GWA Grid Mod Survey - July 2024

Q1 **Thank you in advance for taking the time to complete this survey**.
Here are a few instructions on completing the survey:

- If you are responding for a multi-jurisdiction Utility, you may provide answers for each state. Please note that the survey will repeat for each state for which you wish to respond.
- The term ESP, Energy Service Provider, is used throughout this survey as a generic term for any organization that is engaged in the supply of Power
- Your answers will be saved when you click the "next" button to proceed to the next screen.
- If you need to exit the survey before answering all of the questions, please click the link provided in the original email to resume where you left off.
- Please use the Back and Next buttons at the bottom of the page to navigate this survey, not your browser Back and Forward Buttons.
- Use a desktop or laptop for the best survey experience. If you are utilizing a mobile device to complete this survey, please hold the device horizontally.
- If you have any issues completing this survey please contact us at marketresearch@bv.com

Q5 Which of the following best describes your role? (Select one)

Policy maker
Regulator
Utility
Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Display This Question:
If Q5 = Policy maker
Or Q5 = Regulator

QPM REG STATE Please select what state/territory your answers apply to? (Select one)

▼ Alabama ... Wyoming

Display This Question:
If Q5 = Utility
Or Q5 = Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Q2 For how many states will you be answering this survey? (Enter a number between 1 and 10)

Display This Question:

If If For how many states will you be answering this survey? (Enter a number between 1 and 10) Text Response Is Equal to 1

Q3 Please select what state/territory your answers apply to? (Select one)

▼ Alabama ... Wyoming

Display This Question:

If If For how many states will you be answering this survey? (Enter a number between 1 and 10) Text Response Is Greater Than 1

Q4 Please select what states your answers will apply to? (Select up to 10) (Hold down the "CTRL" key to select multiple states)

▼ Alabama ... Wyoming

Display This Question:

If Q5 = Utility

Or Q5 = Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Q6 Does your organization own, operate, maintain, and / or construct transmission assets? (Select all that apply)

Own
Operate
Maintain
Construct or manage the construction of
None of the above

Start of Block: State Policy

QSP The next series of questions are related to state policy.

Q13 Does the state have any of the following, as it relates to Grid Modernization? (Select one for each)

	Yes	No	Unsure
Policy (high-level goals and objectives)	○	○	○
Strategy (detailed approach with roadmap)	○	○	○
Policy incorporated in state energy plans	○	○	○

Q14 Does the state require ESPs to submit a Grid Modernization Plan? (Select one)

Yes
No
Unsure

Q15 Are ESPs required to report on progress against a Grid Modernization Plan? (Select one)

Yes, every 6 months
Yes, once per year
Yes, other frequency _____
No
Unsure

Q16 For each of the following, what does the state have? (Select all that apply for each)

	Plans and roadmaps	Targets	Incentives	None of the above
Transportation electrification	☐	☐	☐	☐
Electrified heat	☐	☐	☐	☐
Renewables build-out	☐	☐	☐	☐
Storage deployment	☐	☐	☐	☐

Display This Question:

If Q16 [None of the above] (Count) != 4

Carry Forward Unselected Choices from "Q16"

Q17 Is there an evaluation of grid needs to support those plans, targets, or incentives? (Select one)

	Yes	No	Unsure
Transportation electrification	○	○	○
Electrified heat	○	○	○
Renewables build-out	○	○	○
Storage deployment	○	○	○

Q19 Does the state have a resiliency plan that addresses significant losses of infrastructure or equipment? (Select one)

- Yes
- No
- Unsure

Q20 Are ESPs required to report on a set of resilience metrics? (Select one)

- Yes
- No
- Unsure

Display This Question:

If Q20 = Yes

Q21 What are the resilience metrics? (Be as specific as possible)

_____

_____

_____

Q22 Which of the following does the state have to encourage increasing reliability and resiliency by ESPs or owners of critical infrastructure? (Select all that apply)

- Penalties
- Incentives
- None of the above

Q23 Does the state provide a list of data or information types for ESPs and owners of critical infrastructure to make available to stakeholders in an accessible and usable manner? (Select one)

- Yes
- No
- Unsure

Q24 Is there a state level policy or mandate that requires ESPs to have a cybersecurity plan? (Select one)

Yes
No
Unsure

Q25 Is there a state level policy or mandate that requires ESPs to have a physical security plan? (Select one)

Yes
No
Unsure

Q26 Does your state have workforce programs to develop the skillsets required to build, operate, and maintain grid modernization technologies and applications? (Select one)

Yes
No
Unsure

Q27 Does the state use its electricity capacity, cost, or reliability as a way to encourage investment through its economic development plan? (Select one)

Yes
No
Unsure

Q28 Does the state have policies or regulations in place for demand response, distributed generation, and distributed storage to provide grid support services at the retail level (i.e., transactional economics or transactive energy)? (Select one)

Yes
No
Unsure

Q29 Is the state investigating how to leverage distributed generation for any of the following reasons? (Select all that apply)

