	73.65841	10.06298	11.61967	23.35695	36.82649	15.14437	16.40331	19.63709	23.07417	26.79603	29.34172
Matagorda	ssp245	2050	mean	52.82351	8.788477	8.083642	2404.033	148.0076	78.29656	12.90311	16.12007	23.46755	36.91987	15.21722	16.51126	19.57483	23.18344	26.91325	29.46556
Matagorda	ssp585	2020	mean	36.59404	4.723179	5.744768	2176.848	128.1215	40.51954	3.467815	3.260861	22.63046	35.99404	14.59934	16.04305	18.86954	22.5	26.33444	28.7755
Matagorda	ssp585	2025	mean	39.80583	5.42947	5.949205	2204.603	129.8123	44.19358	4.409603	4.345099	22.91523	36.08609	14.75166	16.14636	19.05364	22.6053	26.35563	28.84437
Matagorda	ssp585	2030	mean	43.0445	6.231391	6.309205	2261.258	133.8615	52.04086	5.953046	6.270397	23.2	36.33113	14.78146	16.05166	19.23775	22.74503	26.50397	28.91258
Matagorda	ssp585	2035	mean	46.9406	7.257947	6.762185	2317.669	138.1408	60.46139	8.040662	8.646887	23.16424	36.5298	15.06026	16.28344	19.30728	22.91258	26.67682	29.14305
Matagorda	ssp585	2040	mean	51.38596	8.514636	7.400331	2382.106	143.3353	69.39603	9.975695	10.34861	23.35298	36.77881	15.17417	16.24172	19.4543	23.16623	26.88344	29.48477
Matagorda	ssp585	2045	mean	56.3994	9.993179	8.261589	2454.728	148.972	78.78808	12.13199	13.68821	23.59139	36.99272	15.4457	16.57152	19.5947	23.24702	26.93377	29.47947
Matagorda	ssp585	2050	mean	62.07914	11.77828	9.169007	2532.702	154.7069	89.05291	15.0004	19.91199	23.92318	37.08411	15.38079	16.80861	19.94768	23.63775	27.40993	29.76821
Montgome	baseline	1995	mean	39.64168	7.788591	3.65	1718.839	94.37107	14.40638	2.21651	0.534027	20.13758	37.15302	10.63691	12.46443	16.03826	19.99463	23.98054	26.95302
Montgome	ssp126	2020	mean	61.47819	17.19544	5.906376	2001.235	119.933	41.96705	11.6245	2.550537	21.26443	38.17383	12.04899	13.51074	17.17047	21.06913	25.44966	28.18054
Montgome	ssp126	2025	mean	64.92228	18.96396	6.022282	2029.678	121.8466	44.4	12.46886	3.316309	21.42148	38.42752	12.10067	14.08255	17.42483	21.27718	25.46443	28.3349
Montgome	ssp126	2030	mean	67.42215	20.33678	6.279329	2079.98	126.0017	50.5594	12.98201	3.752215	21.74295	38.50201	12.42819	14.01141	17.83691	21.75638	25.85772	28.69195
Montgome	ssp126	2035	mean	69.37416	21.38047	6.576711	2120.705	129.5674	55.57275	14.01295	4.041611	21.85168	38.64228	12.75705	14.08725	17.77651	21.62081	25.85235	28.70805
Montgome	ssp126	2040	mean	71.22765	22.3751	6.888658	2151.409	132.4475	60.66248	14.26792	4.218591	21.98926	38.76376	12.93356	14.21678	18.10403	21.79262	25.86577	28.73289
Montgome	ssp126	2045	mean	73.13872	23.50698	7.158792	2177.544	134.3903	64.70148	15.53993	4.132886	22.02282	38.82349	12.86779	14.49329	17.94966	21.79329	26.04362	28.92819
Montgome	ssp126	2050	mean	74.75678	24.50631	7.341544	2196.416	135.0674	65.99443	17.82007	5.595973	21.93758	38.87047	12.80336	14.41611	17.63624	21.89933	26.16711	29.03423
Montgome	ssp245	2020	mean	61.0304	16.94705	5.933624	1982.758	121.5153	43.17309	8.708054	2.956107	21.45973	38.15101	12.23691	13.80805	17.36309	21.27987	25.3953	28.08926
Montgome	ssp245	2025	mean	64.25872	18.54913	6.043758	2008.993	123.2274	45.65732	12.11376	3.047114	21.59664	38.19195	12.61342	13.95168	17.55168	21.46711	25.69262	28.51141
Montgome	ssp245	2030	mean	66.87832	19.94691	6.537114	2066.691	126.6433	50.84154	14.92054	3.480872	21.74698	38.37919	12.58792	14.28926	17.86174	21.50805	25.62148	28.54497
Montgome	ssp245	2035	mean	69.8453	21.57832	7.095772	2124.57	130.0277	56.29852	16.99658	4.145235	21.79262	38.5953	12.79329	14.21275	17.80805	21.8047	25.99732	28.81409
Montgome	ssp245	2040	mean	73.1545	23.53396	7.826107	2175.329	133.4186	63.23933	18.27221	4.188389	21.90067	39.01007	12.85839	14.25772	17.88591	21.68456	26.11208	28.95973
Montgome	ssp245	2045	mean	76.0749	25.2655	8.374564	2213.121	136.6707	70.28221	22.14181	5.948456	22.21141	39.15503	12.7	14.36644	18.16644	22.00403	26.17181	29.12483
Montgome	ssp245	2050	mean	79.1598	27.15007	8.805101	2248.973	139.6262	75.62027	25.32893	8.061745	22.31342	39.24362	13.14027	14.56913	18.09463	22.09933	26.33893	29.08255
Montgome	ssp585	2020	mean	61.78423	17.29087	6.03443	2013.195	119.04	42.76926	8.237114	2.151409	21.3651	38.08993	12.31745	14.08859	17.43758	21.34228	25.69933	28.4745
Montgome	ssp585	2025	mean	65.49349	19.17336	6.230134	2040.356	120.6203	45.4545	10.22584	2.384094	21.6651	38.01208	12.33356	14.32617	17.72282	21.45369	25.68591	28.46846
Montgome	ssp585	2030	mean	69.0396	21.11081	6.656174	2097.416	124.6417	51.77336	14.96463	3.221409	21.95168	38.40201	12.44362	14.12013	17.85503	21.64832	25.87315	28.61074
Montgome	ssp585	2035	mean	73.16638	23.5455	7.084564	2153.893	128.6426	58.68906	18.92027	4.067517	22.01477	38.66107	12.64228	14.36913	18.00537	21.77852	26.02349	28.72349
Montgome	ssp585	2040	mean	77.69577	26.44067	7.841745	2223.396	134.0024	67.24074	21.94141	5.116376	22.16174	39.14362	12.88591	14.39799	18.01678	22.07718	26.24228	29.09195
Montgome	ssp585	2045	mean	82.61879	29.70128	8.831342	2304.094	139.7899	76.40047	26.15846	7.092617	22.45973	39.49799	13.15503	14.82081	18.21611	22.25034	26.33154	29.08322
Montgome	ssp585	2050	mean	88.03255	33.42074	9.848121	2388.98	145.7183	86.13732	31.06228	10.26148	22.80403	39.48389	13.17987	14.9953	18.61611	22.64765	26.9349	29.42215
Waller Cou	baseline	1995	mean	44.46919	9.164054	3.65	1800.068	98.48946	14.83135	4.703919	0.493784	20.52973	37.51757	11.05	12.8527	16.37838	20.30541	24.27973	27.27568
Waller Cou	ssp126	2020	mean	66.87608	19.41378	5.840405	2083.297	123.7069	43.52311	18.49243	2.282162	21.66486	38.44865	12.41892	13.82838	17.50811	21.37162	25.68378	28.45811
Waller Cou	ssp126	2025	mean	70.45649	21.37986	5.953378	2111.662	125.6428	46.21392	19.18703	3.040541	21.78514	38.77432	12.50135	14.39054	17.77027	21.52703	25.73514	28.65
Waller Cou	ssp126	2030	mean	73.04973	22.89919	6.204054	2161.892	129.9046	53.04284	19.31797	3.339324	22.11216	38.87432	12.84189	14.40405	18.18243	22.03514	26.14189	28.98243
Waller Cou	ssp126	2035	mean	75.09041	24.05459	6.503784	2202.014	133.5678	58.57986	20.69878	3.408649	22.22838	38.94324	13.08243	14.42838	18.08649	21.95946	26.11351	28.94054
Waller Cou	ssp126	2040	mean	77.02973	25.15473	6.791351	2232.027	136.4884	63.87946	21.51405	3.611081	22.36081	39.08243	13.32432	14.58108	18.41622	22.09324	26.17703	29.02838
Waller Cou	ssp126	2045	mean	79.00054	26.40149	7.052432	2257.568	138.3904	67.82324	23.10324	3.996757	22.41486	39.15	13.28108	14.86486	18.26486	22.10135	26.2527	29.22432
Waller Cou	ssp126	2050	mean	80.66676	27.49946	7.211892	2276.5	138.9731	68.91351	24.94514	5.425811	22.31216	39.18378	13.17703	14.73919	17.97568	22.20946	26.44324	29.36486
Waller Cou	ssp245	2020	mean	66.39581	19.14554	5.868514	2065.405	125.5392	45.20932	14.99865	2.664595	21.80946	38.49189	12.61216	14.11892	17.72432	21.55811	25.66351	28.41216
Waller Cou	ssp245	2025	mean	69.75608	20.92784	5.973649	2091.959	127.2915	48.10108	18.89784	2.726216	21.96486	38.55405	13.01486	14.25946	17.87838	21.76216	25.95405	28.75946

name	scenario	year	statistic	HT_daysEx	HT_daysEx	HT_daysEx	HT_cooling	HT_daysHi	HT_daysDa	HT_waveM	HT_waveM	HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe
Waller Cou	ssp245	2030	mean	72.4827	22.47311	6.409324	2149.392	130.7532	53.83486	22.53878	3.375541	22.08108	38.71757	12.92162	14.66622	18.14459	21.80811	25.94324	28.84865
Waller Cou	ssp245	2035	mean	75.57284	24.27554	6.863919	2206.419	134.1469	59.51676	24.39946	3.994189	22.18243	38.92703	13.15811	14.57568	18.17703	22.07703	26.32162	29.07297
Waller Cou	ssp245	2040	mean	78.99	26.42365	7.515135	2255.905	137.4486	66.49959	26.02122	4.014865	22.29595	39.27297	13.22568	14.62838	18.22973	22.01622	26.40541	29.21757
Waller Cou	ssp245	2045	mean	82.00851	28.33162	8.046081	2293.162	140.568	73.64486	30.11824	5.88527	22.55676	39.42568	13.08649	14.72568	18.49189	22.30541	26.46486	29.37162
Waller Cou	ssp245	2050	mean	85.19419	30.41297	8.452703	2328.919	143.4982	79.09405	33.5273	7.676757	22.66216	39.5473	13.44865	14.92297	18.40676	22.32432	26.55811	29.36216
Waller Cou	ssp585	2020	mean	67.19784	19.52257	5.945811	2094.946	122.8657	44.44676	13.86662	1.752297	21.75405	38.43243	12.67838	14.42703	17.7973	21.66486	25.95946	28.80135
Waller Cou	ssp585	2025	mean	71.05959	21.61622	6.131757	2122.419	124.4386	47.25919	16.56676	2.108108	22.0527	38.40135	12.71892	14.6527	18.04459	21.74865	25.97703	28.78784
Waller Cou	ssp585	2030	mean	74.75365	23.76068	6.508378	2179.878	128.5127	53.93176	21.51054	2.949189	22.31757	38.71351	12.82838	14.4973	18.22027	22	26.11216	28.8473
Waller Cou	ssp585	2035	mean	79.01514	26.44419	6.882838	2236.405	132.6032	61.17311	26.40703	3.826216	22.35811	38.96486	13.10135	14.75405	18.34324	22.08378	26.28243	28.99189
Waller Cou	ssp585	2040	mean	83.65622	29.61081	7.577432	2305.297	137.9555	69.95338	30.20095	4.660676	22.54595	39.39189	13.30135	14.72027	18.33378	22.39459	26.55	29.35
Waller Cou	ssp585	2045	mean	88.70649	33.155	8.547838	2385.203	143.7073	79.34865	34.53797	6.408784	22.81216	39.7	13.55405	15.1473	18.53108	22.60405	26.56892	29.39324
Waller Cou	ssp585	2050	mean	94.24946	37.18838	9.555676	2470.865	149.6588	89.39595	38.69662	9.780135	23.22838	39.73514	13.53108	15.36216	18.93243	22.92973	27.13514	29.65946
Wharton C	baseline	1995	mean	40.70208	6.74745	3.65	1907.128	107.175	17.46315	3.774497	0.430403	21.15436	37.12752	12.09732	13.9302	17.24765	20.98054	24.7557	27.55235
Wharton C	ssp126	2020	mean	61.24658	14.49624	5.580805	2176.919	131.0821	48.03691	15.48698	2.052282	22.24497	37.87919	13.39329	14.84564	18.36174	21.99195	26.02013	28.61477
Wharton C	ssp126	2025	mean	64.87268	16.09832	5.702013	2203.738	132.9555	51.25866	16.74034	2.85349	22.38658	38.21477	13.58523	15.30134	18.5557	22.14564	26.16577	28.79597
Wharton C	ssp126	2030	mean	67.49779	17.3602	5.955302	2251.725	137.1247	58.92134	16.85664	2.886174	22.65638	38.31544	13.9604	15.46644	18.99732	22.64161	26.51812	29.08993
Wharton C	ssp126	2035	mean	69.59503	18.30886	6.243691	2291.121	140.775	65.29872	17.66423	3.090872	22.79933	38.36644	14.17584	15.50134	18.87651	22.59933	26.44631	29.09799
Wharton C	ssp126	2040	mean	71.62107	19.20617	6.505436	2320.53	143.717	70.97289	19.69919	3.655168	22.89396	38.53423	14.36107	15.56913	19.19128	22.75168	26.62215	29.27047
Wharton C	ssp126	2045	mean	73.67013	20.24342	6.737517	2344.664	145.5956	74.63752	21.16785	4.469732	22.90537	38.6047	14.33087	15.91074	19.01208	22.81812	26.62483	29.37584
Wharton C	ssp126	2050	mean	75.39993	21.16356	6.819664	2361.537	146.145	75.24342	22.18013	5.829396	22.88054	38.58859	14.26846	15.72752	18.78456	22.94228	26.80403	29.49866
Wharton C	ssp245	2020	mean	60.79081	14.25094	5.618523	2163.282	132.7947	50.41268	12.95154	2.566711	22.44564	37.97315	13.69933	15.08725	18.56376	22.1604	26.0443	28.69128
Wharton C	ssp245	2025	mean	64.18148	15.68369	5.778322	2189.879	134.4804	53.98812	16.23732	2.576107	22.5698	38.10336	14.04362	15.22685	18.72685	22.43893	26.36779	28.88859
Wharton C	ssp245	2030	mean	66.94497	16.96047	6.201074	2245.826	137.941	60.84711	19.34624	3.505772	22.63423	38.13423	13.95302	15.58792	18.86644	22.48658	26.41007	29.07852
Wharton C	ssp245	2035	mean	70.11852	18.44128	6.61953	2301.503	141.4544	67.2204	21.39785	4.426711	22.73826	38.40671	14.20537	15.63154	19.02685	22.68188	26.66913	29.28523
Wharton C	ssp245	2040	mean	73.67315	20.21248	7.214497	2348.919	144.7174	74.25262	22.53201	4.363893	22.86711	38.63289	14.31611	15.51745	19.01074	22.70134	26.7557	29.3396
Wharton C	ssp245	2045	mean	76.79946	21.82993	7.719799	2385.181	147.6807	80.8598	26.52812	6.588322	23.07383	38.80134	14.21477	15.69597	19.30537	22.96376	26.84295	29.51141
Wharton C	ssp245	2050	mean	80.11987	23.61779	8.046644	2419.872	150.5357	85.68148	31.12503	9.125034	23.17718	38.92013	14.3953	15.90201	19.18591	23.01745	26.91409	29.51342
Wharton C	ssp585	2020	mean	61.57329	14.55685	5.808591	2189.758	130.2058	48.83477	11.91	1.66953	22.31342	37.91342	13.75705	15.44698	18.55101	22.3255	26.3255	28.8698
Wharton C	ssp585	2025	mean	65.49758	16.23819	5.990537	2217.456	131.7972	52.24671	14.3198	2.168792	22.63289	37.95302	13.90336	15.61342	18.78188	22.44027	26.36644	28.93423
Wharton C	ssp585	2030	mean	69.28389	18.01852	6.334698	2274.537	135.8364	59.79409	17.84752	2.927919	22.89128	38.22953	13.89732	15.46309	18.9906	22.62685	26.4953	29.02349
Wharton C	ssp585	2035	mean	73.66705	20.27436	6.727114	2331.389	140.0793	67.75181	22.76188	3.917517	22.86242	38.44228	14.22215	15.68658	19.05369	22.79597	26.64899	29.2047
Wharton C	ssp585	2040	mean	78.46658	22.97711	7.361409	2397.832	145.3758	76.5002	26.92134	5.159262	23.08993	38.74228	14.34631	15.68658	19.15839	23.0302	26.90403	29.53893
Wharton C	ssp585	2045	mean	83.76456	26.02188	8.24604	2474.45	151.0691	85.68289	31.37631	7.029463	23.32617	38.94698	14.61946	16.00201	19.31208	23.18725	26.92819	29.56779
Wharton C	ssp585	2050	mean	89.60664	29.53671	9.148389	2556.638	156.8666	95.46785	35.34315	11.25987	23.71275	39.0349	14.54899	16.28389	19.70403	23.52282	27.42081	29.84027

HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe	WS_windS	WS_windS	WS_windS	WS_windS	WS_windS	WS_windS	WS_windS	WS_windS	CD_daysBe	CD_daysBe	CD_heatin	CD_waveA	CD_waveM	FL_depth1
28.66629	28.86067	26.11685	21.4618	16.36067	12.00225	89.46742	98.04494	110.3764	128.0045	148.818	178.3899	12.88427	77.03483	9.723034	0.739326	614.0562	0	1.492584	1.65
29.75618	29.97978	27.46517	22.83258	17.47303	13.27978	89.63596	98.54607	111.4494	129.3674	150.3629	180.1865	12.9382	75.86404	6.886966	0.42573	478.7528	0	0.88573	1.64
30.07528	30.22697	27.58652	23.00225	17.6191	13.67528	89.71461	98.63933	111.573	129.5416	150.5427	180.4045	12.8427	75.51011	6.63427	0.384719	466.2247	0	0.772697	1.64
30.25281	30.39775	27.98989	23.3809	18.16966	13.96517	89.77528	98.70899	111.6865	129.7079	150.7326	180.6169	12.85169	75.29101	6.390112	0.357079	445.9888	0	0.479101	1.64
30.16854	30.34382	27.81685	23.48989	18.20225	14.03258	89.82135	98.76292	111.818	129.9764	151.0461	181.0124	12.73034	74.69101	6.243596	0.33427	432.4944	0	0.22236	1.64
30.43483	30.55169	27.91573	23.57191	18.34944	14.15056	89.87303	98.82697	111.964	130.2292	151.3596	181.409	12.65843	74.12921	6.126404	0.324831	422.764	0	0.139213	1.64
30.48989	30.78652	28.01011	23.70562	18.4809	14.1382	89.90225	98.85618	112.0067	130.327	151.4685	181.5348	12.64045	74.3764	6.037079	0.32	412.8202	0	0.286629	1.63
30.63258	30.7618	28.19438	23.8	18.36854	13.88427	89.93034	98.89438	112.0573	130.4202	151.5775	181.673	12.55506	73.94719	6.159101	0.354944	404.2697	0	0.365843	1.63
29.65393	29.97079	27.29213	22.80562	17.49551	13.43596	89.63483	98.54607	111.4618	129.4506	150.4382	180.2944	12.9382	76.59213	7.08764	0.443146	485.6517	0	0.849326	1.6
30.07753	30.26404	27.82921	23.32022	17.8382	13.87303	89.70337	98.62022	111.6169	129.682	150.7169	180.627	13.0191	76.54494	7.004494	0.457191	476.9775	0	0.535618	1.61
30.24494	30.37079	27.77416	23.35506	18.02472	13.73034	89.77978	98.71573	111.7843	129.9146	150.9989	180.9674	12.93483	76.79326	6.73382	0.435618	455.9326	0	0.465281	1.62
30.4764	30.63146	27.98315	23.64831	18.34607	14.05056	89.85506	98.80674	111.9449	130.1652	151.2764	181.3169	12.97303	76.79663	6.522921	0.423371	433.8539	0	0.328202	1.63
30.58427	30.76067	28.19775	23.67978	18.39888	13.9764	89.92135	98.88876	112.1034	130.4213	151.5697	181.6618	12.95506	76.72022	6.182472	0.368652	417.6629	0	0.247416	1.64
30.65169	30.94494	28.39775	23.94382	18.5618	14.07416	89.98427	98.96854	112.2124	130.6124	151.7978	181.9427	12.98652	76.81236	5.790337	0.322247	405.2135	0	0.258652	1.65
30.7573	31.09888	28.43483	23.96292	18.51798	14.50674	90.06292	99.0573	112.327	130.8079	152.0236	182.2135	13.1382	76.67865	5.70573	0.313708	391.5056	0	0.230337	1.65
29.91461	30.08764	27.58764	23.00449	17.79775	13.60787	89.6427	98.55281	111.4337	129.4652	150.464	180.3236	12.90225	77.03708	7.203933	0.443483	474.5281	0	0.80573	1.68
30.03371	30.2427	27.62697	23.1618	17.98876	13.96517	89.72135	98.64719	111.6124	129.7	150.7382	180.6416	12.84719	76.52921	7.109888	0.453933	464.573	0	0.424719	1.67
30.23034	30.46067	27.89101	23.44045	18.28202	13.94382	89.80225	98.7427	111.791	129.9404	151.0124	180.9775	12.91461	76.00449	6.648989	0.402135	441.6292	0	0.448315	1.66
30.4573	30.69326	28.13258	23.60674	18.55843	14.30225	89.90225	98.86067	111.991	130.2528	151.382	181.4213	12.98315	75.96629	6.285393	0.381461	419.5393	0	0.315955	1.66
30.62584	30.91573	28.39101	23.7764	18.52247	14.25056	89.99888	98.98764	112.1978	130.5652	151.7528	181.8775	12.94719	75.93933	5.676404	0.307079	394.8539	0	0.132921	1.65
30.68202	31.04382	28.47303	24.00674	18.91236	14.50674	90.10449	99.11461	112.4472	130.9798	152.2303	182.4596	12.94157	76.18876	5.214607	0.276629	370.4831	0	0	1.65
31.07865	31.40449	28.78652	24.48764	19.12921	14.6382	90.23146	99.25843	112.7045	131.3876	152.7101	183.0416	12.9618	76.02921	4.796854	0.238989	345.7416	0	0	1.64
28.21011	28.22394	26.07234	22.07606	17.6734	13.56223	93.28085	105.4941	134.8473	158.3511	183.1931	218.5213	13.38351	75.99149	5.268564	0.321915	466.8989	0	1.4725	0.86
29.27234	29.29415	27.33032	23.33617	18.66011	14.85319	94.35	106.6782	136.1904	159.9011	184.958	220.5968	13.48511	75.39521	3.617713	0.172287	352.9947	0	0.814043	0.87
29.39149	29.36011	27.30213	23.45691	18.94362	15.11968	94.48245	106.8691	136.4362	160.1681	185.2707	220.9819	13.43723	74.69894	3.44734	0.156596	342.6702	0	0.670532	0.87
29.64787	29.66649	27.76862	23.74521	19.28457	15.52447	94.58723	107.0335	136.6782	160.4415	185.584	221.358	13.40851	74.59787	3.24984	0.143723	325.8085	0	0.451915	0.88
29.64202	29.5734	27.58723	23.88351	19.32713	15.44787	94.67926	107.1356	136.784	160.566	185.7271	221.5197	13.31489	74.01383	3.155957	0.137553	314.4149	0	0.285213	0.89
29.7867	29.75053	27.77606	24.0383	19.5133	15.64894	94.76596	107.2356	136.8878	160.6899	185.8729	221.6899	13.325	73.49734	3.077713	0.13133	306.3511	0	0.259521	0.9
29.95532	29.97926	27.87713	24.17606	19.51596	15.61649	94.82819	107.3527	137.0638	160.8979	186.1245	221.9979	13.24681	73.93989	3.04633	0.126223	298.0585	0	0.268723	0.91
29.96702	29.91117	27.95106	24.21489	19.49787	15.40957	94.88404	107.4665	137.2287	161.1037	186.3713	222.3032	13.28191	73.67287	3.037234	0.128936	290.7234	0	0.262553	0.92
29.19628	29.2484	27.21809	23.30691	18.7133	14.93085	94.33883	106.6888	136.2553	159.9771	185.0532	220.7186	13.46702	75.72074	3.769415	0.194149	357.7979	0	0.638564	0.85
29.4883	29.4383	27.54362	23.85106	19.03298	15.26383	94.45691	106.8399	136.4362	160.1702	185.2883	221.0016	13.42979	75.54734	3.659362	0.188564	350.6064	0	0.39617	0.86
29.56436	29.525	27.53351	23.81436	19.25213	15.26968	94.59043	107.0005	136.608	160.3707	185.5202	221.2872	13.39787	75.63138	3.48883	0.176436	333.0532	0	0.378298	0.87
29.85266	29.73245	27.73351	24.10798	19.48936	15.50585	94.71649	107.1782	136.8255	160.6202	185.7963	221.6128	13.42926	75.62819	3.304947	0.159787	315.0745	0	0.248351	0.88
29.95691	29.98085	27.98351	24.15426	19.51489	15.42819	94.84362	107.3431	137.0426	160.8681	186.084	221.9431	13.42394	75.52447	3.131755	0.144309	301.7979	0	0.219202	0.89
29.99096	29.99362	28.12606	24.23564	19.81277	15.68351	94.96117	107.5191	137.2729	161.1489	186.408	222.3468	13.45426	75.39096	2.976223	0.133085	291.1702	0	0.213298	0.9
30.13723	30.2234	28.20319	24.34309	19.72287	15.93883	95.09043	107.6957	137.4979	161.4202	186.734	222.7479	13.54362	75.26064	2.874681	0.126755	279.867	0	0.184468	0.92
29.31223	29.35904	27.39787	23.5883	19.03085	15.21277	94.3516	106.7223	136.2511	159.9606	185.0282	220.6824	13.42766	76.27394	3.765904	0.189628	350.4096	0	0.67984	0.86
29.46064	29.44362	27.46277	23.625	19.14681	15.50426	94.49149	106.8941	136.4707	160.2122	185.3266	221.041	13.37447	75.70426	3.694681	0.188511	341.8723	0	0.455319	0.87
29.59309	29.65319	27.69309	23.88511	19.44521	15.38298	94.63511	107.0793	136.7011	160.4628	185.6191	221.392	13.41809	75.29202	3.418511	0.16617	322.5	0	0.461862	0.88
29.90957	29.88191	27.9117	24.025	19.67128	15.82979	94.80745	107.3186	137.0277	160.8628	186.0809	221.9553	13.43138	75.10106	3.207234	0.153298	304.3245	0	0.356064	0.89
30.11436	30.15053	28.21915	24.29043	19.61862	15.775	94.9867	107.5638	137.3505	161.2521	186.5484	222.5218	13.43883	75.17234	2.871277	0.126809	284.0372	0	0.124574	0.91
30.08936	30.19255	28.18298	24.37819	19.95319	16.00053	95.17287	107.7803	137.5628	161.5016	186.8229	222.8383	13.44787	75.71809	2.626862	0.114734	264.0319	0	0.029734	0.92
30.4633	30.53617	28.63138	24.89947	20.23457	16.14521	95.38191	108.0074	137.7793	161.7463	187.0979	223.1548	13.43883	75.44309	2.377713	0.097074	243.9415	0	0.007606	0.94
28.17237	28.21842	25.86711	21.60526	17.03684	12.88553	94.34342	114.6355	146.7618	172.3921	199.5684	238.2855	13.25132	77.24605	5.347237	0.268947	547.9342	0	1.386842	0.82
29.25526	29.30789	27.13684	22.88553	18.05526	14.08289	95.36579	116.0803	148.6592	174.6171	202.1697	241.4105	13.35921	76.57237	3.653553	0.154211	422.0263	0	0.703947	0.89

HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe	WS_windS	WS_windS	WS_windS	WS_windS	WS_windS	WS_windS	WS_windS	WS_windS	CD_daysBe	CD_daysBe	CD_heatin	CD_waveA	CD_waveM	FL_depth1
29.37895	29.325	27.18553	22.92895	18.31579	14.41842	95.52632	116.3632	149.0224	175.0566	202.6842	242.0276	13.325	76.28158	3.488421	0.136447	410.4079	0	0.605921	0.91
29.63421	29.62895	27.53684	23.26316	18.74868	14.76316	95.68684	116.6408	149.4105	175.5092	203.2	242.6526	13.31842	76.01711	3.230526	0.114737	391.1711	0	0.456316	0.93
29.61711	29.53026	27.43158	23.41711	18.73553	14.81579	95.8	116.7671	149.5526	175.6776	203.3763	242.85	13.19079	75.68553	3.114211	0.108158	377.9737	0	0.320658	0.96
29.83421	29.80789	27.625	23.60789	18.93421	14.90789	95.90263	116.9013	149.7066	175.8421	203.5671	243.0711	13.18553	75.58158	3.061579	0.108421	368.75	0	0.231974	0.98
29.96579	29.98026	27.72368	23.72237	19.01842	14.85921	95.99342	117.0566	149.9066	176.0974	203.8632	243.4355	13.12895	76.04474	3.115789	0.110263	359.3816	0	0.245921	1.01
29.91974	29.92105	27.82763	23.75789	18.91316	14.73421	96.07632	117.2	150.1211	176.3513	204.1671	243.8066	13.16053	75.76053	3.099474	0.111579	350.8553	0	0.234079	1.04
29.11447	29.21447	27.11053	22.85263	18.11579	14.26974	95.35395	116.1789	148.7829	174.7724	202.35	241.6211	13.4	77.22895	3.837368	0.176711	427.4737	0	0.526842	0.89
29.49868	29.38816	27.32368	23.40658	18.41447	14.60526	95.51579	116.3776	149.0461	175.0855	202.7145	242.0579	13.30789	77.11842	3.647105	0.158289	418.6053	0	0.276842	0.91
29.51579	29.46053	27.27237	23.38421	18.68026	14.64474	95.68816	116.5789	149.3132	175.3961	203.0671	242.4934	13.38026	77.28289	3.451053	0.142632	397.6842	0	0.293026	0.93
29.89868	29.75132	27.59737	23.68421	18.86316	14.84211	95.86974	116.8474	149.6474	175.7974	203.5303	243.0408	13.39474	76.98421	3.186184	0.121184	377.1316	0	0.252237	0.96
29.93553	29.99079	27.80658	23.70132	18.90132	14.65526	96.03684	117.1118	149.9908	176.1908	203.9908	243.5803	13.35395	77.06579	3.006974	0.108026	362.3553	0	0.240658	0.98
29.98026	30.02895	27.93553	23.78816	19.20921	14.875	96.16974	117.3	150.2342	176.4855	204.3447	244.0158	13.39079	76.79474	2.826447	0.095395	350.6579	0	0.211579	1.01
30.21184	30.21711	28.07237	23.93947	19.20132	15.25658	96.32763	117.4816	150.4829	176.7842	204.7013	244.4579	13.40526	76.86447	2.761842	0.090526	338.1053	0	0.197105	1.04
29.35789	29.41974	27.24868	23.10263	18.44211	14.47105	95.37237	116.1803	148.7592	174.7329	202.3039	241.5645	13.31711	77.45526	3.8175	0.160526	418.7895	0	0.642237	0.9
29.46974	29.35526	27.32368	23.12105	18.58289	14.79342	95.56447	116.4671	149.1487	175.2092	202.8434	242.2224	13.24868	76.77368	3.743421	0.153684	409	0	0.415921	0.92
29.63026	29.63947	27.60395	23.44868	18.89737	14.85395	95.76447	116.7566	149.5368	175.6789	203.4053	242.8921	13.34342	76.50263	3.471316	0.132763	387	0	0.386316	0.95
29.875	29.88816	27.80526	23.59868	19.07763	15.11447	95.96974	117.0382	149.9145	176.1184	203.9224	243.5237	13.40658	76.49474	3.241184	0.121711	366.4474	0	0.386579	0.97
30.08289	30.13158	28.04079	23.86184	19.01316	15.10789	96.18289	117.3211	150.2829	176.5605	204.4237	244.1395	13.33421	76.36579	2.903684	0.104605	343.4079	0	0.096053	1
30.03289	30.09868	28.05395	23.99605	19.43553	15.28947	96.42895	117.5776	150.6066	176.925	204.8461	244.6237	13.39079	77.29474	2.595658	0.091184	320.0395	0	0.016579	1.04
30.47237	30.51316	28.40658	24.52368	19.62895	15.34079	96.69342	117.8513	150.9211	177.2921	205.2553	245.1184	13.35395	77.25395	2.324211	0.077237	297.0526	0	0.016579	1.08
28.65414	28.90376	26.26617	21.71353	16.64887	12.25489	88.94511	97.28947	109.3586	126.7579	146.888	175.4617	12.89474	76.11429	9.021504	0.639248	572.6842	0	1.424887	1.24
29.72256	30.00451	27.51654	23.05789	17.74586	13.6218	89.11128	97.81353	110.4128	128.0353	148.3489	177.1782	13.02256	74.81955	6.203008	0.342406	443.4286	0	0.822857	1.24
29.99323	30.23835	27.66842	23.26692	17.89549	13.97293	89.14887	97.85865	110.5368	128.2669	148.615	177.4895	12.90902	74.53308	6.00015	0.319925	431.782	0	0.686767	1.25
30.18045	30.46015	28.06316	23.59398	18.41203	14.3015	89.1782	97.88722	110.6556	128.4932	148.8805	177.8	12.90075	74.24361	5.874887	0.31812	412.6165	0	0.447444	1.25
30.15338	30.39474	27.93308	23.68797	18.46767	14.31053	89.2015	97.91053	110.7474	128.7	149.1135	178.0842	12.72932	73.6203	5.673684	0.295789	399.8647	0	0.215564	1.25
30.40226	30.59474	28.04662	23.80226	18.61429	14.51654	89.21955	97.93684	110.8406	128.8977	149.3429	178.3767	12.6812	73.13308	5.545714	0.284662	390.3684	0	0.135865	1.25
30.46165	30.78496	28.11429	23.90602	18.73684	14.45188	89.22782	97.94286	110.9143	129.0414	149.5218	178.591	12.67519	73.3594	5.41985	0.266692	380.8872	0	0.249323	1.25
30.5782	30.73308	28.27143	24.03008	18.62932	14.21203	89.24737	97.96391	111.0015	129.188	149.697	178.8105	12.63308	72.8391	5.459173	0.283459	372.7744	0	0.29812	1.25
29.64135	30.00977	27.42932	23.02481	17.77519	13.76541	89.11429	97.81805	110.4737	128.1632	148.497	177.3752	13.0203	75.5594	6.326917	0.385789	449.0752	0	0.815038	1.22
29.98947	30.31654	27.96241	23.50977	18.12782	14.10602	89.14737	97.85414	110.5774	128.3985	148.7805	177.7158	13.05188	75.54812	6.22218	0.387669	441.2105	0	0.516241	1.23
30.20752	30.39624	27.86617	23.56917	18.33684	14.07519	89.18271	97.89248	110.6902	128.6444	149.0624	178.0459	13.02556	75.73308	5.933233	0.362857	421.6992	0	0.459474	1.23
30.42782	30.67368	28.06316	23.84361	18.58872	14.32331	89.2218	97.93985	110.8459	128.8714	149.3256	178.3549	13.0406	75.61429	5.763383	0.34594	400.6466	0	0.343985	1.24
30.54511	30.78872	28.32632	23.8985	18.68722	14.25865	89.25489	97.9782	110.9865	129.1045	149.5827	178.6579	13.04511	75.61579	5.457368	0.306917	385.1278	0	0.26015	1.25
30.61579	30.97143	28.50602	24.17368	18.81353	14.37293	89.28346	98.00226	111.1075	129.3263	149.8617	179.003	13.05414	75.9015	5.195263	0.281805	373.0677	0	0.247444	1.25
30.70827	31.13008	28.54436	24.1391	18.77895	14.71128	89.31805	98.04812	111.2368	129.5594	150.1421	179.3451	13.13459	75.51955	5.043383	0.269925	360.1353	0	0.241278	1.26
29.85338	30.12331	27.68571	23.22782	18.10075	13.91654	89.11729	97.82256	110.5654	128.4098	148.8165	177.7549	12.97594	75.98647	6.490451	0.389248	439.2782	0	0.73985	1.24
29.98647	30.2609	27.77068	23.38872	18.24662	14.31955	89.15414	97.86917	110.6812	128.5932	149.0068	177.9857	12.84662	75.45263	6.349774	0.376391	429.8271	0	0.368797	1.24
30.17744	30.46842	27.96917	23.63609	18.54662	14.23308	89.19549	97.90451	110.7932	128.7707	149.2143	178.2068	12.98647	74.82782	5.806015	0.313985	408.0902	0	0.330677	1.25
30.4188	30.72857	28.2218	23.79248	18.77895	14.58647	89.24211	97.96617	110.9496	129.0489	149.5414	178.6143	13.05414	74.71955	5.511579	0.295338	387.218	0	0.239323	1.25
30.61504	30.97744	28.47143	23.98271	18.77293	14.58571	89.29023	98.0188	111.109	129.3331	149.8677	179.0135	13.02932	74.78722	4.999323	0.250827	363.7068	0	0.119173	1.25
30.66015	31.07895	28.5391	24.21053	19.18195	14.84586	89.34436	98.07895	111.2932	129.6331	150.2203	179.4293	13.03158	75.00827	4.617293	0.234887	340.5414	0	0.002782	1.26
31.0391	31.46466	28.88195	24.65188	19.3782	14.99398	89.40226	98.14436	111.4895	129.9353	150.5782	179.8481	13.0406	74.7609	4.263684	0.212932	317.0902	0	0	1.26
28.36446	28.47438	25.95455	21.68017	16.96198	12.73306	91.02231	99.67851	120.9554	142.3744	164.9901	197.1215	12.31157	75.50165	8.455785	0.692893	540.2479	0	1.507273	0.87
29.4157	29.5686	27.33884	23.03719	18.03388	14.03471	92.05289	101.1372	122.3331	143.9669	166.8	199.2298	12.3595	74.66116	5.947355	0.376033	416.157	0	0.946116	0.86
29.72066	29.72479	27.32314	23.13636	18.22066	14.37769	92.17603	101.2884	122.4488	144.0959	166.9298	199.357	12.30413	74.10413	5.728347	0.346612	404.7273	0	0.818017	0.86
29.9157	29.97851	27.78843	23.49256	18.62231	14.74298	92.26777	101.4041	122.5744	144.219	167.0521	199.4992	12.28843	73.92975	5.523471	0.329339	386.3554	0	0.500992	0.86

HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe	WS_windS	WS_windS	WS_windS	WS_windS	WS_windS	WS_windS	WS_windS	WS_windS	CD_daysBe	CD_daysBe	CD_heatin	CD_waveA	CD_waveM	FL_depth1
29.89504	29.92149	27.61653	23.59504	18.68678	14.70826	92.36116	101.5083	122.7207	144.3917	167.2612	199.7521	12.17107	73.23967	5.361901	0.31595	373.7603	0	0.270661	0.86
30.04959	30.05785	27.75124	23.74545	18.84628	14.86694	92.43636	101.6107	122.8727	144.5653	167.462	200.0132	12.17107	72.68843	5.262149	0.308182	364.9256	0	0.176198	0.86
30.17851	30.30744	27.81983	23.86942	18.92479	14.82975	92.49174	101.6736	123.0132	144.7413	167.6702	200.2421	12.12893	73.17107	5.203306	0.29595	355.7603	0	0.273719	0.86
30.28264	30.26116	27.98264	23.91983	18.8562	14.61157	92.53884	101.7364	123.1636	144.9165	167.8669	200.4868	12.12314	72.81983	5.276446	0.31686	347.8926	0	0.315041	0.86
29.37521	29.53884	27.17107	22.93884	18.06446	14.18182	92.04959	101.1364	122.3405	143.9785	166.8025	199.2355	12.31157	75.20826	6.100496	0.408678	422.2314	0	0.699917	0.84
29.69256	29.74463	27.58017	23.49587	18.33471	14.50083	92.15868	101.262	122.4876	144.1347	166.9917	199.4587	12.3405	74.95702	6.030579	0.422727	414.1736	0	0.435124	0.85
29.83636	29.91157	27.5281	23.51818	18.58678	14.47686	92.27107	101.4107	122.6347	144.3074	167.1752	199.6793	12.30496	75.29835	5.763884	0.402149	394.7521	0	0.458595	0.85
30.0876	30.11901	27.74215	23.83471	18.84463	14.72645	92.40165	101.5694	122.8215	144.514	167.4157	199.9529	12.42314	75.2405	5.572562	0.388512	374.5785	0	0.297438	0.86
30.21901	30.30413	27.99835	23.8314	18.86942	14.66529	92.51653	101.7083	123.0124	144.7306	167.6488	200.2264	12.30496	75.00248	5.270744	0.339504	359.8264	0	0.245124	0.86
30.28595	30.39174	28.16116	24.01322	19.12479	14.85537	92.62231	101.8339	123.2066	144.9595	167.9223	200.5471	12.36942	75.05537	5.019091	0.304298	348.3306	0	0.269256	0.87
30.37521	30.59008	28.26612	24.07438	19.06446	15.2	92.7405	101.9876	123.405	145.1917	168.1934	200.8702	12.56694	74.83058	4.912893	0.287603	335.8512	0	0.227934	0.87
29.58678	29.65372	27.42975	23.20331	18.36198	14.4281	92.05785	101.143	122.3826	144.0314	166.8579	199.2967	12.29835	75.74132	6.18438	0.401983	412.7355	0	0.783306	0.88
29.71322	29.75372	27.39669	23.29752	18.51736	14.72645	92.18843	101.305	122.6231	144.3091	167.1868	199.6901	12.23554	75.13306	6.127603	0.415785	403.4711	0	0.499835	0.88
29.88182	29.98347	27.68678	23.58264	18.85868	14.61901	92.32314	101.4694	122.8628	144.5917	167.5066	200.076	12.33388	74.64876	5.712397	0.370413	382.3058	0	0.524876	0.87
30.11736	30.21322	27.89835	23.72397	19.00083	15.04463	92.48017	101.6686	123.057	144.8149	167.7587	200.3802	12.3562	74.45124	5.391322	0.34686	362.4876	0	0.358512	0.87
30.32727	30.47603	28.22231	23.93306	19.01653	14.96942	92.64463	101.8711	123.2587	145.0347	168.0165	200.676	12.32727	74.50331	4.845455	0.278678	340.0826	0	0.136529	0.87
30.35207	30.54959	28.19504	24.06694	19.42314	15.24463	92.81818	102.0884	123.4744	145.2818	168.3017	201.0058	12.29587	75.01405	4.470331	0.254215	317.7934	0	0.004628	0.87
30.74463	30.90331	28.62645	24.61405	19.60165	15.35785	93.01322	102.3207	123.6909	145.5364	168.5785	201.343	12.40909	74.69917	4.149256	0.227603	295.3719	0	0	0.87
28.144	28.238	26.212	22.2	17.75	13.61	95.994	113.29	145.418	170.858	197.798	236.138	15.396	78.16	3.7978	0.1742	483.8	0	1.3002	0.83
29.222	29.276	27.44	23.418	18.746	14.898	97.028	114.474	146.902	172.616	199.806	238.542	15.498	77.526	2.4828	0.0886	365.4	0	0.649	0.94
29.304	29.316	27.416	23.538	19.046	15.136	97.206	114.662	147.142	172.886	200.118	238.912	15.498	77.112	2.364	0.079	354.58	0	0.5676	0.97
29.576	29.602	27.85	23.834	19.444	15.534	97.346	114.858	147.386	173.15	200.432	239.276	15.466	76.892	2.1902	0.0702	336.84	0	0.4102	1
29.544	29.502	27.73	23.992	19.42	15.5	97.468	114.992	147.536	173.334	200.646	239.548	15.406	76.396	2.11	0.0648	324.78	0	0.2608	1.03
29.758	29.746	27.904	24.152	19.654	15.646	97.578	115.12	147.708	173.552	200.888	239.824	15.406	76.03	2.0678	0.0628	316.22	0	0.2038	1.06
29.894	29.968	28.032	24.286	19.678	15.586	97.672	115.22	147.834	173.69	201.048	240.012	15.344	76.716	2.0452	0.0606	307.44	0	0.209	1.09
29.878	29.856	28.078	24.314	19.608	15.426	97.766	115.314	147.944	173.834	201.218	240.198	15.368	76.244	2.0532	0.0668	299.72	0	0.1912	1.13
29.1	29.234	27.354	23.438	18.816	14.944	97.002	114.48	146.91	172.62	199.814	238.542	15.54	78.096	2.524	0.0944	370.44	0	0.5218	0.94
29.408	29.406	27.61	23.982	19.16	15.266	97.172	114.682	147.162	172.924	200.158	238.97	15.476	77.876	2.4394	0.092	362.8	0	0.2788	0.97
29.472	29.444	27.586	23.934	19.348	15.336	97.344	114.882	147.428	173.222	200.52	239.396	15.48	78.01	2.323	0.086	344.1	0	0.2792	1
29.792	29.69	27.862	24.214	19.582	15.446	97.53	115.06	147.628	173.464	200.772	239.706	15.486	77.836	2.1966	0.0808	325.28	0	0.1982	1.03
29.874	29.936	28.1	24.258	19.598	15.416	97.704	115.232	147.844	173.702	201.03	239.994	15.452	77.84	2.0464	0.071	311.24	0	0.1762	1.06
29.902	29.968	28.224	24.34	19.922	15.694	97.842	115.324	147.93	173.784	201.134	240.09	15.504	77.65	1.93	0.0626	300.3	0	0.1778	1.09
30.118	30.204	28.348	24.474	19.864	15.976	97.974	115.424	148.008	173.864	201.238	240.204	15.586	77.656	1.8504	0.0578	288.56	0	0.165	1.13
29.302	29.342	27.532	23.696	19.114	15.184	97.044	114.494	146.924	172.624	199.802	238.53	15.484	78.51	2.597	0.1	362.62	0	0.545	0.94
29.36	29.384	27.598	23.704	19.238	15.518	97.238	114.746	147.246	172.996	200.254	239.064	15.438	77.832	2.5432	0.0966	353.72	0	0.3522	0.97
29.548	29.608	27.848	24.008	19.552	15.484	97.43	115.002	147.57	173.38	200.694	239.612	15.484	77.414	2.3422	0.0858	333.4	0	0.3522	1.01
29.824	29.854	28.066	24.14	19.798	15.856	97.634	115.158	147.748	173.6	200.934	239.88	15.51	77.496	2.1704	0.0762	314.24	0	0.3204	1.04
30.018	30.118	28.31	24.386	19.708	15.8	97.854	115.334	147.95	173.818	201.17	240.138	15.498	77.464	1.9244	0.0642	293.08	0	0.089	1.08
29.99	30.12	28.314	24.51	20.082	16.002	98.08	115.618	148.31	174.246	201.674	240.774	15.51	78.042	1.739	0.0568	271.74	0	0.0182	1.12
30.386	30.5	28.72	25.038	20.322	16.098	98.346	115.91	148.664	174.676	202.192	241.394	15.492	77.962	1.5282	0.046	250.62	0	0.0104	1.17
28.19407	28.29576	25.71059	21.32119	16.53178	12.3411	88.27627	97.83517	120.7008	141.9856	164.4839	196.4864	11.93517	75.78008	8.870805	0.656822	590.4364	0	1.518559	0.82
29.26653	29.44534	27.09831	22.66864	17.62415	13.5411	89.28008	99.21695	122.2424	143.7843	166.5572	198.9551	11.97161	75.00424	6.302881	0.384703	458.2881	0	0.908136	0.82
29.56483	29.5678	27.13178	22.73263	17.79407	13.88686	89.44237	99.41568	122.45	144.0191	166.825	199.2589	11.9339	74.58517	6.031271	0.350297	445.8559	0	0.792754	0.82
29.79068	29.82966	27.55975	23.09195	18.24025	14.23305	89.56441	99.5839	122.6551	144.2564	167.0953	199.5653	11.95678	74.33517	5.711398	0.308771	425.8771	0	0.565424	0.82
29.72669	29.74661	27.39619	23.23517	18.27924	14.31737	89.67161	99.71102	122.814	144.4398	167.3055	199.8305	11.79407	73.80466	5.509195	0.284703	412.4492	0	0.357627	0.82
29.91271	29.93983	27.55042	23.35508	18.44195	14.39534	89.77458	99.82585	122.9725	144.6314	167.5208	200.0907	11.7661	73.24492	5.432373	0.27339	403.1949	0	0.199915	0.82

HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe	WS_windS	WS_windS	WS_windS	WS_windS	WS_windS	WS_windS	WS_windS	WS_windS	CD_daysBe	CD_daysBe	CD_heatin	CD_waveA	CD_waveM	FL_depth1
30.03136	30.17203	27.61907	23.50847	18.56398	14.38814	89.84407	99.91568	123.0737	144.7496	167.6572	200.2479	11.69746	73.67924	5.412797	0.273559	393.5636	0	0.270127	0.82
30.08729	30.12924	27.7839	23.5339	18.45085	14.16864	89.91017	100.0047	123.1784	144.8678	167.7966	200.4051	11.70508	73.26568	5.512458	0.300085	384.8814	0	0.304576	0.82
29.18432	29.375	26.98178	22.57585	17.64746	13.74195	89.27203	99.24068	122.2945	143.8449	166.6225	199.0216	11.98983	75.63559	6.466314	0.412585	465.4025	0	0.734322	0.82
29.59068	29.58559	27.34873	23.12161	17.91483	14.09873	89.41483	99.40763	122.5097	144.0962	166.9169	199.3758	11.98559	75.31314	6.313178	0.402034	456.3856	0	0.454068	0.82
29.68602	29.72415	27.30805	23.175	18.19195	14.10254	89.57161	99.58475	122.7182	144.3466	167.2097	199.7377	11.96271	75.69492	5.981822	0.370297	435.0424	0	0.434661	0.82
29.9911	29.97542	27.53517	23.46525	18.4178	14.32966	89.73305	99.77712	122.8627	144.5038	167.3788	199.9195	12.0089	75.66441	5.752331	0.349958	413.3644	0	0.308898	0.82
30.05508	30.18814	27.78263	23.48856	18.46314	14.23305	89.87246	99.94237	122.9966	144.6559	167.5419	200.1123	11.96102	75.46144	5.478644	0.316737	397.8347	0	0.253517	0.82
30.125	30.27288	27.94619	23.65678	18.74492	14.35763	90.01695	100.1131	123.1945	144.8843	167.8169	200.4305	11.99492	75.33347	5.234237	0.289661	385.8008	0	0.279364	0.82
30.26653	30.46144	28.10551	23.73475	18.67246	14.76441	90.17288	100.2996	123.3881	145.1186	168.0907	200.7572	12.06822	75.25975	5.151059	0.281737	372.5042	0	0.270551	0.82
29.44576	29.53432	27.21695	22.81864	17.91398	13.96653	89.28941	99.25847	122.4131	143.9788	166.7771	199.2076	11.95424	76.09873	6.433856	0.392161	454.9746	0	0.853814	0.84
29.55847	29.61229	27.17797	22.90551	18.1072	14.23517	89.4572	99.47246	122.6428	144.2483	167.0873	199.5801	11.89025	75.49915	6.390466	0.406525	444.9322	0	0.553856	0.83
29.77034	29.84958	27.52119	23.21186	18.43051	14.28814	89.63008	99.69237	122.8703	144.5258	167.4013	199.9517	11.99788	75.01483	5.963771	0.362415	422.2542	0	0.571271	0.83
29.95339	30.07924	27.71907	23.40127	18.6411	14.55975	89.83559	99.91737	123.0775	144.761	167.6754	200.2801	12.01017	74.98475	5.637966	0.343686	400.7924	0	0.465508	0.83
30.14958	30.32288	27.975	23.60085	18.62458	14.54407	90.04364	100.1551	123.2835	144.9949	167.9517	200.6047	11.95	74.95932	5.101568	0.280466	376.9534	0	0.138093	0.83
30.16737	30.37331	27.99873	23.74534	19.0411	14.80212	90.27415	100.4275	123.5669	145.3339	168.3475	201.0822	11.95381	75.50212	4.677119	0.251653	352.7797	0	0.001907	0.83
30.59661	30.78559	28.39576	24.29237	19.19025	14.87797	90.52246	100.7242	123.853	145.675	168.7424	201.5542	11.99958	75.34534	4.360042	0.220975	328.8093	0	0.000932	0.83
27.92455	27.91257	25.31198	20.80539	16.10659	11.98084	88.8018	99.98743	123.7868	147.1808	171.8341	206.8377	10.5503	77.25808	8.954551	0.543174	635.8683	0	1.613473	1.11
29.04192	29.12216	26.72515	22.2	17.2006	13.08623	88.83832	100.2449	125.4635	149.1683	174.1539	209.6198	10.55868	76.45329	6.343952	0.337665	497.5269	0	0.896886	1.1
29.29701	29.2024	26.78443	22.22635	17.36647	13.47545	88.98862	100.4593	125.7216	149.4713	174.4982	210.0335	10.55629	76.34731	6.089281	0.306287	484.6048	0	0.740299	1.11
29.55269	29.47365	27.15329	22.55449	17.88084	13.76826	89.10719	100.6503	125.982	149.7802	174.8491	210.4413	10.47425	76.13234	5.780299	0.271916	463.2455	0	0.574311	1.11
29.46287	29.36886	27.02335	22.72156	17.88383	13.88024	89.20958	100.7928	126.1617	149.9898	175.0928	210.7347	10.34371	75.77126	5.592934	0.250719	448.8263	0	0.41988	1.11
29.71078	29.63772	27.1982	22.89102	18.05509	14.00659	89.29581	100.9222	126.3347	150.197	175.3455	211.0257	10.33413	75.17545	5.530599	0.250659	438.7006	0	0.285509	1.11
29.78623	29.81916	27.29521	23.03234	18.12934	13.99042	89.36108	101.015	126.5347	150.4431	175.6353	211.3862	10.29341	75.54012	5.494012	0.244192	428.4671	0	0.325988	1.11
29.79701	29.80838	27.42515	23.03952	18.01198	13.73114	89.43054	101.1018	126.7461	150.6982	175.9299	211.7461	10.30419	75.21317	5.498743	0.256108	419.1377	0	0.323593	1.11
28.91317	28.99341	26.68024	22.03952	17.18743	13.35928	88.84132	100.2838	125.5353	149.2587	174.2605	209.7515	10.60659	77.1012	6.601796	0.379222	504.491	0	0.724012	1.1
29.36168	29.22156	26.96707	22.61317	17.47126	13.71916	88.97006	100.4605	125.7892	149.5521	174.6078	210.1689	10.58922	76.90359	6.377904	0.355988	494.479	0	0.427365	1.1
29.43772	29.36527	26.93054	22.6976	17.79461	13.68683	89.11557	100.6467	126.0359	149.8545	174.9503	210.5832	10.56048	77.09461	6.021317	0.326048	470.8743	0	0.382695	1.1
29.8006	29.61257	27.15808	22.9491	18.01497	13.93713	89.26108	100.8521	126.3006	150.1707	175.3186	211.0204	10.60299	77.02395	5.738323	0.294671	448.0778	0	0.364132	1.11
29.7982	29.85389	27.38623	22.95868	17.98683	13.7485	89.39701	101.0359	126.5665	150.4868	175.6844	211.4461	10.56407	76.9976	5.462096	0.261617	431.9162	0	0.358922	1.11
29.87964	29.9521	27.58204	23.1515	18.28024	13.95928	89.52275	101.2066	126.7808	150.7437	175.9946	211.8323	10.57006	76.77246	5.196647	0.236228	419.6587	0	0.313174	1.11
30.08802	30.08802	27.71377	23.24251	18.24491	14.31677	89.67365	101.3826	126.9832	150.9988	176.297	212.2132	10.57605	76.87305	5.103892	0.235269	405.8144	0	0.297246	1.12
29.20719	29.25329	26.85988	22.30838	17.50359	13.56826	88.8485	100.3192	125.5731	149.3	174.2994	209.7982	10.55808	77.62695	6.708383	0.378623	494.1557	0	0.924491	1.12
29.32275	29.21317	26.84611	22.4	17.72216	13.82695	89.00599	100.5305	125.891	149.6719	174.7413	210.3329	10.53772	76.93653	6.558443	0.357186	483.4192	0	0.612754	1.12
29.5521	29.4515	27.21437	22.71317	18.0018	13.94192	89.16587	100.7389	126.209	150.0569	175.1892	210.8683	10.57066	76.38323	6.100599	0.31509	459.497	0	0.549461	1.12
29.72754	29.73952	27.39641	22.87665	18.22395	14.14731	89.35749	100.9772	126.4413	150.3317	175.5066	211.2359	10.59701	76.58443	5.718982	0.291138	436.7545	0	0.543892	1.12
29.89042	29.99102	27.59042	23.16467	18.20719	14.16946	89.55269	101.2204	126.6766	150.6144	175.8174	211.6048	10.55449	76.4988	5.23	0.261617	411.485	0	0.14994	1.12
29.91078	29.92455	27.67545	23.30539	18.58084	14.4024	89.75449	101.4665	126.9347	150.9162	176.1826	212.0647	10.54251	77.1521	4.774431	0.228443	385.2036	0	0.023353	1.12
30.35868	30.41138	27.99461	23.87784	18.76766	14.42695	89.97605	101.7323	127.1886	151.2275	176.5545	212.5132	10.56407	77.06407	4.421497	0.198743	359.5868	0	0.015329	1.12
28.36225	28.42848	26.35298	22.51192	18.06954	13.98609	94.52914	107.1503	136.4053	160.1695	185.304	221.0689	14.19868	74.42119	4.498742	0.258543	418.9272	0	1.127748	0.88
29.34503	29.46093	27.55232	23.77947	19.08411	15.29868	95.37152	108.2252	137.6265	161.6013	186.9603	223.0344	14.3245	73.49735	3.241722	0.158543	311.9073	0	0.573642	0.88
29.42185	29.53841	27.59934	23.93245	19.33709	15.57483	95.41589	108.3742	137.8795	161.8921	187.3046	223.447	14.29007	72.82781	3.090199	0.144106	302.351	0	0.497616	0.88
29.72583	29.89669	28.0245	24.17748	19.70066	15.94901	95.44437	108.5185	138.1311	162.1887	187.6457	223.857	14.2106	72.86887	2.942252	0.135497	286.8543	0	0.278543	0.89
29.73179	29.77219	27.83113	24.30993	19.73113	15.88344	95.47351	108.5927	138.2437	162.3185	187.794	224.0265	14.18742	72.26954	2.838411	0.126887	276.2384	0	0.134238	0.9
29.84967	29.95563	28.0351	24.46689	19.91391	16.08411	95.5	108.6636	138.3517	162.4444	187.9364	224.1987	14.14702	71.74106	2.786689	0.126623	268.4636	0	0.143841	0.9
30.05563	30.18477	28.1543	24.57947	19.90265	16.08675	95.51457	108.7483	138.5212	162.6536	188.1881	224.5007	14.06821	71.99801	2.746026	0.124437	260.6225	0	0.153642	0.91
30.02848	30.11589	28.18477	24.61854	19.90662	15.87285	95.53841	108.8404	138.6954	162.8689	188.4397	224.7993	14.08079	71.68477	2.706556	0.124371	253.9404	0	0.160596	0.92

HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe	WS_windS	WS_windS	WS_windS	WS_windS	WS_windS	WS_windS	WS_windS	WS_windS	CD_daysBe	CD_daysBe	CD_heatin	CD_waveA	CD_waveM	FL_depth1
29.30662	29.46689	27.48808	23.74901	19.09801	15.36291	95.36954	108.2464	137.6331	161.6007	186.9523	223.0199	14.22583	73.67616	3.369338	0.176358	315.7351	0	0.490795	0.87
29.56358	29.69735	27.84636	24.28808	19.43775	15.76623	95.41325	108.3616	137.8656	161.8762	187.2801	223.4258	14.25033	73.70662	3.282252	0.17649	309.6623	0	0.276093	0.87
29.66689	29.71523	27.84106	24.22053	19.65695	15.66689	95.44768	108.4775	138.0927	162.1563	187.6066	223.8258	14.21457	73.61325	3.126225	0.166225	293.7947	0	0.232318	0.88
29.95298	29.96291	28.00132	24.49536	19.90927	15.99338	95.49139	108.6311	138.3305	162.4325	187.945	224.2199	14.2755	73.70265	2.946689	0.150993	277.1921	0	0.147815	0.89
30.06623	30.17947	28.28543	24.58079	19.93311	15.8649	95.52583	108.7907	138.5709	162.7166	188.2702	224.6192	14.26424	73.80464	2.773113	0.131788	264.6225	0	0.153377	0.9
30.11192	30.20993	28.40464	24.67417	20.18675	16.12119	95.5596	108.8722	138.7033	162.8675	188.4404	224.8099	14.3106	73.66026	2.637881	0.123311	254.3377	0	0.134967	0.91
30.25762	30.42848	28.45232	24.76026	20.05828	16.28675	95.60331	108.9616	138.8358	163.0219	188.6099	225.0152	14.39272	73.17152	2.545563	0.113775	243.8344	0	0.121589	0.92
29.39073	29.50331	27.66424	23.98477	19.47219	15.6457	95.37086	108.306	137.7669	161.7543	187.1305	223.247	14.22914	74.3	3.359868	0.173311	309.7285	0	0.454834	0.88
29.55033	29.64238	27.71722	24.05166	19.56755	15.90132	95.41921	108.4298	137.9927	162.0245	187.4497	223.6311	14.20795	73.83046	3.266954	0.169272	301.8212	0	0.239801	0.88
29.67815	29.83377	27.93311	24.26954	19.8702	15.79139	95.45828	108.5576	138.2172	162.2901	187.7775	224.0093	14.24967	73.46821	3.007219	0.141788	283.7881	0	0.273576	0.89
30.03245	30.09934	28.13709	24.41258	20.03709	16.23377	95.51258	108.7225	138.5013	162.6311	188.1649	224.4781	14.29404	73.21126	2.751987	0.12649	267.0662	0	0.214636	0.9
30.2404	30.37947	28.49536	24.70464	20.03974	16.20728	95.57086	108.8801	138.7848	162.9742	188.5543	224.9424	14.23113	73.23907	2.502781	0.108874	248.0662	0	0.091854	0.91
30.22119	30.4053	28.43974	24.81656	20.33576	16.43775	95.62914	109.0146	138.9675	163.1788	188.7967	225.2291	14.23377	73.79603	2.289404	0.102517	229.7219	0	0.010728	0.92
30.54967	30.74106	28.88543	25.28543	20.62649	16.61854	95.69073	109.1556	139.153	163.3907	189.0291	225.5086	14.27682	73.4649	2.159007	0.096026	211.1854	0	0.000132	0.93
28.08993	28.18322	25.41946	20.7745	15.78658	11.52953	84.99195	96.00805	120.1463	141.6564	164.5544	197.2087	10.63221	75.89128	10.65423	0.808389	677.906	0	1.538389	1.37
29.24362	29.43221	26.85034	22.13087	16.92685	12.6745	85.1302	97.03221	121.7819	143.5557	166.7148	199.7832	10.63356	74.73289	7.548658	0.484966	533.2886	0	0.88906	1.36
29.57919	29.54161	26.98792	22.23826	17.07315	13.04027	85.2651	97.24564	122.098	143.9228	167.1537	200.2933	10.56779	74.38926	7.290067	0.449195	519.5839	0	0.749396	1.36
29.83691	29.80604	27.35638	22.59195	17.59128	13.36309	85.37047	97.44765	122.4121	144.2919	167.5846	200.8034	10.57517	74.19396	6.948591	0.405302	497.2953	0	0.562685	1.37
29.67852	29.67584	27.20134	22.72483	17.62081	13.50403	85.45638	97.55436	122.545	144.457	167.7832	201.0604	10.4396	73.76846	6.814027	0.380336	482.7181	0	0.357181	1.37
29.89396	29.94094	27.29664	22.83356	17.79195	13.61342	85.53826	97.6557	122.6711	144.6195	167.9805	201.3121	10.41544	73.08054	6.688658	0.362752	472.4966	0	0.21	1.37
29.98121	30.1698	27.4255	22.98658	17.91812	13.60671	85.59664	97.74362	122.802	144.7678	168.151	201.506	10.31544	73.26779	6.653758	0.358658	462.0067	0	0.275101	1.36
30.0604	30.15436	27.58188	23.01812	17.78792	13.32013	85.65503	97.83423	122.9416	144.9255	168.3188	201.6886	10.2953	73.01611	6.653289	0.366309	452.4966	0	0.320268	1.36
29.12617	29.32349	26.7651	22.04564	16.9349	12.91544	85.12752	97.05302	121.8718	143.655	166.8356	199.9087	10.69799	75.34564	7.845973	0.54906	541.3691	0	0.799799	1.35
29.66644	29.58456	27.19933	22.58725	17.20403	13.39799	85.24362	97.20268	122.0349	143.8477	167.0638	200.1846	10.71074	75.17718	7.674295	0.527584	531.2148	0	0.53557	1.36
29.7047	29.72148	27.14161	22.67785	17.49799	13.2443	85.37852	97.35436	122.1946	144.0356	167.296	200.4631	10.63423	75.4094	7.211275	0.466913	507.1879	0	0.429329	1.36
30.06577	30.00738	27.33289	22.91879	17.76846	13.54832	85.51141	97.56242	122.5128	144.4215	167.7436	201.004	10.70537	75.58255	6.99651	0.448054	483.2953	0	0.303826	1.36
30.06309	30.19866	27.5604	22.94765	17.75436	13.46779	85.62282	97.77114	122.8215	144.8	168.1826	201.5477	10.66846	75.33087	6.677987	0.409597	466.4094	0	0.270403	1.37
30.13624	30.3557	27.78188	23.21409	18.07852	13.4953	85.73691	97.91208	123.0188	145.0188	168.4537	201.8651	10.7094	75.27584	6.371477	0.367987	453.5772	0	0.297718	1.37
30.32617	30.47315	27.95168	23.23557	17.99195	14.0094	85.88121	98.06711	123.2121	145.249	168.7174	202.1906	10.74966	75.27852	6.261141	0.357181	439.0671	0	0.277651	1.38
29.45101	29.49128	26.99195	22.19463	17.17315	13.10604	85.13758	97.15973	122.045	143.853	167.0611	200.1879	10.65973	76.01812	7.698389	0.504094	529.6309	0	0.941678	1.41
29.5349	29.57987	26.97651	22.39664	17.45906	13.39262	85.27987	97.3557	122.3295	144.1946	167.4584	200.6644	10.5698	75.58993	7.645101	0.507383	518.5235	0	0.572416	1.4
29.82282	29.82349	27.35436	22.68859	17.71745	13.49195	85.42081	97.56644	122.6121	144.5289	167.8658	201.1477	10.72215	74.97248	7.20302	0.460738	493.6107	0	0.584161	1.39
29.93221	30.11409	27.51477	22.90604	18.02617	13.72752	85.59463	97.72081	122.7973	144.7517	168.1188	201.4564	10.69799	74.99329	6.894899	0.454698	469.8725	0	0.492282	1.39
30.11074	30.34765	27.72483	23.12081	18.00067	13.73893	85.77248	97.87919	122.9859	144.9664	168.3765	201.7685	10.64765	74.89799	6.303624	0.389866	443.4765	0	0.154094	1.38
30.16846	30.30537	27.84765	23.32752	18.36443	13.99597	85.95906	98.1953	123.4295	145.5349	169.0597	202.6248	10.63691	75.3604	5.760537	0.332081	416.4899	0	0.007181	1.38
30.62013	30.82886	28.13356	23.8	18.52215	14.06107	86.17315	98.51477	123.8678	146.0993	169.7544	203.4886	10.68322	75.13624	5.38255	0.291007	389.7047	0	0.001409	1.37
28.48108	28.64595	25.91351	21.27297	16.20541	11.89324	89.55405	98.11351	115.2811	135.9432	157.9216	189.2338	12.17703	76.39054	10.42297	0.878649	632.1892	0	1.482027	1.62
29.59324	29.80946	27.28649	22.63649	17.33784	13.13514	89.97703	98.93919	117.023	137.9014	160.2054	191.9622	12.20811	75.31622	7.41527	0.499459	494.2432	0	0.883514	1.62
29.92838	30.00676	27.38243	22.78919	17.46351	13.49459	90.08514	99.06622	117.1108	138.0027	160.3122	192.0635	12.11216	74.95946	7.16973	0.463378	481.3919	0	0.781216	1.62
30.11757	30.22027	27.80946	23.14459	18.02162	13.81892	90.17297	99.17838	117.1851	138.0892	160.4054	192.1689	12.11216	74.63919	6.880676	0.422297	460.527	0	0.488784	1.62
30.02027	30.13649	27.63649	23.2527	18.04459	13.91622	90.25	99.27703	117.4189	138.4081	160.7905	192.6581	11.98919	74.15676	6.744324	0.404054	446.8378	0	0.255676	1.62
30.25135	30.34865	27.72568	23.35	18.19595	14.00405	90.31081	99.36892	117.6473	138.7203	161.1716	193.1541	11.94459	73.58919	6.613108	0.383243	436.973	0	0.145405	1.62
30.32432	30.58514	27.83378	23.48919	18.34324	14.00135	90.36216	99.42162	117.7527	138.8608	161.3311	193.3473	11.89459	73.74189	6.564324	0.377568	426.8919	0	0.282838	1.62
30.46486	30.58243	28.00541	23.56486	18.20811	13.74595	90.40946	99.48378	117.8527	138.9946	161.4919	193.5419	11.8527	73.39865	6.662838	0.401081	417.9459	0	0.357703	1.62
29.48108	29.77297	27.13243	22.58243	17.35405	13.30405	89.97568	98.93378	116.8446	137.6757	159.9149	191.5811	12.21622	76.04595	7.752027	0.550946	501.9865	0	0.812703	1.57
29.93514	30.04054	27.63108	23.11622	17.6473	13.75541	90.06622	99.0473	116.9757	137.8541	160.1243	191.8405	12.22297	75.89324	7.671081	0.557973	492.7162	0	0.517838	1.58

HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe	HT_tempe	WS_windS	WS_windS	WS_windS	WS_windS	WS_windS	WS_windS	WS_windS	WS_windS	CD_daysBe	CD_daysBe	CD_heatin	CD_waveA	CD_waveM	FL_depth1
30.05676	30.15946	27.58514	23.15405	17.88514	13.65811	90.17568	99.17703	117.1189	138.0297	160.3419	192.1054	12.21757	76.18243	7.295946	0.527027	470.7432	0	0.452838	1.59
30.33514	30.42162	27.78514	23.43649	18.16757	13.93243	90.28378	99.30946	117.3703	138.3554	160.7378	192.5946	12.25811	76.2027	7.082027	0.507297	448.027	0	0.303514	1.61
30.39189	30.58919	28.00676	23.49054	18.22027	13.81757	90.38108	99.42568	117.6311	138.6892	161.1243	193.0757	12.20676	76.02703	6.653378	0.444865	431.6757	0	0.242973	1.62
30.47838	30.76081	28.20811	23.72432	18.46622	13.91081	90.48108	99.56081	117.8419	138.9662	161.4473	193.4716	12.26351	76.0473	6.298378	0.389595	419.1622	0	0.278649	1.63
30.60405	30.90946	28.30946	23.76081	18.37162	14.37838	90.58649	99.71081	118.077	139.2419	161.7703	193.8635	12.39459	76.03514	6.161351	0.377973	405.3514	0	0.226351	1.64
29.76892	29.9027	27.42297	22.77568	17.61216	13.51081	89.98243	98.94324	116.927	137.8027	160.0743	191.7838	12.18108	76.57973	7.75473	0.533784	490.527	0	0.857162	1.65
29.86216	30.03108	27.42432	22.92432	17.84189	13.81757	90.08919	99.08784	117.1365	138.0676	160.3946	192.1622	12.11216	76.07703	7.742568	0.559595	480.1081	0	0.47473	1.65
30.08784	30.27432	27.73919	23.21216	18.13243	13.84324	90.21351	99.23243	117.3378	138.3338	160.7054	192.5486	12.20676	75.46892	7.322838	0.508919	456.5135	0	0.519459	1.64
30.28514	30.4973	27.95946	23.41757	18.40541	14.13243	90.3527	99.41622	117.6338	138.6851	161.1297	193.0811	12.24865	75.37703	6.904189	0.480811	434	0	0.376216	1.63
30.44595	30.73378	28.19865	23.58378	18.37432	14.12838	90.5027	99.60405	117.9257	139.0581	161.5554	193.6095	12.22297	75.47027	6.183108	0.381892	408.9595	0	0.137568	1.63
30.50676	30.81351	28.27568	23.78919	18.78514	14.35946	90.65405	99.79459	118.2649	139.4973	162.1054	194.3176	12.19865	75.76216	5.652568	0.33973	383.8108	0	0	1.62
30.90946	31.20405	28.59054	24.27973	18.9527	14.48649	90.82297	99.99865	118.6095	139.9541	162.6568	195.0176	12.2527	75.55541	5.27027	0.299865	358.527	0	0	1.62
28.45503	28.63893	26.20872	21.9651	17.20201	12.93758	91.71879	100.2812	120.8208	142.1846	164.7389	196.7711	12.77047	74.64362	7.635839	0.568389	504.953	0	1.353356	0.86
29.51007	29.72953	27.47047	23.30403	18.27248	14.29933	92.26779	101.2423	122.0248	143.5752	166.3329	198.6463	12.80336	73.49597	5.43349	0.314295	385.5772	0	0.800805	0.85
29.73289	29.88121	27.56242	23.4651	18.43758	14.62349	92.32617	101.3107	122.1913	143.7658	166.5537	198.8973	12.79799	73.06107	5.224161	0.294497	374.7785	0	0.696711	0.85
29.93221	30.15638	27.98322	23.78322	18.8698	14.99664	92.36242	101.3577	122.3497	143.957	166.7617	199.145	12.77584	72.98054	5.064698	0.28349	357.2148	0	0.399799	0.86
29.94631	30.09396	27.82752	23.88322	18.94295	14.94497	92.40134	101.3913	122.4852	144.1148	166.945	199.3638	12.64832	72.25839	4.89698	0.274295	345.3221	0	0.192349	0.86
30.11275	30.25503	27.9745	24.03893	19.08456	15.16242	92.4255	101.4356	122.6201	144.2698	167.1289	199.5872	12.62081	71.78054	4.771678	0.26255	336.6174	0	0.133557	0.86
30.2604	30.4698	28.05302	24.13557	19.1651	15.12081	92.44698	101.4483	122.7852	144.4705	167.3591	199.8638	12.59597	72.01208	4.738658	0.265034	327.8255	0	0.206174	0.86
30.29463	30.42483	28.15503	24.20134	19.1047	14.87987	92.46711	101.4705	122.9477	144.6664	167.5879	200.1436	12.53826	71.65839	4.754161	0.269195	320.4161	0	0.248792	0.86
29.45503	29.73356	27.38993	23.25503	18.29463	14.43624	92.26846	101.2436	122.0846	143.6711	166.453	198.7966	12.77852	74.05235	5.563356	0.347248	390.5973	0	0.649463	0.85
29.73624	29.9604	27.84094	23.80268	18.63087	14.74228	92.31812	101.304	122.2705	143.8839	166.6946	199.0819	12.82752	73.96376	5.453826	0.34745	383.4631	0	0.368188	0.85
29.89799	30.06711	27.75906	23.81342	18.84362	14.72752	92.36846	101.3644	122.4577	144.0953	166.9329	199.3725	12.7651	74.04362	5.239329	0.335906	365.4295	0	0.360268	0.85
30.17919	30.3	27.95101	24.09799	19.08255	15.02349	92.42416	101.4295	122.6799	144.3517	167.2282	199.7154	12.82953	74.02819	4.96094	0.305302	346.1946	0	0.25557	0.85
30.3047	30.46711	28.24564	24.13624	19.15906	14.9047	92.46644	101.4738	122.8987	144.602	167.5195	200.0624	12.80134	74.02886	4.694295	0.270805	331.8456	0	0.238926	0.86
30.35772	30.57852	28.39664	24.32282	19.34832	15.11544	92.5047	101.5228	123.0423	144.7745	167.7154	200.2953	12.82416	74.09396	4.460738	0.245101	320.6376	0	0.237718	0.86
30.44832	30.75101	28.45705	24.3255	19.27383	15.34161	92.55436	101.5866	123.1819	144.947	167.9154	200.5282	12.94228	73.71477	4.377919	0.232148	308.745	0	0.206443	0.86
29.60671	29.8047	27.61208	23.47987	18.64362	14.6349	92.27718	101.2483	122.149	143.7329	166.5094	198.8638	12.77047	74.62081	5.54396	0.344161	382.2819	0	0.654564	0.86
29.7651	29.93691	27.66174	23.58859	18.73154	14.97785	92.33087	101.3181	122.4161	144.047	166.8839	199.3148	12.70537	74.03221	5.457718	0.344027	373.4966	0	0.342685	0.86
29.91946	30.14161	27.87651	23.85772	19.07383	14.86107	92.38591	101.3792	122.6812	144.3591	167.2604	199.7671	12.78792	73.48725	5.062148	0.294161	353.3557	0	0.343557	0.86
30.18859	30.40268	28.09463	23.96107	19.23624	15.26174	92.45369	101.4591	122.8718	144.5792	167.5013	200.0544	12.8443	73.34228	4.731611	0.26396	334.5436	0	0.241879	0.86
30.40336	30.66443	28.41544	24.21342	19.25034	15.24497	92.52081	101.5409	123.0591	144.798	167.7396	200.3389	12.80805	73.38993	4.283423	0.216711	313.1946	0	0.111745	0.86
30.44497	30.74161	28.40671	24.37584	19.60201	15.51611	92.59329	101.6268	123.2899	145.0658	168.0483	200.702	12.79664	73.71141	3.949329	0.201745	292.1477	0	0.002617	0.86
30.8	31.09128	28.83557	24.86711	19.84362	15.66376	92.67651	101.7248	123.5148	145.3336	168.3544	201.0638	12.81745	73.4302	3.723087	0.192483	270.7718	0	0	0.86

FL_depth2	FL_depth5	FL_depth1	FL_depth2	FL_depth5	FL_depthTi	FL_depth1	FL_depth2	FL_depth5	FL_depth1	FL_depth2	FL_depth5	FL_depthTidal_pctarea_mean
1.75	1.89	2	2.13	2.31		12.61	13.77	15.34	16.58	17.75	19.38	
1.74	1.87	1.99	2.11	2.27		12.61	13.75	15.27	16.46	17.59	19.21	
1.74	1.87	1.98	2.1	2.26		12.6	13.72	15.25	16.42	17.57	19.2	
1.73	1.87	1.98	2.1	2.26		12.58	13.71	15.22	16.37	17.53	19.14	
1.73	1.86	1.97	2.09	2.25		12.59	13.71	15.23	16.38	17.53	19.15	
1.73	1.86	1.97	2.08	2.24		12.6	13.72	15.24	16.4	17.56	19.19	
1.73	1.86	1.96	2.08	2.23		12.61	13.74	15.27	16.43	17.6	19.2	
1.73	1.85	1.96	2.07	2.22		12.62	13.75	15.28	16.45	17.62	19.22	
1.69	1.81	1.91	2.02	2.17		12.36	13.46	14.94	16.1	17.28	18.85	
1.7	1.82	1.92	2.04	2.19		12.46	13.56	15.09	16.27	17.45	19.06	
1.71	1.84	1.94	2.05	2.21		12.53	13.65	15.18	16.37	17.53	19.15	
1.72	1.85	1.96	2.08	2.23		12.58	13.71	15.24	16.41	17.57	19.2	
1.73	1.87	1.98	2.09	2.25		12.64	13.77	15.28	16.45	17.61	19.23	
1.74	1.88	1.98	2.11	2.26		12.69	13.83	15.35	16.54	17.66	19.3	
1.75	1.88	1.99	2.12	2.27		12.74	13.88	15.41	16.62	17.72	19.32	
1.79	1.93	2.05	2.18	2.36		12.88	14.07	15.68	16.91	18.07	19.75	
1.77	1.91	2.03	2.16	2.33		12.85	14.03	15.62	16.86	18	19.68	
1.76	1.9	2.01	2.14	2.3		12.82	13.98	15.55	16.79	17.92	19.6	
1.75	1.89	2	2.12	2.27		12.78	13.94	15.5	16.72	17.83	19.52	
1.74	1.88	1.98	2.1	2.25		12.76	13.92	15.46	16.68	17.79	19.45	
1.74	1.87	1.97	2.09	2.23		12.75	13.91	15.43	16.66	17.76	19.4	
1.73	1.86	1.96	2.07	2.22		12.74	13.89	15.41	16.6	17.74	19.34	
1	1.26	1.63	2.21	3.55	0.37	32.27	36.93	43.27	51.37	58.48	68.62	0.14
1.03	1.35	1.73	2.33	3.71	0.39	33.02	37.28	45.63	52.34	58.86	69.2	0.36
1.04	1.36	1.76	2.36	3.76	0.39	33.34	37.4	45.78	52.52	59.32	69.42	0.45
1.05	1.38	1.79	2.39	3.8	0.39	33.53	37.52	45.95	52.67	59.47	69.66	0.54
1.06	1.4	1.82	2.43	3.84	0.39	33.66	37.63	46.17	52.87	59.6	69.87	0.66
1.07	1.41	1.83	2.46	3.87	0.39	33.78	37.73	46.42	53.06	59.72	70.04	0.82
1.09	1.44	1.84	2.48	3.92	0.39	33.93	38.31	46.67	53.18	59.77	70.3	1.01
1.1	1.47	1.87	2.53	3.97	0.38	34.04	38.45	46.84	53.36	59.94	70.74	1.28
1.01	1.29	1.71	2.33	3.7	0.39	32.77	36.71	43.65	51.45	57.58	68.33	0.36
1.02	1.31	1.74	2.36	3.75	0.39	33.13	36.89	43.9	51.81	58.23	68.68	0.44
1.03	1.33	1.77	2.39	3.79	0.39	33.32	37.05	44.14	52.05	58.44	68.98	0.54
1.05	1.38	1.8	2.43	3.84	0.39	33.45	37.2	45.53	52.33	58.64	69.25	0.66
1.06	1.41	1.82	2.47	3.88	0.39	33.57	37.34	45.84	52.59	58.83	69.47	0.82
1.08	1.44	1.84	2.5	3.93	0.39	33.73	37.95	46.15	52.8	58.95	69.78	1.04
1.1	1.47	1.87	2.55	3.99	0.38	33.85	38.12	46.78	53.04	59.18	70.28	1.36
1.02	1.33	1.72	2.35	3.72	0.39	32.89	36.94	44.67	51.91	57.93	68.55	0.36
1.03	1.35	1.76	2.37	3.76	0.39	33.29	37.15	44.95	52.2	58.56	68.95	0.46
1.05	1.37	1.79	2.4	3.8	0.39	33.52	37.35	45.34	52.45	58.84	69.33	0.56
1.06	1.4	1.82	2.44	3.85	0.39	33.71	37.56	45.99	52.82	59.17	69.7	0.71
1.08	1.42	1.84	2.48	3.88	0.39	33.91	38.19	46.47	53.1	59.5	70.03	0.93
1.1	1.46	1.86	2.51	3.94	0.38	34.1	38.46	46.79	53.34	59.7	70.44	1.25
1.12	1.49	1.9	2.57	4	0.33	34.27	38.7	47.49	53.6	60.01	71.02	2.05
1.06	1.63	2.34	3.34	5.33	0.58	47.3	51.02	56.34	61.59	68.6	82.98	4.14
1.17	1.77	2.5	3.47	5.48	0.71	47.89	50.83	56.68	61.51	69.35	83.96	5.07

