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LBNL Initiative to Update the ICE Calculator,^{R2007013} Frequently Asked Questions¹

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Berkeley Lab Initiative to Update the Interruption Cost Estimate (ICE) Calculator

Frequently Asked Questions

What is the ICE Calculator?

The Lawrence Berkeley National Laboratory (Berkeley Lab) Interruption Cost Estimate (ICE) Calculator is a publicly-available online tool that estimates the economic costs that electricity customers experience when their power is interrupted. <https://icecalculator.com/home>

Information on the economic costs customers experience when the lights go out is an important consideration for the design and prioritization of utility expenditures to improve the reliability and resilience of their distribution systems.

The ICE Calculator is based on the results from 100,000+ utility-sponsored surveys of electricity customers conducted between 1993 and 2019.

Why is the ICE Calculator in need of an update?

1. The vast majority of the surveys underlying the ICE Calculator are over ten years old. Given that electricity customers' uses of electricity have changed, in some instances significantly (e.g., work from home, digital controls for manufacturing processes), it is reasonable to expect that the value they place on reliable electric service has also changed.
2. The surveys underlying the ICE Calculator were conducted primarily by utilities located on the West Coast and in the Southeastern portion of the U.S. In addition to the age of the surveys, challenges have been raised in state regulatory proceedings regarding the appropriateness of using the ICE Calculator to estimate the cost of power interruptions experienced by customers in other regions of the U.S.

What is the Berkeley Lab Initiative to update the ICE Calculator?

The Berkeley Lab Initiative ("the Initiative") is a multi-client study to update the underlying survey data and expand the representativeness of the estimates produced by the ICE Calculator.

The Initiative involves primarily Berkeley Lab contracting with sponsoring utilities to conduct new surveys of customers in their distribution service territories. Identical surveys will be administered for each distribution service territory to ensure consistency.

The survey responses will then be pooled together and used to update the analytic engine of the ICE Calculator. In addition, new functionality will be incorporated into the ICE Calculator and reports will be produced for individual service territories as well as for the national analysis of interruption costs.

What is the scope of the Berkeley Lab Initiative?

Berkeley Lab estimates that surveys should be undertaken in at least 20 utility distribution service territories (approximately 2-3 service territories for each of the 9 U.S. Census subregions) to ensure that the updated ICE Calculator is fully statistically representative of all regions of the U.S.

As noted below, Berkeley Lab is launching the initial phase of the Initiative with half this target number. Hence, the initial update to the ICE Calculator will not be fully representative all regions of the U.S.



Berkeley Lab expects to continue to recruit additional utilities to join the Initiative and conduct a subsequent update to the ICE Calculator to increase the representativeness of the tool.

What are the U.S. Department of Energy’ perspectives on the Initiative?

The U.S. Department of Energy (DOE) sponsored the original development of the ICE Calculator.

DOE fully supports the objectives of the Initiative and the importance of updating the ICE Calculator with a new national survey and ensuring that the ICE Calculator continues to be available publicly.

To date, however, competing priorities have led DOE to conclude that the Initiative should be industry-funded.

What is the current status and what are the next steps and expected schedule for the activities of the Initiative?

Berkeley Lab is currently executing independent contracts with sponsoring utilities that will initiate the process of surveying customers in each utility’s distribution service territory.

As of January 2022, Berkeley Lab has executed or is about to execute contracts with utilities representing ten service territories. Based on discussions with these sponsoring utilities, Berkeley Lab will launch the initiative formally during the first half of 2022.

Berkeley Lab envisions a sequential and overlapping set of survey activities – each survey will be initiated based on the date that a contract with Berkeley Lab is signed. Specifically, Berkeley Lab expects to execute contracts with sponsoring utilities starting in late 2021 and into early 2022. Survey redesign, including pre-testing, is expected to be completed in the second half of 2022. Survey administration will begin at the start of 2023 with the majority of the surveys completed by the end of 2023. The updated ICE Calculator is planned for release in 2024 (subject to the scope of participation in the Initiative, discussed below). Along with the release, Berkeley Lab will publish a final technical report documenting all phases of the initiative.

Please contact Peter Larsen (PHLarsen@lbl.gov) or Joe Eto (JHEto@lbl.gov) for updates on the current status of the Initiative.