- Reduce peak demand on the Distribution Grid
- Reduce peak demand on the Transmission Grid
- Provide ancillary services such as VAR support, frequency response, spinning reserves
- Improve system resiliency, particularly during major events
- Improve reliability
- Defer capital infrastructure
- None of the above

Q30 Is the state investigating how to leverage electric vehicles for any of the following reasons? (Select all that apply)

- Reduce peak demand on the Distribution Grid
- Reduce peak demand on the Transmission Grid
- Provide ancillary services such as VAR support, frequency response, spinning reserves
- Improve system resiliency, particularly during major events
- Improve reliability
- Defer capital infrastructure
- None of the above

Q31 Is the state investigating how to leverage storage for any of the following reasons? (Select all that apply)

- Reduce peak demand on the Distribution Grid
- Reduce peak demand on the Transmission Grid
- Provide ancillary services such as VAR support, frequency response, spinning reserves
- Improve system resiliency, particularly during major events
- Improve reliability
- Defer capital infrastructure
- None of the above

Q32 Does the state have a clear, defined process for reviewing, approving, and allowing cost recovery of any of the following types of grid modernization projects? (Select all that apply)

- At scale grid modernization deployments
- R&D projects
- Pilot/demonstration projects
- None of the above

Q33 Does the state require ESPs to track and report the benefits of grid modernization investments? (Select one)

Yes
No
Unsure

Display This Question:

If Q33 = Yes

Q34 How are the benefits tracked and reported? (Select all that apply)

Financial cost-effectiveness
Technical performance-based metrics
Other (specify) _____

End of Block: State Policy

Start of Block: Customer Adoption & Options (SINGLE)

Display This Question:

If Q5 != Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

QCAO The next series of questions are related to customer adoption and options.

Display This Question:

If Q5 = Utility

Q35 Does your Energy Services Provider (ESP) have mass market dynamic pricing options? (Select one)

Yes, Time of Use (TOU) or Time of Day
Yes, Critical Peak Pricing (CPP)
Yes, Real Time Pricing (RTP)
No
Unsure

Display This Question:

If Q5 = Utility

Q36 Does the ESP communicate to customers about pricing events such as demand response (DR), critical peak pricing (CPP), and peak time rebate (PTR)? (Select one for each)

	Yes	No	Unsure
Email	○	○	○
Text message	○	○	○
Social media	○	○	○
Calling (outbound dialing)	○	○	○

Display This Question:

If Q5 = Utility

Q37 Does the ESP offer mass market critical peak pricing (CPP) or real time pricing (RTP) rebates to the following customer types? (Select one for each)

	Yes	No	Unsure
Industrial	○	○	○
Commercial	○	○	○
Residential	○	○	○

Display This Question:

If Q5 = Utility

Q38 Do mass market (non-large C&I) customers pay for reactive power if the power factor of load is below a certain %? (Select one)

Yes
No
Unsure

Display This Question:

If Q5 = Utility

Q39 Does the ESP have full retail or value of resource net metering? (Select one for each)

Full retail
Value of resource
Unsure

Display This Question:

If Q5 != Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Q40 Does the state incorporate, or require ESPs to incorporate, modernization of infrastructure to enable equitable access to grid modernization programs and initiatives into planning efforts? (Select one)

Yes
No
Unsure

Display This Question:

If Q5 = Regulator

Or Q5 = Utility

Q41 Does the state require ESPs to offer customers flexible rates or payment options? (Select one)

Yes
No
Unsure

Display This Question:

If Q5 = Utility

Q42 Has the ESP conducted outreach campaigns to educate customers on new capabilities and programs associated with grid modernization investments? (Select one)

Yes
No
Unsure

Display This Question:

If Q42 = Yes

Q43 How has success been measured for these programs? (Select all that apply)

Follow-up survey
Website tracking
Increased customer programs participation levels
Other (specify) _____
None of the above

Display This Question:

If Q5 != Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Q44 Does the state have a formal plan or requirements for ESPs to provide customer education and outreach on grid modernization benefits and capabilities? (Select one)

Yes
No
Unsure

Display This Question:

If Q5 = Utility

Q45 Does the ESP have rates to encourage increased demand during peak renewable generation periods (i.e., addressing the Duck Curve or Solar Cliff)? (Select one)

Yes
No
Unsure

Display This Question:

If Q5 = Utility

Q46 Has the ESP put in place the systems and processes to enable customers and non-wire alternatives to participate in the supplying of energy? (Select one)

Yes
No
Unsure

Display This Question:

If Q5 = Utility

Q47 For which of the following customer types, if any, does the ESP have demand response programs? (Select all that apply)

Large Commercial and Industrial (C&I)
Medium Commercial
Small Commercial
Residential
None of the above

Display This Question:

If Q5 = Utility

Q48 For which of the following customer types, if any, does the ESP have pricing programs or tariffs that encourage adoption of DERs like electric vehicles, energy storage, or solar PV? (Select all that apply)

Large Commercial and Industrial (C&I)
Medium Commercial
Small Commercial
Residential
None of the above

Display This Question:

If Q5 = Utility

Q49 For which of the following customer types, if any, does the ESP have programs for ESP-owned customer-sited distributed generation or storage? (Select all that apply)

- Large Commercial and Industrial (C&I)
- Medium Commercial
- Small Commercial
- Residential
- None of the above

Display This Question:

If Q5 = Utility

Q50 For which of the following customer types, if any, has the ESP implemented any programs to install behind-the-meter technologies (e.g., smart thermostats, direct load control devices)? (Select all that apply)

- Medium Commercial
- Small Commercial
- Residential
- None of the above

Display This Question:

If Q5 = Regulator

Or Q5 = Utility

Q51 Does the state require ESPs to have customer energy usage data privacy policies? (Select one)

- Yes
- No
- Unsure

Display This Question:

If Q5 = Utility

Or Q5 = Regulator

Q52 Does the state require the ESP to have a standard methodology for customers to access energy usage data or grant access to third parties? (Select one)

Yes
No
Unsure

Display This Question:

If Q52 = Yes

Q53 Which of the following interfaces are used for customers to access energy usage data or grant access to third parties? (Select all that apply)

Green Button
Opower/Oracle
Internally Built
Other (specify) _____

Display This Question:

If Q5 = Utility

And Q52 = Yes

Q54 At what frequency is the customer usage data which is made available updated? (Select one)

Hourly
Daily
Weekly
Monthly
Unsure

Display This Question:

If Q5 = Utility

And Q52 = Yes

Q55 At what granularity can the customers access their energy usage data? (Select one)

One Minute
5 Minutes
15 Minutes
30 minutes
Hourly
Daily
Other (specify) _____

Display This Question:

If Q5 = Utility

And Q52 = Yes

Q56 Can customers grant third party access to their energy usage data on at least a daily basis? (Select one)

Yes
No
Unsure

Display This Question:

If Q5 = Utility

Q57 At what level does the ESP have customer segmentation analytics capabilities? (Select all that apply)

	Implemented at Scale	Pilot program	Being considered	Unsure
Used to identify customer classes beyond typical Commercial, Industrial and Residential	○	○	○	○
Used to Customize customer programs and offerings	○	○	○	○
Used to improve communication with customers	○	○	○	○
Other (specify)	○	○	○	○

Display This Question:

If Q5 = Utility

Q58 If the ESP uses data analytics, what are the core systems that supply the data for those analytics? (Select all that apply)

Customer billing
Advanced metering (AMI)
Grid connected sensors (i.e. line sensors)
Advanced reclosers
Substation instrumentation
SCADA
ADMS
OMS
DERMS
Third-party data feeds
Third-party research
Other (specify) _____
ESP does not use data analytics

End of Block: Customer Adoption & Options (SINGLE)

Start of Block: Grid Optimization (SINGLE)

QGO The next series of questions are related to grid optimization.

Display This Question:

If Q5 = Utility

Q59 Does the ESP have remote meter reading functionality and/or coverage (i.e. AMI)? (Select one)

Yes
No
Unsure

Display This Question:

If Q59 = Yes

Q60 By customer class, what percent of meters are AMI? (Select one for each)

	0%	1-10%	11 – 20%	21 – 30%	31-40%	41-50%	51-60%	61-70%	71-80%	81-90%	91-100%	Unsure
Large Commercial and Industrial	○	○	○	○	○	○	○	○	○	○	○	○
Medium Commercial	○	○	○	○	○	○	○	○	○	○	○	○
Small Commercial	○	○	○	○	○	○	○	○	○	○	○	○
Residential	○	○	○	○	○	○	○	○	○	○	○	○

Display This Question:

If Q5 = Utility

And Q59 = Yes

Q61 Which third party devices, if any, does the ESP allow to connect to their AMI meter and have access to real-time data? (Select all that apply)

- Home energy management systems
- In-home displays
- Programmable thermostats
- Smart appliances
- EV chargers
- Other (specify) _____
- None of the above

Display This Question:

If Q5 = Utility

And Q59 = Yes

Q62 With which of the following, if any, does the ESP integrate AMI? (Select all that apply)

Outage Management System
Customer analytics system
Automated outage management customer communication systems
Mobile workforce management system
Geographic Information System
None of the above

Display This Question:

If Q5 = Utility

Q65 What is the total number (integer count, not distance) of distribution feeders in the ESP's service territory? (Enter a number only)

_____

Display This Question:

If Q5 = Utility

Q63 What is the percentage of the distribution system (based on the total number of feeders) presently covered by the following technologies? (Select one for each)