FL_depth2	FL_depth5	FL_depth1	FL_depth2	FL_depth5	FL_depthTi	FL_depth1	FL_depth2	FL_depth5	FL_depth1	FL_depth2	FL_depth5	FL_depthTidal_pctarea_mean
1.2	1.81	2.54	3.52	5.54	0.73	48.1	50.98	56.93	61.91	69.71	84.33	5.26
1.23	1.85	2.58	3.56	5.6	0.75	48.3	51.16	57.17	62.31	70.1	84.83	5.49
1.26	1.88	2.61	3.61	5.64	0.77	48.44	51.41	57.44	62.74	70.43	85.16	5.74
1.29	1.91	2.65	3.64	5.71	0.79	48.6	51.77	57.65	63.16	70.65	85.63	6.03
1.32	1.96	2.66	3.7	5.76	0.8	48.75	52.03	57.95	63.53	71.04	85.93	6.36
1.34	1.99	2.7	3.74	5.81	0.76	48.92	52.33	58.18	63.81	71.32	86.18	7.22
1.16	1.77	2.5	3.47	5.47	0.7	48.01	51.38	57.09	61.94	69.81	84.25	5.06
1.19	1.81	2.54	3.51	5.53	0.73	48.23	51.52	57.32	62.32	70.14	84.61	5.25
1.22	1.84	2.58	3.55	5.59	0.75	48.42	51.66	57.53	62.66	70.48	85.05	5.46
1.25	1.88	2.61	3.61	5.64	0.77	48.54	51.84	57.76	63.05	70.76	85.34	5.72
1.29	1.91	2.65	3.63	5.71	0.79	48.67	52.05	57.89	63.4	70.92	85.78	6.03
1.32	1.96	2.67	3.7	5.76	0.8	48.81	52.23	58.15	63.63	71.28	86.08	6.42
1.35	2	2.71	3.75	5.82	0.73	48.96	52.46	58.33	63.96	71.53	86.32	7.71
1.17	1.77	2.49	3.47	5.47	0.71	48.22	51.56	57.21	62.32	69.79	84.24	5.07
1.2	1.81	2.53	3.51	5.54	0.73	48.44	51.72	57.47	62.73	70.17	84.62	5.28
1.23	1.85	2.57	3.56	5.6	0.76	48.65	51.89	57.72	63.13	70.56	85.09	5.52
1.27	1.9	2.61	3.62	5.65	0.78	48.83	52.12	57.98	63.62	70.89	85.45	5.84
1.31	1.93	2.66	3.65	5.73	0.8	48.99	52.36	58.16	63.98	71.14	85.92	6.23
1.35	1.99	2.69	3.72	5.79	0.76	49.18	52.64	58.51	64.17	71.56	86.29	7.31
1.39	2.04	2.74	3.78	5.86	0.69	49.38	52.93	58.77	64.43	71.87	86.59	9.12
1.33	1.48	1.6	1.74	1.93		13.84	15.54	17.69	19.34	20.99	23.24	
1.33	1.46	1.57	1.69	1.86		13.83	15.4	17.35	18.76	20.19	22.11	
1.33	1.46	1.57	1.69	1.86		13.86	15.43	17.4	18.81	20.26	22.19	
1.33	1.46	1.58	1.7	1.87		13.88	15.45	17.42	18.84	20.3	22.23	
1.33	1.47	1.58	1.7	1.87		13.92	15.5	17.48	18.9	20.36	22.32	
1.33	1.47	1.58	1.7	1.87		13.97	15.55	17.54	18.98	20.44	22.43	
1.33	1.47	1.58	1.7	1.87		14.02	15.61	17.61	19.06	20.52	22.51	
1.33	1.47	1.58	1.71	1.88		14.05	15.63	17.65	19.11	20.57	22.58	
1.3	1.42	1.53	1.65	1.81		13.62	15.19	17.19	18.64	20.09	22.08	
1.3	1.43	1.54	1.66	1.83		13.74	15.32	17.34	18.8	20.26	22.27	
1.31	1.44	1.56	1.68	1.85		13.83	15.42	17.43	18.9	20.36	22.37	
1.32	1.46	1.57	1.7	1.87		13.89	15.48	17.49	18.95	20.43	22.43	
1.33	1.47	1.59	1.71	1.89		13.96	15.56	17.56	19.02	20.51	22.51	
1.34	1.48	1.6	1.73	1.91		14.05	15.64	17.64	19.08	20.58	22.59	
1.35	1.49	1.62	1.74	1.92		14.12	15.71	17.71	19.16	20.66	22.64	
1.32	1.45	1.56	1.68	1.85		13.9	15.54	17.55	19.07	20.6	22.66	
1.33	1.46	1.57	1.69	1.86		13.96	15.58	17.61	19.11	20.64	22.71	
1.33	1.47	1.58	1.71	1.88		14	15.62	17.64	19.14	20.66	22.73	
1.34	1.48	1.59	1.72	1.89		14.06	15.67	17.69	19.18	20.69	22.76	
1.34	1.48	1.6	1.73	1.9		14.12	15.73	17.74	19.24	20.74	22.8	
1.35	1.49	1.61	1.74	1.91		14.18	15.79	17.81	19.28	20.79	22.85	
1.35	1.5	1.62	1.75	1.93		14.23	15.84	17.85	19.31	20.82	22.86	
0.95	1.07	1.28	1.45	1.72		20.45	23.6	28.09	32.42	35.41	39.55	
0.94	1.13	1.28	1.45	1.72		20.61	23.82	29.27	32.54	35.43	39.41	
0.94	1.13	1.27	1.44	1.71		20.65	23.85	29.27	32.55	35.42	39.39	
0.94	1.13	1.27	1.44	1.7		20.7	23.89	29.29	32.52	35.39	39.37	

FL_depth2	FL_depth5	FL_depth1	FL_depth2	FL_depth5	FL_depthTi	FL_depth1	FL_depth2	FL_depth5	FL_depth1	FL_depth2	FL_depth5	FL_depthTidal_pctarea_mean
0.94	1.13	1.26	1.43	1.69		20.74	23.92	29.28	32.51	35.36	39.35	
0.94	1.12	1.26	1.42	1.68		20.78	23.95	29.28	32.49	35.34	39.32	
0.94	1.12	1.26	1.42	1.67		20.82	23.99	29.28	32.48	35.32	39.29	
0.94	1.05	1.25	1.41	1.66		20.86	24.01	28.36	32.46	35.29	39.26	
0.91	1.01	1.19	1.33	1.55		20.21	23.17	27.36	31.35	34.31	37.96	
0.92	1.02	1.21	1.36	1.58		20.39	23.38	27.63	31.68	34.59	38.38	
0.92	1.03	1.22	1.38	1.62		20.53	23.56	27.87	31.93	34.8	38.8	
0.93	1.04	1.24	1.4	1.65		20.63	23.72	28.04	32.13	34.98	38.94	
0.94	1.12	1.25	1.42	1.67		20.73	23.88	29.16	32.33	35.12	39.05	
0.94	1.13	1.27	1.43	1.69		20.84	24.04	29.35	32.5	35.26	39.13	
0.94	1.14	1.28	1.45	1.71		20.94	24.19	29.52	32.64	35.38	39.2	
0.96	1.16	1.31	1.48	1.76		20.82	24.12	29.6	32.75	35.58	39.35	
0.95	1.15	1.3	1.47	1.74		20.87	24.12	29.56	32.71	35.5	39.35	
0.95	1.14	1.29	1.45	1.72		20.92	24.14	29.53	32.67	35.43	39.33	
0.95	1.14	1.28	1.44	1.7		20.96	24.17	29.52	32.64	35.41	39.32	
0.95	1.13	1.27	1.43	1.68		21	24.22	29.5	32.64	35.4	39.33	
0.94	1.13	1.26	1.42	1.67		21.06	24.26	29.51	32.63	35.39	39.32	
0.94	1.13	1.26	1.42	1.66		21.11	24.3	29.51	32.64	35.38	39.3	
1.16	1.79	2.51	3.71	6.48	0.45	46.21	50.9	59	66.27	85.51	97.17	2.87
1.29	1.93	2.67	3.89	6.7	0.52	47.86	52.03	60.13	76.16	86.63	97.77	4.86
1.33	1.97	2.7	3.94	6.79	0.53	48.2	52.4	60.5	76.77	86.99	97.93	5.4
1.36	2	2.74	3.99	6.88	0.54	48.51	52.75	60.82	77.21	87.35	98.07	5.98
1.39	2.04	2.79	4.05	6.96	0.54	48.81	53.17	61.17	77.66	87.71	98.18	6.7
1.42	2.07	2.83	4.1	7.05	0.54	49.14	53.58	61.43	78	88.12	98.27	7.61
1.45	2.11	2.86	4.13	7.12	0.53	49.44	54.02	61.72	78.35	88.27	98.37	8.79
1.48	2.14	2.89	4.18	7.19	0.48	49.73	54.35	62	78.61	88.61	98.48	11.45
1.29	1.93	2.66	3.88	6.69	0.52	47.83	51.95	59.96	76.06	86.54	97.75	4.83
1.32	1.96	2.7	3.93	6.79	0.53	48.14	52.3	60.31	76.45	86.89	97.92	5.36
1.35	1.99	2.74	3.98	6.88	0.54	48.45	52.62	60.61	77.08	87.25	98.07	5.92
1.38	2.03	2.78	4.04	6.96	0.54	48.75	53.07	60.96	77.55	87.62	98.18	6.66
1.41	2.06	2.83	4.1	7.05	0.54	49.09	53.49	61.25	77.91	88.05	98.27	7.62
1.45	2.11	2.87	4.14	7.12	0.53	49.42	53.97	61.58	78.29	88.24	98.38	9.03
1.48	2.15	2.9	4.19	7.2	0.46	49.73	54.34	61.93	78.6	88.64	98.5	12.63
1.29	1.93	2.66	3.88	6.7	0.52	47.75	51.87	59.84	76	86.5	97.76	4.87
1.33	1.97	2.7	3.94	6.79	0.53	48.16	52.34	60.31	76.67	86.9	97.93	5.44
1.36	2	2.75	3.99	6.89	0.54	48.56	52.77	60.73	77.16	87.31	98.08	6.08
1.4	2.05	2.8	4.06	6.98	0.54	48.97	53.34	61.21	77.73	87.76	98.2	7.01
1.43	2.09	2.85	4.12	7.08	0.53	49.41	53.89	61.61	78.19	88.28	98.32	8.3
1.48	2.14	2.9	4.17	7.17	0.47	49.85	54.48	62.04	78.68	88.56	98.44	11.56
1.52	2.18	2.94	4.23	7.26	0.37	50.27	54.98	62.62	79.07	89.11	98.57	20.18
0.88	0.96	1.05	1.23	1.72	0.47	16.07	18.17	21.31	24.19	27.76	35.04	0.25
0.87	0.95	1.04	1.23	1.75	0.54	16.32	18.38	21.48	24.28	27.68	34.9	0.36
0.87	0.95	1.04	1.24	1.77	0.56	16.36	18.48	21.61	24.41	27.84	35.14	0.39
0.87	0.95	1.05	1.25	1.79	0.59	16.42	18.57	21.72	24.55	28.02	35.39	0.41
0.87	0.95	1.05	1.26	1.8	0.6	16.47	18.63	21.79	24.65	28.11	35.57	0.43
0.87	0.95	1.06	1.26	1.82	0.62	16.52	18.68	21.87	24.74	28.22	35.75	0.46

FL_depth2	FL_depth5	FL_depth1	FL_depth2	FL_depth5	FL_depthTi	FL_depth1	FL_depth2	FL_depth5	FL_depth1	FL_depth2	FL_depth5	FL_depthTidal_pctarea_mean
0.87	0.95	1.06	1.27	1.83	0.64	16.57	18.74	21.96	24.82	28.31	35.88	0.48
0.87	0.96	1.07	1.27	1.85	0.66	16.62	18.81	22.03	24.94	28.39	36.12	0.5
0.87	0.95	1.05	1.24	1.76	0.54	16.34	18.44	21.63	24.5	27.99	35.39	0.36
0.87	0.95	1.05	1.25	1.77	0.56	16.43	18.54	21.75	24.62	28.13	35.59	0.39
0.87	0.95	1.06	1.26	1.79	0.58	16.49	18.63	21.86	24.75	28.29	35.8	0.41
0.87	0.96	1.06	1.26	1.81	0.6	16.52	18.71	21.95	24.86	28.4	35.98	0.43
0.87	0.96	1.07	1.27	1.83	0.62	16.57	18.79	22.05	24.97	28.52	36.14	0.46
0.87	0.96	1.07	1.28	1.83	0.64	16.63	18.86	22.13	25.06	28.6	36.26	0.49
0.88	0.96	1.07	1.28	1.86	0.67	16.68	18.93	22.22	25.18	28.67	36.47	0.51
0.89	0.97	1.07	1.26	1.78	0.55	16.51	18.68	21.91	24.84	28.31	35.55	0.36
0.89	0.97	1.07	1.27	1.79	0.56	16.57	18.75	22	24.92	28.41	35.74	0.39
0.88	0.97	1.07	1.27	1.81	0.59	16.62	18.82	22.07	24.99	28.52	35.93	0.41
0.88	0.97	1.07	1.28	1.82	0.61	16.66	18.88	22.14	25.08	28.61	36.12	0.44
0.88	0.97	1.07	1.28	1.83	0.63	16.73	18.95	22.22	25.17	28.7	36.3	0.48
0.88	0.96	1.07	1.28	1.84	0.66	16.79	19.03	22.31	25.23	28.76	36.43	0.51
0.88	0.96	1.08	1.28	1.86	0.69	16.83	19.1	22.4	25.33	28.81	36.66	0.54
1.19	1.34	1.47	1.6	1.86		28.69	32.87	37.65	41.02	44.42	49	
1.19	1.33	1.45	1.58	1.84	0.22	28.78	32.8	37.37	40.59	43.73	48.24	0
1.19	1.33	1.45	1.58	1.84	0.26	28.83	32.82	37.4	40.6	43.75	48.26	0
1.19	1.34	1.46	1.58	1.85	0.31	28.91	32.87	37.43	40.7	43.78	48.3	0
1.2	1.34	1.46	1.58	1.85	0.36	28.98	32.91	37.46	40.72	43.79	48.32	0
1.2	1.34	1.46	1.58	1.86	0.41	29.05	32.96	37.49	40.74	43.81	48.36	0
1.2	1.34	1.46	1.58	1.87	0.34	29.09	33	37.52	40.76	43.83	48.39	0
1.2	1.34	1.46	1.58	1.87	0.28	29.15	33.05	37.54	40.78	43.86	48.42	0
1.19	1.34	1.47	1.6	1.87	0.21	28.93	33.14	37.89	41.27	44.61	49.11	0
1.19	1.34	1.47	1.6	1.87	0.26	29.02	33.2	37.92	41.33	44.58	49.12	0
1.19	1.34	1.47	1.6	1.88	0.31	29.11	33.22	37.92	41.32	44.54	49.07	0
1.2	1.35	1.47	1.6	1.88	0.36	29.14	33.21	37.91	41.29	44.49	49.04	0
1.2	1.35	1.47	1.6	1.89	0.41	29.19	33.23	37.9	41.26	44.46	49.03	0
1.2	1.35	1.47	1.6	1.89	0.35	29.22	33.24	37.89	41.24	44.42	49	0
1.21	1.35	1.47	1.6	1.89	0.29	29.25	33.25	37.88	41.22	44.38	48.96	0
1.21	1.36	1.48	1.61	1.87	0.22	29.19	33.31	37.92	41.26	44.46	48.93	0
1.21	1.36	1.48	1.61	1.87	0.27	29.29	33.38	37.95	41.28	44.46	48.92	0
1.21	1.36	1.48	1.61	1.87	0.32	29.37	33.4	37.96	41.28	44.44	48.91	0
1.21	1.36	1.48	1.6	1.87	0.38	29.41	33.41	37.96	41.26	44.41	48.89	0
1.21	1.35	1.47	1.6	1.88	0.44	29.44	33.41	37.96	41.24	44.38	48.87	0
1.21	1.35	1.47	1.59	1.88	0.28	29.46	33.4	37.93	41.2	44.31	48.83	0
1.21	1.35	1.46	1.58	1.87	0.32	29.45	33.38	37.9	41.14	44.24	48.76	0
0.99	1.16	1.34	1.58	2.01	0.25	31.05	35.61	41.92	47.93	53.44	59.78	0.94
0.99	1.19	1.37	1.62	2.06	0.37	31.31	36.06	42.08	48.63	53.62	59.97	2.67
1	1.19	1.38	1.63	2.08	0.41	31.7	36.21	42.25	48.79	53.81	60.11	2.86
1	1.2	1.39	1.63	2.09	0.44	31.89	36.36	42.4	48.91	53.89	60.16	3.06
1.01	1.21	1.4	1.65	2.09	0.48	32.07	36.51	42.57	49.05	53.98	60.22	3.26
1.02	1.22	1.41	1.66	2.11	0.52	32.26	36.68	42.75	49.17	54.06	60.32	3.46
1.03	1.23	1.41	1.67	2.12	0.55	32.44	36.87	42.96	49.25	54.15	60.33	3.69
1.03	1.24	1.43	1.69	2.13	0.58	32.6	37.01	43.14	49.39	54.21	60.38	3.94