What, besides an update to the ICE Calculator, will sponsoring utilities receive?

Berkeley Lab will provide each sponsoring utility a private, non-public technical report summarizing results from the surveys conducted of their customers.

Upon request, Berkeley Lab will also develop an Application Programming Interface (API) for direct access to the updated ICE Calculator. This feature will allow the ICE Calculator to be linked directly to the sponsoring utility’s in-house analysis platforms. Berkeley Lab will also provide dedicated technical support for the sponsoring utility’s use of the updated ICE Calculator.

How will the activities of the Initiative be coordinated/guided?

Berkeley Lab is forming a *Project Executive Committee* (the “Executive Committee”) to serve as a decision-making body for the execution of the Initiative and as a forum for coordination among sponsoring utilities.



The Executive Committee will be comprised of utilities that have either executed or are about to execute contracts with Berkeley Lab.

What are the responsibilities of the Executive Committee?

The Project Executive Committee will provide final direction on all key project elements and processes.

The Executive Committee will review and approve the final set of questions that will be asked in each of the surveys; discuss the timetables for survey activities given external factors (e.g., Covid-19); and provide advice on whether or not to proceed with update of the ICE Calculator, if some regions of the country are under-represented.

The Executive Committee will also support the Initiative by encouraging additional utilities to sponsor the Initiative, especially in regions of the country that are under-represented.

Can a utility decide to sponsor the Initiative after surveys have been updated in 2022?

Yes. Utilities joining after the survey questions are finalized would participate in the surveys, participate in the Executive Committee, and receive the full benefits of sponsorship. However, such utilities would miss the opportunity to provide input on the redesign and finalization of survey questions.

How does Covid-19 affect the Initiative?

Covid-19 will affect the Initiative in ways that cannot be fully predicted, but in ways that can be proactively managed.

For example, while survey activities are not planned to start until 2023, following discussion with the Executive Committee, the project schedule might be adjusted (e.g., delay survey activities).

Berkeley Lab believes, in fact, that the country's experiences with Covid-19 will benefit the technical objectives of the Initiative. Covid-19 has heightened residential customer's awareness of the role that reliable electricity plays in their lives. It has also caused commercial and industrial customers to have a far more informed understanding of the costs that business interruptions impose on their activities.

What actions will take place given that some regions will be under-represented?

Berkeley Lab, supported by the Executive Committee, has made a concerted effort to secure utility participation from all regions of the U.S. As noted, Berkeley Lab has or will execute contracts with utilities representing half of the initial target number for the initiative (10 of 20).

Pending project sponsor consensus, Berkeley Lab will begin conducting the surveys and update the ICE Calculator based on the utilities that have signed contracts. *It is our belief that the underlying ICE Calculator equations can be updated for all states in the Eastern Interconnection based on the participation of this initial group of sponsors.* In parallel, Berkeley Lab will continue to secure additional sponsoring utilities. We will make a second update to the ICE Calculator following completion and analysis of surveys administered to the customers of these utilities.

What is the cost of utility participation in the Initiative?

The cost of utility participation in the Initiative is \$600,000 per distribution service territory.



At the election of the sponsoring utility, geographically adjacent, yet distinct distribution service territories within the same Census region could be treated as a single distribution service territory.

Can payment for participation be spread over multiple years?

Yes. Berkeley Lab will invoice for payment throughout the entire three-year term of the Initiative based on recorded expenses. Contact Berkeley Lab to discuss options for alternative payment arrangements to align with sponsor's budgeting protocols.

What are the additional responsibilities of sponsoring utilities?

As noted, sponsoring utilities are expected to participate actively on the Executive Committee.

Sponsoring utilities must also provide information on their customers that is sufficient to develop the statistically-based samples of customers to which surveys will be administered.

In addition, sponsoring utilities must provide information that will allow Berkeley Lab to contact and recruit sampled customers to participate in the survey. For example, sponsoring utilities are expected to allow use of their corporate letterheads in communications with customers. Company support may be requested for assistance in contacting larger non-residential customers and, also, potentially participate in the survey interview process.

Will Berkeley Lab be working with subcontractors to complete this update of the ICE Calculator?