	0%	1 – 10%	11 – 20 %	21 – 30%	31 – 40%	41 – 50%	51 - 60%	61 - 70%	71 – 80%	81 – 90%	91 – 100%	Unsure
Volt/VAR optimization	○	○	○	○	○	○	○	○	○	○	○	○
Fault detection, isolation, and restoration (FDIR) or fault location, isolation, and system restoration (FLISR)	○	○	○	○	○	○	○	○	○	○	○	○
Near real-time load flow analysis	○	○	○	○	○	○	○	○	○	○	○	○
Remote operation of feeder breakers and switches	○	○	○	○	○	○	○	○	○	○	○	○
Remote operation of line reclosers	○	○	○	○	○	○	○	○	○	○	○	○
Advanced visualization	○	○	○	○	○	○	○	○	○	○	○	○
Asset optimization and utilization analytics	○	○	○	○	○	○	○	○	○	○	○	○
Conditioned-based maintenance (extension of analytics to deterministically identify asset conditions and	○	○	○	○	○	○	○	○	○	○	○	○

maintain assets based on actual usage as opposed to predicted usage)											
Forensic and diagnostic analysis											
Probabilistic risk assessment (system operations based on risk of overloading specific equipment on a circuit to handle N-0/N-1 situations)											
Enhanced outage management processes (predictive or non-predictive)											
Distributed energy resource forecasting analytics											
Grid performance analytics											

Display This Question:

If Q5 = Utility

Carry Forward Displayed Choices from "Q63"

Q66 What percentage of coverage of these technologies across the distribution system (based on the total number of feeders) does the ESP consider the target level for complete deployment? (Select one for each)

	0%	1 – 10%	11 – 20 %	21 – 30%	31 – 40%	41 – 50%	51 - 60%	61 - 70%	71 – 80%	81 – 90%	91 – 100%	Unsure
Volt/VAR optimization	○	○	○	○	○	○	○	○	○	○	○	○
Fault detection, isolation, and restoration (FDIR) or fault location, isolation, and system restoration (FLISR)	○	○	○	○	○	○	○	○	○	○	○	○
Near real-time load flow analysis	○	○	○	○	○	○	○	○	○	○	○	○
Remote operation of feeder breakers and switches	○	○	○	○	○	○	○	○	○	○	○	○
Remote operation of line reclosers	○	○	○	○	○	○	○	○	○	○	○	○
Advanced visualization	○	○	○	○	○	○	○	○	○	○	○	○
Asset optimization and utilization analytics	○	○	○	○	○	○	○	○	○	○	○	○
Conditioned-based maintenance (extension of analytics to deterministically	○	○	○	○	○	○	○	○	○	○	○	○

identify asset conditions and maintain assets based on actual usage as opposed to predicted usage)											
Forensic and diagnostic analysis											
Probabilistic risk assessment (system operations based on risk of overloading specific equipment on a circuit to handle N-0/N-1 situations)											
Enhanced outage management processes (predictive or non-predictive)											
Distributed energy resource forecasting analytics											
Grid performance analytics											

Display This Question:

If Q5 = Utility

Carry Forward Displayed Choices from "Q63"

Q64 What is the primary benefit the ESP realizes from the following technologies on the distribution system? (Select all that apply for each)

	Improved reliability	Improved resiliency	Improved cost-effectiveness	Reduction of carbon emissions	Other
Volt/VAR optimization	☐	☐	☐	☐	☐
Fault detection, isolation, and restoration (FDIR) or fault location, isolation, and system restoration (FLISR)	☐	☐	☐	☐	☐
Near real-time load flow analysis	☐	☐	☐	☐	☐
Remote operation of feeder breakers and switches	☐	☐	☐	☐	☐
Remote operation of line reclosers	☐	☐	☐	☐	☐
Advanced visualization	☐	☐	☐	☐	☐
Asset optimization and utilization analytics	☐	☐	☐	☐	☐
Conditioned-based maintenance (extension of analytics to deterministically identify asset	☐	☐	☐	☐	☐

conditions and maintain assets based on actual usage as opposed to predicted usage)					
Forensic and diagnostic analysis	☐	☐	☐	☐	☐
Probabilistic risk assessment (system operations based on risk of overloading specific equipment on a circuit to handle N-0/N-1 situations)	☐	☐	☐	☐	☐
Enhanced outage management processes (predictive or non-predictive)	☐	☐	☐	☐	☐
Distributed energy resource forecasting analytics	☐	☐	☐	☐	☐
Grid performance analytics	☐	☐	☐	☐	☐

Display This Question:

If Q5 = Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Or If

Q5 = Utility

And Q6 != None of the above

Q69 What is the total number (integer count, not distance) of transmission lines operated and maintained by the ESP? (Enter a number only)

_____

Display This Question:

If Q5 = Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Or If

Q5 = Utility

And Q6 != None of the above

Q70 Based on the number of transmission lines (integer count, not miles) operated and maintained by the ESP, what percentage of those circuits have the following technologies, devices, or applications applied to them? (Select one for each)

	0%	1 – 10%	11 – 20 %	21 – 30%	31 – 40%	41 – 50%	51 - 60%	61 - 70%	71 – 80%	81 – 90%	91 – 100%	Unsure
Condition-based maintenance	○	○	○	○	○	○	○	○	○	○	○	○
Enhanced situational awareness to increase asset utilization	○	○	○	○	○	○	○	○	○	○	○	○
Forensic and diagnostic analysis	○	○	○	○	○	○	○	○	○	○	○	○
Probabilistic risk assessment	○	○	○	○	○	○	○	○	○	○	○	○

Display This Question:

If Q5 = Utility

Carry Forward Displayed Choices from "Q70"

Q71 Based on the number of transmission lines (integer count, not miles) operated and maintained by the ESP, what does the ESP consider the target level for complete deployment? (Select one for each)

	0%	1 – 10%	11 – 20%	21 – 30%	31 – 40%	41 – 50%	51 - 60%	61 - 70%	71 – 80%	81 – 90%	91 – 100%	Unsure
Condition-based maintenance	○	○	○	○	○	○	○	○	○	○	○	○
Enhanced situational awareness to increase asset utilization	○	○	○	○	○	○	○	○	○	○	○	○
Forensic and diagnostic analysis	○	○	○	○	○	○	○	○	○	○	○	○
Probabilistic risk assessment	○	○	○	○	○	○	○	○	○	○	○	○

Display This Question:

If Q5 = Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Or If

Q5 = Utility

And Q6 != None of the above

Q68 What is the primary benefit of the following technologies on the transmission system? (Select all that apply for each)

	Improved reliability	**Improved resiliency**	**Improved cost-effectiveness**	**Reduction of carbon emissions**	**Other**
Condition-based maintenance	☐	☐	☐	☐	☐
Enhanced situational awareness to increase asset utilization	☐	☐	☐	☐	☐
Forensic and diagnostic analysis	☐	☐	☐	☐	☐
Probabilistic risk assessment	☐	☐	☐	☐	☐

Display This Question:

If Q5 = Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Or If

Q5 = Utility

And Q6 != None of the above

Q72 Within the next 5 years, how much net-new transmission capacity do you plan to add (including that needed for NERC contingency scenarios)? (Select one)

None
0 – 250 MW
250 – 500 MW
500 – 750 MW
750 – 1,000 MW
1,000 – 1,250 MW
1,250 MW – 1,500 MW
1,500 – 2,000 MW
2,000 - 3,000 MW
3,000 – 4,000 MW
More than 4,000 MW

Display This Question:

If Q5 = Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

And Q72 != None

Or If

Q5 = Utility

And Q6 != None of the above

And Q72 != None

Q73 Please allocate the percentage of this new transmission capacity to be attained by each of the following over the next 5 years (total must equal 100%)

	Percentage
New construction using traditional materials and construction methods.	
Deployment of Dynamic Line Rating technology.	
Reconductoring existing lines with Advanced Conductor technology.	
Deployment of Advanced Power Flow Controls technology.	
Other (specify)	
Total	

Display This Question:

If Q5 = Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Or If

Q5 = Utility

And Q6 != None of the above

Q74 What percentage of your transmission assets is presently covered by Dynamic Line Rating technology? (Select one)

0%
1 – 10%
11 – 20 %
21 – 30%
31 – 40%
41 – 50%
51 - 60%
61 - 70%
71 – 80%
81 – 90%
91 – 100%
Unsure

Display This Question:

If Q5 = Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Or If

Q5 = Utility

And Q6 != None of the above

Q75 What percentage of your transmission assets presently use Advanced Conductor technology? (Select one)

0%
1 – 10%
11 – 20 %
21 – 30%
31 – 40%
41 – 50%
51 - 60%
61 - 70%
71 – 80%
81 – 90%
91 – 100%
Unsure

Display This Question:

If Q5 = Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Or If

Q5 = Utility

And Q6 != None of the above

Q76 What percentage of your transmission assets are presently using Advanced Power Flow Control (APFC) technology to control line utilization? (Select one)

0%
1 – 10%
11 – 20 %
21 – 30%
31 – 40%
41 – 50%
51 - 60%
61 - 70%
71 – 80%
81 – 90%
91 – 100%
Unsure

Display This Question:

If Q5 = Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Or If

Q5 = Utility

And Q6 != None of the above

Q77 What percentage of the net-new transmission capacity identified above is the result of providing service to new Large Loads (connected entity with a demand greater than 50 MW)? (Select one)

0%
1 – 10%
11 – 20 %
21 – 30%
31 – 40%
41 – 50%
51 - 60%
61 - 70%
71 – 80%
81 – 90%
91 – 100%
Unsure

Display This Question:

If Q5 = Utility

Or Q5 = Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Q78 What applications and processes are used to manage the maintenance of grid modernization enabling technologies? (Select all that apply)

Do nothing- run assets to failure
Include new assets in existing asset management processes
Implement standalone or specialized grid modernization asset maintenance
Other (specify) _____

Display This Question:

If Q5 != Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Q79 Is the state or ESP currently investing in grid modernization? (Select one)

Yes
No
Unsure

Display This Question:

If Q79 = Yes

Q80 What is the 2024 grid modernization budget (in MILLIONS of dollars) for the ESP or cumulative for the state? (Enter a number only, no dollar sign)

_____

Display This Question:

If Q79 = Yes

Q81 What is the percentage of the 2024 budget allocated to each of the following? (Must total 100%)

	Percentage
Technologies for distribution system	
Technologies for transmission system	
Customer programs	
EVs	
Other (specify)	
Total	

Display This Question:

If Q5 = Utility

Or Q5 = Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Q82 What percentage of the ESP backhaul and/or backbone data circuits utilize fiber technology? (Select one)

0%
1 – 10%
11 – 20 %
21 – 30%
31 – 40%
41 – 50%
51 - 60%
61 - 70%
71 – 80%
81 – 90%
91 – 100%
Unsure

Display This Question:

If Q5 = Utility

Or Q5 = Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Q83 Does the ESP use radio-based technology for the field area network to communicate with field devices? (Select one)

Yes
No
Unsure

Display This Question:

If Q83 = Yes

Q84 What is the percentage of field devices covered by the following technologies? (Select one for each)

	0%	1 – 10%	11 – 20%	21 – 30%	31 – 40%	41 – 50%	51 - 60%	61 - 70%	71 – 80%	81 – 90%	91 – 100%	Unsure
Public cellular network	○	○	○	○	○	○	○	○	○	○	○	○
Private LTE	○	○	○	○	○	○	○	○	○	○	○	○
Vendor radio network	○	○	○	○	○	○	○	○	○	○	○	○
Other (if no "other", select zero and enter "none" in the box)	○	○	○	○	○	○	○	○	○	○	○	○

Display This Question:

If Q5 != Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Q85 Does the state require, or does the ESP have in place, an interconnection standard for DERs? (Select one)

- Yes
- No
- Unsure

Display This Question:

If Q5 != Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Q86 Does the state require, or does the ESP conduct, analysis on the hosting capacity of the grid? (Select one)

Yes
No
Unsure

Display This Question:

If Q86 = Yes

Q87 How is hosting capacity information shared with third party providers and/or customers? (Select all that apply)

ESP public website with no password required
Customer portal requiring login
Interconnection portal requiring login
Third party website
Via email upon request
Direct file transfer upon request
Other (specify) _____

Display This Question:

If Q5 = Utility

Q88 Is the ESP required to evaluate non-wires alternatives in their distribution planning function? (Select one)

Yes
No
Unsure

Display This Question:

If Q5 = Utility

Q89 For which of the following does the ESP have a standardized process for interconnect? (Select all that apply)

Electric vehicle
Distributed generation
Storage
Other (specify) _____

End of Block: Grid Optimization (SINGLE)

Start of Block: System Design (SINGLE)

QSD The next series of questions are related to system design and coordination.

Display This Question:

If Q5 = Policy maker

Or Q5 = Regulator

Q90 Does the state require a submission of an Integrated Resource Plan (IRP) by the ESPs? (Select one)

Yes
No
Unsure

Display This Question:

If Q90 = Yes

Q91 Which of the following are IRP requirements? (Select all that apply)

Traditional, thermal, and turbine-based generation
Large-scale transmission based DERs, including renewables
Distribution connected DERs, including renewables
Transmission planning information
Distribution planning information
Regional planning information
Other (specify) _____

Display This Question:

If Q5 = Policy maker

Or Q5 = Regulator

Q92 Which critical infrastructure networks that are connected to the electric grid, if any, has the state evaluated for risks from loss of electric grid supply or electric grid infrastructure? (Select all that apply)

Natural gas supply
Telecommunications
Water
Wastewater treatment
Terrestrial radio and television
Public Transportation
Other (specify) _____
None

Display This Question:

If Q5 = Policy maker

Or Q5 = Regulator

Q93 Has the state put in place requirements or regulations intended to address or mitigate issues related to extreme weather and/or security hazards? (Select one)

Yes
No
Unsure

Display This Question:

If Q5 = Policy maker

Or Q5 = Regulator

Q94 Does the state have reliability plans in place for extreme weather and security hazards that take into account the relationship between the electric grid and the aforementioned critical infrastructure networks? (Select one)

Yes
No
Unsure

Display This Question:

If Q94 = Yes

Q95 For which of the following critical infrastructure networks is there a reliability plan in place? (Select all that apply)

- Natural gas supply
- Telecommunications
- Water
- Wastewater treatment
- Terrestrial radio and television
- Public Transportation
- Other (specify) _____

Display This Question:

If Q5 != Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Q96 Do balancing authorities in the region share real-time operational data? (Select one)

- Yes
- No
- Unsure

Display This Question:

If Q5 != Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Q97 Which of the following impacts does the state incorporate, or require ESPs to incorporate, into their resource planning efforts relative to the need for central generation capacity? (Select all that apply)

- Impacts of distributed generation
- Impacts of storage
- Impacts of transportation electrification
- Impacts of building electrification
- Other (specify) _____

Display This Question:

If Q5 != Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Q98 Has the state and/or ESPs in the state considered different market mechanisms or operational models for the future of the ESP? (Select one)

Yes
No
Unsure

Display This Question:

If Q5 != Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Q99 Has the state engaged in discussions with ESPs and third-party DER owners about a market design for the distribution system relative to increasing DER penetration? (Select one)

Yes
No
Unsure

Display This Question:

If Q5 = Utility

Or Q5 = Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Q100 If the ESP is operating within the jurisdiction of an Independent System Operator (ISO) or Regional Transmission Organization (RTO), is Locational Marginal Pricing (LMP) being applied by the ISO or the RTO at the transmission level? (Select one)

Yes
No
Unsure
Not applicable

Display This Question:

If Q5 = Utility

Or Q5 = Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

And If

Q100 = Yes

Q101 If Locational Marginal Pricing (LMP) is applied, is it driving investments at the distribution level to mitigate constraints in supply assets? (Select one)

Yes
No
Unsure

Display This Question:

If Q5 = Utility

Q102 Does the ESP own and operate or allow third party or customer ownership of single-party microgrids? (Select one)

Yes
No
Unsure

Display This Question:

If Q102 = Yes

Q103 How are these single-party microgrids used? (Select all that apply)

Price response
Resilience
Peak shaving
Other (specify) _____

Display This Question:

If Q5 = Utility

Q104 Does the ESP share and seek out information and best practices from regional neighbors? (Select one)

Yes
No
Unsure

Display This Question:

If Q104 = Yes

Q105 What issues, challenges, or risks have driven collaboration across the region for ESPs? (Select all that apply)

- DSO market operational model
- Grid interoperability
- Extreme weather events
- Resiliency
- Reliability
- Availability of energy supply
- Affordability
- Rapid penetration of DERs
- Accelerated load growth
- Electrification of transportation
- Electrification of buildings and facilities
- Decarbonization
- Economic development
- Cybersecurity concerns
- Equitability
- Other (specify) _____

Display This Question:

If Q5 = Policy maker

Or Q5 = Regulator

Q106 Has the state participated in discussions with other states in its region, or at the federal level, to coordinate electric grid planning and future operational needs? (Select one)

- Yes
- No
- Unsure

Display This Question:

If Q5 = Policy maker

Or Q5 = Regulator

Q107 How does the state know how its electric grid fits into the regional grid operations? (Select all that apply)

Data provided by ESPs
Data provided by ISO/RTO
Data collected directly by state
Other (specify) _____
The state does not know

Display This Question:

If Q5 = Policy maker

Or Q5 = Regulator

Q108 Does the state share and seek out information and best practices from regional neighbors or external groups? (Select one)

Yes
No
Unsure

Display This Question:

If Q108 = Yes

Q109 What issues, challenges, or risks have driven collaboration across the region for state regulators or policy makers? (Select all that apply)

- DSO market operational model
- Grid interoperability
- Extreme weather events
- Resiliency
- Reliability
- Availability of energy supply
- Affordability
- Rapid penetration of DERs
- Accelerated load growth
- Electrification of transportation
- Electrification of buildings and facilities
- Decarbonization
- Economic development
- Cybersecurity concerns
- Equitability
- Other (specify) _____

Display This Question:

If Q5 != Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Q110 In which of the following ways does the state provide funding for ESP's innovation efforts? (Select all that apply)

- Direct grants
- loans/bonds
- Rate recovery
- Rate rider
- Allocation of federal funds
- State university research programs
- Other (specify) _____
- The state does not provide funding for this purpose

Display This Question:

If Q5 = Utility

Or Q5 = Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

QAI1 Is the ESP using artificial intelligence (AI) to augment, enhance, or improve performance? (Select one)

- Yes
- No
- Unsure

Display This Question:

If QAI1 = Yes

QAI2 In what areas is the ESP using artificial intelligence (AI) to augment, enhance, or improve performance? (Select all that apply)

- Administrative (General Services)
- Transmission Planning
- Distribution Planning
- Transmission Engineering
- Substation Engineering
- Distribution Engineering
- Construction Planning
- Construction Scheduling
- Project Management
- Asset Management
- Asset Condition Assessment
- Vegetation Management
- Crew Management
- Work Order Management
- Real-Time Operations
- Switching Order Management
- Fault Location
- Outage Management
- Customer Contact
- Customer Service
- Other (specify) _____

Display This Question:

If Q5 = Policy maker

Or Q5 = Regulator

QAI3 Does the state provide guidelines or regulations to ESPs on the application and/or use of artificial intelligence (AI)? (Select one)

Yes – fully developed and published
Planning on publishing in the next year
Under Development – release date TBD
Under Consideration – No development started
No – nothing planned or under consideration
Unsure

End of Block: System Design (SINGLE)

Start of Block: FINAL QUESTIONS

QCASE Are you interested in providing a case study related to Grid Modernization for consideration to be included in the final report? (Select one)

Yes
No

QCASEemail The survey team (from Black & Veatch) will contact you directly to discuss your case study at the email address used for this survey. If there is another email address we should use, please enter it here:

_____

QOE Please provide any additional comments or feedback below.

_____

_____

_____

End of Block: FINAL QUESTIONS

Start of Block: THANK YOU

TY Thank you for completing this survey. Click the "finished" button below to submit your responses. Please note that once submitted, no further changes can be made.

End of Block: THANK YOU

Start of Block: Utility (SINGLE)

Q7 What is the utility's operating company (OpCo) name?