FL_depth2	FL_depth5	FL_depth1	FL_depth2	FL_depth5	FL_depthTi	FL_depth1	FL_depth2	FL_depth5	FL_depth1	FL_depth2	FL_depth5	FL_depthTidal_pctarea_mean
0.97	1.16	1.33	1.58	2.02	0.36	30.99	35.56	41.22	47.22	52.33	58.57	2.66
0.98	1.17	1.35	1.59	2.03	0.4	31.45	35.76	41.5	47.85	52.63	58.86	2.84
0.99	1.18	1.37	1.6	2.05	0.44	31.66	35.92	41.68	48.06	52.77	58.98	3.04
1	1.19	1.38	1.62	2.06	0.48	31.83	36.08	41.88	48.25	52.92	59.08	3.25
1.01	1.21	1.39	1.64	2.08	0.52	32.03	36.27	42.09	48.43	53.1	59.28	3.47
1.02	1.22	1.4	1.66	2.1	0.55	32.2	36.45	42.36	48.56	53.27	59.42	3.73
1.04	1.23	1.42	1.68	2.12	0.58	32.37	36.61	42.58	48.77	53.43	59.53	4.01
0.98	1.17	1.34	1.58	2.02	0.37	31.09	35.66	41.37	47.73	52.5	58.7	2.67
0.99	1.18	1.36	1.6	2.04	0.41	31.59	35.91	41.7	48.07	52.87	59.08	2.87
1	1.19	1.38	1.61	2.06	0.45	31.84	36.15	41.97	48.35	53.12	59.32	3.08
1.01	1.2	1.4	1.64	2.07	0.49	32.09	36.4	42.28	48.63	53.38	59.56	3.33
1.02	1.22	1.41	1.66	2.1	0.53	32.32	36.66	42.59	48.88	53.65	59.87	3.59
1.04	1.23	1.42	1.67	2.12	0.57	32.57	36.92	42.98	49.15	53.98	60.16	3.92
1.05	1.25	1.44	1.7	2.14	0.61	32.8	37.16	43.29	49.46	54.28	60.41	4.28
1.46	1.58	1.67	1.75	1.88		13.67	14.71	16.11	17.17	18.29	19.74	
1.45	1.55	1.64	1.72	1.83		13.74	14.75	16.15	17.17	18.19	19.56	
1.45	1.55	1.63	1.72	1.83		13.74	14.75	16.16	17.19	18.21	19.58	
1.45	1.55	1.63	1.71	1.83		13.75	14.76	16.18	17.21	18.23	19.59	
1.45	1.55	1.63	1.71	1.82		13.77	14.78	16.19	17.21	18.23	19.59	
1.45	1.55	1.63	1.71	1.82		13.79	14.8	16.2	17.21	18.23	19.59	
1.45	1.55	1.63	1.7	1.81		13.81	14.82	16.21	17.22	18.23	19.58	
1.45	1.55	1.62	1.7	1.81		13.82	14.83	16.21	17.22	18.23	19.57	
1.44	1.55	1.64	1.72	1.84		13.72	14.74	16.16	17.21	18.3	19.73	
1.44	1.55	1.64	1.72	1.84		13.76	14.79	16.21	17.26	18.34	19.77	
1.45	1.56	1.64	1.73	1.85		13.79	14.83	16.24	17.3	18.37	19.8	
1.45	1.56	1.64	1.73	1.84		13.8	14.84	16.28	17.34	18.4	19.83	
1.46	1.56	1.64	1.73	1.84		13.81	14.86	16.31	17.38	18.43	19.86	
1.46	1.56	1.64	1.73	1.84		13.83	14.89	16.34	17.41	18.46	19.88	
1.46	1.56	1.64	1.73	1.84		13.85	14.91	16.37	17.43	18.48	19.89	
1.5	1.62	1.71	1.81	1.94		13.95	15.02	16.52	17.61	18.72	20.19	
1.49	1.61	1.7	1.79	1.92		13.95	15.02	16.5	17.57	18.67	20.12	
1.49	1.6	1.69	1.77	1.9		13.94	15.01	16.47	17.54	18.62	20.06	
1.48	1.59	1.67	1.76	1.88		13.93	14.99	16.45	17.51	18.58	20	
1.47	1.58	1.66	1.74	1.86		13.92	14.97	16.42	17.47	18.53	19.94	
1.46	1.56	1.64	1.73	1.84		13.91	14.96	16.39	17.44	18.49	19.88	
1.45	1.55	1.63	1.71	1.82		13.9	14.94	16.36	17.41	18.44	19.82	
1.72	1.87	2	2.15	2.41		14.03	16	18.64	20.59	22.53	24.67	
1.73	1.89	2.01	2.16	2.4		14.01	15.89	18.23	20.21	22.09	24.21	
1.73	1.89	2.01	2.15	2.39		14.01	15.89	18.26	20.21	22.08	24.21	
1.72	1.88	2.01	2.15	2.39		14.02	15.9	18.28	20.21	22.08	24.18	
1.72	1.88	2	2.14	2.37		14.05	15.93	18.32	20.22	22.09	24.19	
1.72	1.87	1.99	2.13	2.36		14.08	15.97	18.36	20.25	22.1	24.2	
1.71	1.86	1.99	2.12	2.35		14.11	16	18.39	20.27	22.13	24.22	
1.71	1.86	1.98	2.11	2.34		14.13	16.02	18.42	20.29	22.14	24.23	
1.65	1.8	1.9	2.04	2.26		13.72	15.59	17.92	19.94	21.73	23.94	
1.67	1.82	1.93	2.06	2.28		13.84	15.73	18.11	20.09	21.93	24.11	

FL_depth2	FL_depth5	FL_depth1	FL_depth2	FL_depth5	FL_depthTi	FL_depth1	FL_depth2	FL_depth5	FL_depth1	FL_depth2	FL_depth5	FL_depthTidal_pctarea_mean
1.68	1.83	1.95	2.08	2.31		13.94	15.83	18.28	20.21	22.05	24.2	
1.7	1.85	1.97	2.11	2.34		14.01	15.89	18.35	20.25	22.11	24.25	
1.72	1.86	1.99	2.13	2.36		14.08	15.97	18.43	20.33	22.19	24.29	
1.73	1.88	2	2.14	2.38		14.16	16.06	18.51	20.41	22.26	24.34	
1.74	1.89	2.01	2.16	2.39		14.23	16.12	18.57	20.49	22.33	24.38	
1.77	1.92	2.06	2.21	2.48		14.53	16.39	19.03	20.96	22.85	24.86	
1.76	1.9	2.04	2.18	2.44		14.39	16.31	18.94	20.83	22.72	24.74	
1.74	1.89	2.02	2.16	2.4		14.34	16.26	18.82	20.7	22.58	24.64	
1.73	1.87	2	2.14	2.37		14.28	16.2	18.73	20.57	22.44	24.52	
1.72	1.86	1.99	2.12	2.35		14.25	16.16	18.66	20.48	22.32	24.42	
1.71	1.85	1.97	2.11	2.32		14.23	16.14	18.6	20.41	22.23	24.34	
1.71	1.85	1.96	2.09	2.3		14.21	16.1	18.53	20.35	22.15	24.26	
0.92	1.01	1.09	1.18	1.33		18.78	21.6	25.53	28.65	31.81	35.85	
0.9	0.98	1.06	1.14	1.28		18.5	21.13	24.85	27.78	30.69	34.36	
0.91	0.99	1.06	1.15	1.29		18.58	21.21	24.93	27.86	30.77	34.43	
0.91	0.99	1.06	1.15	1.29		18.63	21.27	24.99	27.94	30.82	34.48	
0.91	0.99	1.07	1.16	1.29		18.7	21.35	25.07	28.01	30.88	34.55	
0.91	0.99	1.07	1.16	1.3		18.78	21.43	25.16	28.1	30.96	34.63	
0.91	0.99	1.07	1.16	1.3		18.85	21.52	25.24	28.17	31.02	34.67	
0.91	1	1.07	1.16	1.3		18.89	21.57	25.28	28.23	31.05	34.71	
0.89	0.97	1.04	1.12	1.25		18.3	20.85	24.42	27.19	30.04	33.68	
0.9	0.97	1.04	1.13	1.26		18.42	20.99	24.61	27.39	30.22	33.84	
0.9	0.98	1.05	1.14	1.27		18.5	21.09	24.71	27.54	30.32	33.91	
0.9	0.98	1.06	1.15	1.28		18.56	21.16	24.79	27.63	30.38	33.95	
0.91	0.99	1.06	1.15	1.29		18.64	21.25	24.9	27.74	30.46	34	
0.91	0.99	1.07	1.16	1.3		18.72	21.32	24.96	27.81	30.52	34.02	
0.91	1	1.08	1.17	1.31		18.78	21.39	25.04	27.86	30.54	34.03	
0.91	0.99	1.06	1.14	1.27		18.55	21.17	24.81	27.65	30.55	34.21	
0.91	0.99	1.06	1.15	1.28		18.65	21.28	24.92	27.8	30.68	34.33	
0.91	0.99	1.06	1.15	1.29		18.73	21.37	25.02	27.91	30.76	34.4	
0.91	1	1.07	1.16	1.29		18.82	21.46	25.12	28.01	30.84	34.47	
0.91	1	1.07	1.16	1.3		18.89	21.55	25.23	28.13	30.92	34.55	
0.92	1	1.08	1.17	1.31		18.97	21.63	25.32	28.23	31.01	34.62	
0.92	1	1.08	1.18	1.31		19.03	21.69	25.39	28.27	31.05	34.64	

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-26

QUESTION:

Referring to page 2:

a. State the confidence interval for each measure that the BCA results will outweigh the costs over the life of the measure.

b. State the life used for each individual measure.

c. State the BCA formula and describe the calculation in detail.

d. State the formula to convert CMI to dollars and describe the calculation in detail.

e. In applying VOLL, was a single number used for all measures, customers, and event types? If no, provide all VOLLs used and describe how and where they were applied.

ANSWER:

a. Guidehouse did not develop confidence intervals for CenterPoint Houston's proposed resiliency measures.

b. Except for Vegetation Management, Guidehouse did not determine the expected life of each measure. Guidehouse's calculations for measures where BCA ratios were derived projected benefits over 20 years. For the Vegetation Management resiliency measure, a 3-year cycle was applied to derive benefits, with a residual decline in CMI reduction over the next seven years.

c. Refer to confidential Excel spreadsheet provided in response to RFI TCUC 1-1 which includes formulae and calculations Guidehouse used to derive BCA ratios.

d. Refer to Part C above for the calculation Guidehouse applied to derive CMIs for the years 2026 though 2028 for resiliency measures for which BCA ratios were derived.

e. Guidehouse applied a Value of Lost Load (VoLL) of $35,000 per MWhr for all resiliency measures for which BCA ratios were derived. The VoLL of $35,000 per MWhr is the metric recommended by Commission Chair Thomas Gleeson in its August 28, 2024 Memorandum and approved for use by the Commission on August 29, 2024. The VoLL is escalated 2% annually and applied to the expected reduction in CMI for each resiliency measure where BCA ratios were derived.

SPONSOR:
Eugene Shlatz

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-27

QUESTION:

Referring to page 3:

a. Provide an illustrative example calculation that demonstrates how to derive the benefit cost of each Resiliency Measure listed in the table using the capital cost, O&M cost, and BCA results. If the example calculation does not represent all Resiliency Measures in the table, please provide a calculation for each Resiliency Measure.

b. Provide an illustrative example calculation that demonstrates how to derive the CMI dollar benefits and System Restoration Cost benefits that totalize to the benefit cost calculated in subpart (a). If the example calculation does not represent all Resiliency Measures in the table, please provide a calculation for each Resiliency Measure.

ANSWER:

a. Refer to TIEC 1-26 c. for calculations for each resiliency measure that appears in Table 1-1 and Table 5-1 of Exhibit ELS-2.

b. Refer to TIEC 1-27 a.

SPONSOR:
Eugene Shlatz

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
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TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-28

QUESTION:

Referring to page 12, please confirm that the Circuit Level Analysis was not applied to the transmission system. If not confirmed, please point to the information that explains how this analysis was applied to the transmission system.

ANSWER:

Confirmed.

SPONSOR:
Eugene Shlatz

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
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SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-29

QUESTION:

Referring to page 22, in your opinion, does Good Utility Practice favor a project with a higher net customer benefit as compared to a project with a lower net customer benefit (all other considerations being equal)?

ANSWER:

All resiliency measures proposed by CenterPoint Houston are consistent with Good Utility Practices. Guidehouse did not derive BCA ratios based solely on net customer benefits.

SPONSOR:
Eugene Shlatz

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
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TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-30

QUESTION:

Referring to page 30, footnote 15, please elaborate on how the focus on costs and outage reduction measures over the three-year plan changes the results of the quantified net benefits compared to not having this focus.

ANSWER:

Guidehouse did not derive resiliency measure benefits or assess resiliency measures for costs (e.g., investments) that CenterPoint Houston may propose beyond 2028.

SPONSOR:
Eugene Shlatz

RESPONSIVE DOCUMENTS:
None

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TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-31

QUESTION:

Referring to page 31, for each qualitative benefit listed, explain how the VOLL utilized by Guidehouse does not already take the qualitative benefit into consideration.

ANSWER:

Guidehouse's evaluation of qualitative impacts focused on societal benefits such as the impact of outages on services provided by state and local agencies, widespread economic impact above and beyond direct impact to customers as measured by VoLL, and emergency response provided by federal and state agencies.

SPONSOR:
Eugene Shlatz

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-32

QUESTION:

Referring to page 34, please provide the unredacted version of the survey.

ANSWER:

Please see the response to HCC RFP 01-01 and specifically HCC RFP 01-01 Attachment 3 CONFIDENTIAL.pdf.

SPONSOR:
Eugene Shlatz

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-33

QUESTION:

Please provide a corrected copy of the testimony that resolves the portions which state "Error! Reference source not found."

ANSWER:

On testimony page 34 of 64, the "Error! Reference source not found" refers to Figure ELS-1 on page 34 of 64.
On testimony page 35 of 64, the "Error! Reference source not found" refers to Figure ELS-2 on page 35 of 64.
On testimony page 36 of 64, the "Error! Reference source not found" refers to Figure ELS-3 on page 36 of 64.
On testimony page 40 of 64, the "Error! Reference source not found" refers to Figure ELS-4 on page 40 of 64.
On testimony page 41 of 64, the "Error! Reference source not found" refers to Figure ELS-1 on page 34 of 64.
On testimony page 45 of 64, the "Error! Reference source not found" refers to Figure ELS-1 on page 34 of 64.
On testimony page 47 of 64, the "Error! Reference source not found" refers to Figure ELS-1 on page 34 of 64.
On testimony page 50 of 64, the "Error! Reference source not found" refers to Figure ELS-6 on page 50 of 64.
On testimony page 51 of 64, the "Error! Reference source not found" refers to Figure ELS-1 on page 34 of 64.
On testimony page 54 of 64, the "Error! Reference source not found" refers to Figure ELS-1 on page 34 of 64.
On testimony page 57 of 64, the "Error! Reference source not found" refers to Figure ELS-1 on page 34 of 64.

SPONSOR:
Eugene Shlatz

RESPONSIVE DOCUMENTS:
None

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TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-34

QUESTION:

Referring to page 50:

a. Provide a copy of Figure ELS-6 in "live" Excel format inclusive of the raw data.

b. State the year that historical data ends and projected data begins.

c. Provide the source and link to the historical data used.

d. Does the historical data utilize any data smoothing, or is each year unadjusted?

e. Was this same data source relied upon to calculate BCAs?

ANSWER:

a. Please refer to TIEC 01-25 Attachment 01.xls which includes aggregated extreme weather forecast at the county level. This was used to create Figure ELS-6 (i.e., column F "HT_daysExceeding38C_mean").

b. The extreme weather forecast that Guidehouse used from Jupiter Intelligence utilizes historical weather station data along with machine learning and various high geospatial resolution datasets as part of the process of spatially downscaling the data. Please refer to the attached raw data file in TIEC 1-34a.

c. Please refer to the response to TIEC 1-34a, b.

d. Yes, Jupiter Intelligence utilizes data smoothing.

e. Yes, Guidehouse's evaluation of programs included in the Temperature (Freeze Event) category was based on the knowledge that temperatures in CenterPoint Houston's service territory are expected to increase over time.

SPONSOR:
Eugene Shlatz

RESPONSIVE DOCUMENTS:
None

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TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-35

QUESTION:

Referring to Exhibit ELS-2, page 24, state whether the data in Figure 2-1 relied upon to inform the modeling of increased severity and frequency of extreme weather events that, in turn, was used in calculating the BCAs? If yes, please describe where and how it was used.

ANSWER:

Guidehouse did not directly rely on data contained in Figure 2-1. As noted in Guidehouse's response to TIEC 1-25, BCA ratios were derived for many resiliency measures using the forecast for specific resiliency events such as extreme wind and flooding forecasts.

SPONSOR:
Eugene Shlatz

RESPONSIVE DOCUMENTS:
None

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TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-36

QUESTION:

Referring to Exhibit ELS-2, page 59:

a. Is the reference to using RCP8.5 referring to the Scenarios in Table 4-1? If not, please elaborate on what RCP8.5 means and the source of this information.

b. Does RCP8.5 result in the highest FWI results of the Scenarios in Table 4-1?

c. Why did Guidehouse choose this Scenario over other Scenarios in developing its FWI as illustrated in Figures 4-26 and 4-27?

ANSWER:

a. Yes, scenario RCP 8.5 in Exhibit ELS-2, page 59 is about the scenario described in Table 4-1 and the overall assumptions in section 4.1.2.

b. Yes, the analysis performed for the projected fire weather index (FWI) was done utilizing data from the Argonne National Laboratory RCP 8.5 scenario and it is the same scenario referenced in table 4.1.

c. Given the increase in wildfire risk across the country and to perform the analysis with the worst-case scenario (RCP 8.5), Guidehouse chose scenario RCP 8.5 for the analysis as shown in section 4.2.4 and figures 4-26 and 4-27. In addition, at the time of this analysis, Argonne National Lab didn't have FWI projections available for RCP 4.5.

SPONSOR:
Eugene Shlatz

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-37

QUESTION:

Referring to Exhibit ELS-2, page 69:

a. In applying VOLL to calculate BCAs for Resiliency Measures, was VOLL modified or adjusted from $35,000 per MWh to account for differences such as Resiliency Measures, customer types and quantities by circuit, resiliency event types, regional cost-of-living, and resiliency event duration? If yes,provide all VOLLs used and describe how and where they were applied.

b. Describe how load growth was incorporated into the BCA analysis and usedto calculate BCAs.

c. Provide the derivation of the 6 kW average customer load.

ANSWER:

a. No, A VoLL of $35,000 per MWhr was applied to all resiliency measures where BCA ratios were derived.

b. An annual load growth of 2% was applied to all resiliency measures where BCA ratios were derived.

c. The 6kW was derived by dividing CenterPoint Houston's peak demand by the total number of retail customers served.

SPONSOR:
Eugene Shlatz

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
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SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-38

QUESTION:

Referring to Exhibit ELS-2, page 100:

a. Provide an illustrative example of how a severe wind event would translate into a 345 kV tower failure and then into BCA results including the use of the failure percentages.

b. Provide the derivation of 729 MW of load at risk and average restoration time of 72 hours

ANSWER:

a. The derivation of a severe wind event for Transmission Hardening (345kV) is based on the probability that wind speed will exceed the design threshold for existing wood pole structures. From Section 4.2, the probability wind speed will exceed the design threshold is .002 or .02%. The likelihood failure will result in an interruption of load is estimated at 25%. The load at risk is 729 MW, which is based on the average load interruptions on the 345kV grid. The average time to repair/replace the damaged pole is 72 hours. The multiplication of the values produces an annual expected unserved energy of 26.2 MWHrs. Multiplying the 26.2 MWHr by $35,000 per MWhr VoLL produces an annual value of approximately $919,000 for each 345kV structure that fails.

b. In working with the independent consultant, we settled on 729 MW as an appropriately conservative estimate of load at risk. Based on CenterPoint Energy's Transmission Planning department 2025 load at risk analysis, CenterPoint Energy's average 345kV circuit has approximately 454MW of load at risk. For a double circuit failure this represents a potential 908MW of load at risk (454MW x 2). A 72-hour restoration time provides time for damage assessment, engineering analysis, and new structure installation. The restoration time may vary depending on several factors including (but not limited to) area accessibility, cascading (multiple structure) failures, material availability, and crew availability.