Yes. Berkeley Lab will be subcontracting selected activities to our trusted research partner, Resource Innovations (formerly Nexant), with whom we have collaborated with on a number of projects in the past. Resource Innovations has un-paralleled experience conducting interruption cost surveys and will be bound by all utility requirements to protect personally-identifiable and business sensitive information.

How will customer's personally identifiable or business confidential information be handled?

Berkeley Lab and its subcontractors will protect customer's personally identifiable or business confidential information following all U.S. government and University of California (which manages Berkeley Lab for DOE) sanctioned practices and procedures. The design, administration, and analysis of surveys are subject to review and approval by the Berkeley Lab Institutional Review Board.

All information collected through this Initiative will be used solely for the purposes of updating the ICE Calculator. All survey responses will be anonymized immediately after data collection and prior to updating the ICE Calculator; no information identifying individual customers will be released outside of the survey research team. All utility- and utility customer-specific information collected through this initiative will be returned to the sponsoring utility following completion of the surveys and the anonymization of survey responses.

The means by which sensitive information is being handled is to have utilities transfer the information directly to Resource Innovations. Resource Innovations has already executed agreements with and been certified to protect sensitive information following the requirements of many participating utilities already. Resource Innovations is also in a ready position to execute subsequent agreements with other utilities.



This approach avoids the need to have Berkeley Lab execute agreements to protect sensitive information with individual utilities because Berkeley Lab will only handle anonymized and/or aggregated survey results. We have learned that Berkeley Lab, as a DOE Laboratory, is unable to accept some of the terms that are specified in the agreements that utilities require.

Is data sent to Berkeley Lab subject to Freedom of Information Act (FOIA) requests and will data provided by utilities be put into the public domain?

Berkeley Lab as a U.S. Department of Energy lab is subject to FOIA requests. However, there are exceptions to producing information under FOIA including information that is proprietary, i.e., trade secrets or commercial or financial information that is confidential and/or privileged. We ask that participating utilities label or identify data as being commercial or financial information that is confidential and privileged. There may be other exemptions that apply.

Utility customer information will be provided directly and only to Berkeley Lab's subcontractor, Resource Innovations, under a non-disclosure agreement (NDA) and information flow agreement that the parties will execute. Resource Innovations will be processing this data as well as de-identifying, anonymizing, and aggregating this data. As a result, Berkeley Lab does not plan to handle utility information that identifies customers. Berkeley Lab plans to handle only processed and anonymized data provided by Resources Innovations in order to update the ICE Calculator. Therefore, FOIA requests to Berkeley Lab will not be a means for obtaining these data.

We will to make the ICE Calculator tool publicly available for a range of stakeholders to use, subject to any privacy and Berkeley Lab website use regulations that may apply.

How will key industry stakeholders be kept informed about the Initiative?

Berkeley Lab is also forming a *Project Advisory Group* (the "Advisory Group") that will be briefed routinely on participation by sponsoring utilities, sampling methods, survey questions, and the ICE Calculator upgrade. Berkeley Lab anticipates that these briefings will take place primarily through invited presentations hosted by members of the Advisory Group. Through these briefings, the Advisory Group will be invited to provide non-binding comments and suggestions on all aspects of the initiative to Berkeley Lab and the Executive Committee.

Invitation to participate in the Advisory Group will be extended, initially, to EPRI, NARUC, NASEO, NASUCA, APPA, NRECA, along with others TBD.

Will the ICE Calculator be updated to estimate the cost of power interruptions lasting longer than 24 hours?

No. The focus of this Initiative is to fully update and expand the coverage of the ICE Calculator which by design is limited to treating interruptions lasting up to 24 hours.

However, Berkeley Lab—with input from the Executive Committee and the Advisory Group—expect to include some questions in the surveys to help inform future research into the costs associated with longer duration, widespread power interruptions.

Prior DOE-sponsored research conducted by Berkeley Lab has determined that surveys of customers, alone, cannot provide complete information on the costs of power interruptions that last longer than 24



hours. Berkeley Lab is seeking support from DOE to undertake the research necessary to estimate these costs. The results from this research would lead to future, second update the ICE Calculator, subsequent to the completion of this Initiative.

How can interested utilities sponsor or learn more about the Initiative?

Contact Peter Larsen or Joe Eto at Lawrence Berkeley National Laboratory.

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(END OF APPENDIX C)