SPONSOR:
David Mercado and Eugene Shlatz

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-39

QUESTION:

Referring to Exhibit ELS-2, page 105, state the quantity of S90 towers that are wooden.

ANSWER:

None of the S90 towers are wooden.

SPONSOR:
Eugene Shlatz

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
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TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-40

QUESTION:

Referring to Exhibit ELS-2, page 107:

a. Provide the derivation of the 75% likelihood of load loss for a common mode, double contingency (N-2) failure on a tower line. Additionally,describe why this failure mode was selected.

b. Provide the derivation of 729 MW of load at risk and average restoration time of 60 hours.

c. Does this failure mode require two separate circuits to fail at the same time?

d. Provide the past 10 years history of this failure mode for S90 towers during extreme weather, categorized by extreme weather event.

ANSWER:

a. For purposes of the Guidehouse study and the derivation of BCA ratios, a common mode failure of S90 towers assumes that an extreme wind resiliency event will cause two S90 towers located within the same right-of-way to fail. A value of 75% accounts for the likelihood that only one of two towers will fail during some extreme wind events.

b. In working with the independent consultant, we settled on 729 MW as an appropriately conservative estimate of load at risk. Based on CenterPoint Energy's Transmission Planning department 2025 load at risk analysis, CenterPoint Energy's average 345kV circuit has approximately 454MW of load at risk. For a double circuit failure this represents a potential 908MW of load at risk (454MW x 2). A 60-hour restoration time provides time for damage assessment, engineering analysis, and new structure installation. The restoration time may vary depending on several factors including (but not limited to) area accessibility, cascading (multiple structure) failures, material availability, and crew availability.

c. Yes

d. Please see response to TIEC 1-12 b.

SPONSOR:
David Mercado and Eugene Shlatz

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-41

QUESTION:

Referring to Exhibit ELS-2, page 236, explain why there appears to be a significant change in wind speed along a single vertical and horizontal line at roughly 30 degrees north and 95 degrees west.

ANSWER:

Regional differences in the wind speed visualization are an artifact of the downscaling approach and the resolution of the underlying wind speed climate data applied by Jupiter Intelligence. The Jupiter Intelligence wind data is derived from the lower resolution output of the ERA5 global climate reanalysis model (ERA5 hourly data on single levels from 1940 to present).

SPONSOR:
Eugene Shlatz

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-42

QUESTION:

Referring to Exhibit ELS-2, page 270-271, identify the locations of the 11 utilities who responded to the survey. Additionally, identify the locations of the 9 utilities in Figure A-2.

ANSWER:

Please see the response to HCC RFP 01-01 and specifically HCC RFP 01-01 Attachment 3 CONFIDENTIAL.pdf.

SPONSOR:
Eugene Shlatz

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-43

QUESTION:

Referring to the Direct Testimony of Eric D. Easton at page 19, lines 12-21:

a. Confirm that the model referenced was developed by CenterPoint employees and is fully CenterPoint owned. If anything other than yes,please describe the development and ownership in more detail.

b. Provide a copy of the model and a narrative of how to run and adjust the model.

c. For each variable input, list the variable name along with a description, the range of potential values, the value or values that CenterPoint used inmodeling the data for this SRP, and evidence supporting the value or values selected.

d. For each fixed variable, list the variable name along with a description, therange of potential values, the value CenterPoint used in modeling the data for this SRP, and evidence supporting the value selected.

e. For each formula used in the model that uses a combination of fixed and variable inputs to calculate outputs, list the formula, describe how it is applied, and provide the equation.

f. For each formula used outside the model and which either calculates an input variable or adjusts an output from the model, list the formula, describe how the formula is applied, and provide the equation.

g. Provide a flowchart along with description that illustrates the model, and sub-models, and which illustrates the various functions and components, as well as how the various inputs and models are integrated to arrive at the outputs.

ANSWER:

a - g. On March 3rd, representatives from CenterPoint had a call with representatives from TIEC to provide a response to this request. CenterPoint is authorized to represent that TIEC was satisfied with the information provided.

SPONSOR:
Eric Easton

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-44

QUESTION:

Referring to the Direct Testimony of Ronald W. Bahr at page 12, lines 1-3:

a. State the basis in the SRP Rule that supports the inclusion of investments to"maintain" resiliency.

b. State the investment cost, by Resiliency Measure, that was included in theSRP in order to "maintain" CenterPoint's system.

ANSWER:

a. The SRP Rule expressly provides for the inclusion of operations and maintenance expenses. See 16 Tex. Admin Code Secs. 62(c)(2(E) (expressly contemplating that a system resiliency plan will include "estimated operations and maintenance expenses"), 62(g)(1)(A) (expressly requiring annual reports to include "operations and maintenance expenses incurred in the prior year"), and 62(g)(1)(B) (expressly requiring annual reports to include an estimate of "operations and maintenance expenses" scheduled for completion in the upcoming year). Moreover, "maintaining" technology operations and infrastructure often involves obtaining and implementing the latest upgrades to hardware and software, much the way upgrades to a personal cell phone or computer--a typical maintenance practice--can improve the performance and security of the device or software.

b. All of the costs for each Resiliency Measure in CenterPoint Houston's system resiliency plan are eligible costs under the Commission's SRP Rule, as they all "enhance the resiliency" of CenterPoint Houston's transmission and distribution system. The Company has not endeavored to delineate specific costs as having been incurred solely to "improve," "modernize," or "maintain" the Company's technology operations infrastructure, as most incurred costs will provide some combination of those benefits, each of which is encompassed in the concept of "enhancing resiliency."

SPONSOR:
Ron Bahr

RESPONSIVE DOCUMENTS:
None

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
PUC DOCKET NO. 57579
SOAH DOCKET NO. 473-25-11558

TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-45

QUESTION:

Referring to the Direct Testimony of Muss Akram at page 12, line 11, through page 14, line 6:

a. Provide the documentation supporting the claimed investment made byFlorida Power & Light (FPL).

b. Provide the claimed FPL investment data, but split between transmissionand distribution.

c. Does Figure MA-8 represent FPL's estimate of storm recovery savings orCenterPoint's estimate of FPL's storm recovery savings? If it representsCenterPoint's estimate, please explain why FPL's estimate of stormrecovery savings was not used.

ANSWER:

a. Please see TIEC RFI01-45 Attachment 1 - FPL investment.xls for sources and calculations regarding the claimed FPL resiliency investments.

b. Please see TIEC RFI01-45 Attachment 1 - FPL investment.xls for sources and calculations regarding the claimed FPL resiliency investments broken out by various resiliency measures.

c. Figure MA-8 applies the rate of savings claimed by FPL for Hurricane Irma to FPL's claimed storm recovery costs for Hurricanes Ian, Nicole, Idalia, Debby, Helene, and Milton. To my knowledge, FPL has not at the time of this filing provided their own estimate for storm recovery cost savings for storms after Hurricane Irma.

SPONSOR:
Muss Akram

RESPONSIVE DOCUMENTS:
TIEC-RFI01-45 Attachment 1 - FPL investment.xls

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
CPI	201.558	207.344	215.254	214.565	218.076	224.923	229.586	232.952	236.715	237.002	240.005	245.121	251.1	255.653	258.846	270.966	292.621	304.701	313.3350909
CPI in 2024 dollars	1.554565	1.511185	1.455653	1.460327	1.436816	1.393077	1.364783	1.345063	1.323681	1.322078	1.305536	1.278287	1.247849824	1.225626497	1.210507757	1.156363126	1.070788122	1.028336274	1
	In millions USD																		
FPL Nominal spend	29.6	84	117.5	144.5	124.3	140.6	151.1	215	305.5	364.2	516.7	569.9	$ 794.60	$ 794.60	$ 1,037.20	$ 1,245.80	$ 1,292.40	$ 1,374.60	$ 1,540.50
FPL spend in 2024 dollars	46.01514	126.9395	171.0392	211.0173	178.5962	195.8666	206.2187	289.1885	404.3845	481.5007	674.5703	728.496	991.5414705	973.8828147	1255.538646	1440.597183	1383.886568	1413.551042	1540.5
Select Sums												3713.833							8999.497724

SPP Annual status report sources

2023A and 2024F	2023 Florida Power & Light Company SPP Annual Status	Page 10 of the pdf
2022A	2022 Florida Power and Light Company SPP Annual Stat	Page 10 of the pdf
2021A	2021 Florida Power and Light Company SPP Annual Stat	Pages 16 and 17 of the pdf
2020A	2020 Florida Power and Light Company SPP Annual Stat	Page 14 of the pdf
2020 SPP Source	FPL Petition, Testimony, Exhibit MJ-1 (SPP) - Dkt 20200(	Pages 51, 55, 61, 65, 69, 75, and 80 of the pdf

Source Document:	Historical		*2020 SPP*				*Refrenced "SPP Annual Status Report"*				
Category ($ Millions)	**2017**	**2017 - 2019 annual**	**2018 - 2019 annual**	**2018E**	**2019E**	**2020A**	**2021A**	**2022A**	**2023A**	**2024F**
Distribution Inspection	51.8	$ 51.0		$ 50.6	$ 50.6	$ 38.5	$ 66.9	$ 39.4	$ 36.4	$ 41.5
Transmission Inspection	40.2	$ 43.0		$ 44.4	$ 44.4	$ 28.4	$ 36.4	$ 43.3	$ 55.7	$ 52.0
Distribution Feeder Hardening	420	$ 497.0		$ 535.5	$ 535.5	$ 681.7	$ 714.6	$ 706.5	$ 646.2	$ 680.6
Distribution Lateral Hardening (undergrounding)	4.1	$ -	$ 38.0	$ 38.0	$ 38.0	$ 129.3	$ 248.1	$ 355.2	$ 486.1	$ 602.6
Transmission Hardening (structures)	53.8	$ 54.0		$ 54.1	$ 54.1	$ 86.0	$ 93.5	$ 56.5	$ 42.4	$ 25.5
Distribution Vegetation Management		$ 63.0		$ 63.0	$ 63.0	$ 60.7	$ 67.6	$ 71.0	$ 86.8	$ 117.8
Transmission Vegetation Management		$ 9.0		$ 9.0	$ 9.0	$ 9.4	$ 10.9	$ 15.8	$ 14.5	$ 12.5
Substation Storm Surge / Flood Mitigation		$ -		$ -	$ -	$ 3.2	$ 7.8	$ 4.7	$ 6.5	$ 8.0
Total	**569.9**	**$ 717.00**		**$ 794.60**	**$ 794.60**	**$ 1,037.20**	**$ 1,245.80**	**$ 1,292.40**	**$ 1,374.60**	**$ 1,540.50**

Source 01517-2018.pdf page 5

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TIEC RFI01-45 Attachment 1 - FPL investments
Page 3 of 5

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Distribution												
Feeders	17	26.8	54.6	80.2	45.4	43	50.5	105.6	154.9	201	362.9	420
Storm Surge/Flooding	0	0	0	0	0	0	0	0	1.4	2.6	0.1	0
Total Distribution	17	26.8	54.6	80.2	45.4	43	50.5	105.6	156.3	203.6	363	420
Transmission												
Replacing CPOCs	0	6.5	5.9	4	0.7	0.9	1.2	4.9	2.9	0.7	0	0
Replacing Wood Structures	0	0	0	0	0	0	0	0	41.4	49	55.4	53.8
Storm Surge/Flooding	0	0	0	0	0	0	0	1.1	1	0	0	0
Total Transmission	0	6.5	5.9	4	0.7	0.9	1.2	6	45.3	49.7	55.4	53.8
OH/UG Conversions	0	0	0.8	6.8	3.9	5.2	4.4	2.7	2.6	1.7	1	4.1
Inspections												
Distribution Pole Inspections	11.1	35.5	39.9	36	50	67	67.5	69.7	70.1	73	61.9	51.8
Transmission Inspections	1.5	15.2	16.3	17.5	24.3	24.5	27.5	31	31.2	36.2	35.4	40.2
Total Inspections	12.6	50.7	56.2	53.5	74.3	91.5	95	100.7	101.3	109.2	97.3	92
Grand Total	29.6	84	117.5	144.5	124.3	140.6	151.1	215	305.5	364.2	516.7	569.9

Cap	23.7	71.1	97.9	124.9	108.5	120.4	130.9	190.4	298	351	501.1	559.1	2577
O&M	5.9	12.9	19.6	19.6	15.8	20.2	20.2	24.6	7.5	13.2	15.6	10.8	185.9

FRED Graph Observations
Federal Reserve Economic Data, Federal Reserve Bank of St. Louis
Link: https://fred.stlouisfed.org
Help: https://fredhelp.stlouisfed.org
This data may be copyrighted. Please refer to the Terms of Use: https://fred.stlouisfed.org/legal#fred-terms-faq
File Created: 2025-01-02 3:03 pm CST

CPIAUCSL Consumer Price Index for All Urban Consumers: All Items in U.S. City Average, Index 1982-1984=100, Annual, Seasonally Adjusted

Data Updated: 2024-12-11

ervation_d	CPIAUCSL
1947-01-01	22.332
1948-01-01	24.045
1949-01-01	23.809
1950-01-01	24.063
1951-01-01	25.973
1952-01-01	26.567
1953-01-01	26.768
1954-01-01	26.865
1955-01-01	26.796
1956-01-01	27.191
1957-01-01	28.113
1958-01-01	28.881
1959-01-01	29.150
1960-01-01	29.585
1961-01-01	29.902
1962-01-01	30.253
1963-01-01	30.633
1964-01-01	31.038
1965-01-01	31.528
1966-01-01	32.471
1967-01-01	33.375
1968-01-01	34.792
1969-01-01	36.683
1970-01-01	38.842
1971-01-01	40.483
1972-01-01	41.808
1973-01-01	44.425
1974-01-01	49.317
1975-01-01	53.825
1976-01-01	56.933
1977-01-01	60.617
1978-01-01	65.242
1979-01-01	72.583
1980-01-01	82.383
1981-01-01	90.933
1982-01-01	96.533
1983-01-01	99.583
1984-01-01	103.933
1985-01-01	107.600
1986-01-01	109.692
1987-01-01	113.617
1988-01-01	118.275
1989-01-01	123.942
1990-01-01	130.658
1991-01-01	136.167
1992-01-01	140.308
1993-01-01	144.475
1994-01-01	148.225
1995-01-01	152.383
1996-01-01	156.858
1997-01-01	160.525
1998-01-01	163.008
1999-01-01	166.583
2000-01-01	172.192
2001-01-01	177.042
2002-01-01	179.867
2003-01-01	184.000
2004-01-01	188.908
2005-01-01	195.267
2006-01-01	201.558
2007-01-01	207.344
2008-01-01	215.254
2009-01-01	214.565
2010-01-01	218.076
2011-01-01	224.923
2012-01-01	229.586
2013-01-01	232.952
2014-01-01	236.715
2015-01-01	237.002
2016-01-01	240.005
2017-01-01	245.121
2018-01-01	251.100
2019-01-01	255.653
2020-01-01	258.846
2021-01-01	270.966
2022-01-01	292.621
2023-01-01	304.701
2024-01-01	

FRED Graph Observations
Federal Reserve Economic Data, Federal Reserve Bank of St. Louis
Link: https://fred.stlouisfed.org
Help: https://fredhelp.stlouisfed.org

File Created: 2025-01-02 3:26 pm CST

CPIAUCSL Consumer Price Index for All Urban Consumers: All Items in U.S. City Average, Index 1982-1984=100, Monthly, Seasonally Adjusted Data Updated: 2024-12-11

observation_date	CPIAUCSL
2024-01-01	309.685
2024-02-01	311.054
2024-03-01	312.230
2024-04-01	313.207
2024-05-01	313.225
2024-06-01	313.049
2024-07-01	313.534
2024-08-01	314.121
2024-09-01	314.686
2024-10-01	315.454
2024-11-01	316.441

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TEXAS INDUSTRIAL ENERGY CONSUMERS
REQUEST NO.: TIEC-RFI01-46

QUESTION:

Referring the Direct Testimony of Jeff W. Garmon at page 8, provide Figure JG-1 and Figure JG-2 in "live" Excel format with further expansion to show functionalized capital and O&M expense by each of the 39 Resiliency Measures and 1 microgrid project.

ANSWER:

The data presented in Figures JG-1 and Figure JG-2 in the direct testimony of Jeff Garmon can be found in TCUC 01-01 Attachment 1 - 2026-2028 Resiliency Plan MASTER.xls, specifically columns I - L.

SPONSOR:
Jeff Garmon

RESPONSIVE DOCUMENTS:
None

CERTIFICATE OF SERVICE

I hereby certify that on March 11, 2025, notice of the filing of this document was provided to all parties of record via electronic mail in accordance with the Second Order Suspending Rules, filed in Project No. 50664.

Terence Glenn Russell

Terence Russell

The following files are not convertible:

TIEC-RFI01-04 Attachment 1.xlsx
TIEC-RFI01-07 Attachment 1 -D56548 - Estimated Per Unit Cost and Benefits_DRAFT.xlsx
TIEC-RFI01-14a_b Attachment 1.xlsx
TIEC-RFI01-14c Attachment 1.xlsx
TIEC-RFI01-25 Attachment 01.xlsx

Please see the ZIP file for this Filing on the PUC Interchange in order to access these files.

Contact centralrecords@puc.texas.gov if you have any questions.