_____

Q8 What is the number of meters served by the OpCo? (Enter a number)

_____

Q9 How many employees are employed by the OpCo? (Enter a number)

_____

Q10 How many miles of distribution does the OpCo have? (Enter a number)

_____

Display This Question:

If Q6 != None of the above

Q10a How many miles of transmission does the OpCo have? (Enter a number)

_____

Q11 What is the OpCo revenue (in MILLIONS of dollars) for 2023? (Enter a number only without the dollar sign or letters)

_____

Q12 What type of utility? (IOU, Coop, Muni, Federal, etc.) (Select one)

- ○ IOU
- ○ Co-Op
- ○ Municipality
- ○ Federal
- ○ Other (specify) _____

End of Block: Utility (SINGLE)

Start of Block: MULTI STATE QUESTIONS

Carry Forward Selected Choices from "Q4"

STATE 1 For this section, you will answer a series a questions for each state that you selected. Please select the state below that you would like to answer for.

▼ Alabama ... Wyoming

Display This Question:
If Q5 = Utility

Q7M What is the utility's operating company (OpCo) name?

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

_____

Display This Question:
If Q5 = Utility

Q8M What is the number of meters served by the OpCo? (Enter a number)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

_____

Display This Question:

If Q5 = Utility

Q9M How many employees are employed by the OpCo? (Enter a number)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Display This Question:

If Q5 = Utility

Q10M How many miles of distribution does the OpCo have? (Enter a number)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Display This Question:

If Q6 != None of the above

And Q5 = Utility

Q10aM How many miles of transmission does the OpCo have? (Enter a number)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Display This Question:

If Q5 = Utility

Q11M What is the OpCo revenue (in MILLIONS of dollars) for 2023? (Enter a number only without the dollar sign or letters)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Display This Question:

If Q5 = Utility

Q12M What type of utility? (IOU, Coop, Muni, Federal, etc.) (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

IOU
Co-Op
Municipality
Federal
Other (specify) _____

QCAOm The next series of questions are related to customer adoption and options.

Display This Question:

If Q5 = Utility

Q35M Does your Energy Services Provider (ESP) have mass market dynamic pricing options? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Yes, Time of Use (TOU) or Time of Day
Yes, Critical Peak Pricing (CPP)
Yes, Real Time Pricing (RTP)
No
Unsure

Display This Question:

If Q5 = Utility

Q36M Does the ESP communicate to customers about pricing events such as demand response (DR), critical peak pricing (CPP), and peak time rebate (PTR)? (Select one for each)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

	Yes	No	Unsure
Email	○	○	○
Text message	○	○	○
Social media	○	○	○
Calling (outbound dialing)	○	○	○

Display This Question:

If Q5 = Utility

Q37M Does the ESP offer mass market critical peak pricing (CPP) or real time pricing (RTP) rebates to the following customer types? (Select one for each)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

	Yes	No	Unsure
Industrial	○	○	○
Commercial	○	○	○
Residential	○	○	○

Display This Question:

If Q5 = Utility

Q38M Do mass market (non-large C&I) customers pay for reactive power if the power factor of load is below a certain %? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Yes
No
Unsure

Display This Question:

If Q5 = Utility

Q39M Does the ESP have full retail or value of resource net metering? (Select one for each)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Full retail
Value of resource
Unsure

Display This Question:

If Q5 != Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Q40M Does the state incorporate, or require ESPs to incorporate, modernization of infrastructure to enable equitable access to grid modernization programs and initiatives into planning efforts ? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Yes
No
Unsure

Display This Question:

If Q5 = Regulator

Or Q5 = Utility

Q41M Does the state require ESPs to offer customers flexible rates or payment options? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Yes
No
Unsure

Display This Question:

If Q5 = Utility

Q42M Has the ESP conducted outreach campaigns to educate customers on new capabilities and programs associated with grid modernization investments? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Yes
No
Unsure

Display This Question:

If Q42M = Yes

Q43M How has success been measured for these programs? (Select all that apply)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Follow-up survey
Website tracking
Increased customer programs participation levels
Other (specify) _____
None of the above

Display This Question:

If Q5 != Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Q44M Does the state have a formal plan or requirements for ESPs to provide customer education and outreach on grid modernization benefits and capabilities? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Yes
No
Unsure

Display This Question:

If Q5 = Utility

Q45M Does the ESP have rates to encourage increased demand during peak renewable generation periods (i.e., addressing the Duck Curve or Solar Cliff)? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Yes
No
Unsure

Display This Question:

If Q5 = Utility

Q46M Has the ESP put in place the systems and processes to enable customers and non-wire alternatives to participate in the supplying of energy? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Yes
No
Unsure

Display This Question:

If Q5 = Utility

Q47M For which of the following customer types, if any, does the ESP have demand response programs? (Select all that apply)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Large Commercial and Industrial (C&I)
Medium Commercial
Small Commercial
Residential
None of the above

Display This Question:

If Q5 = Utility

Q48M For which of the following customer types, if any, does the ESP have pricing programs or tariffs that encourage adoption of DERs like electric vehicles, energy storage, or solar PV? (Select all that apply)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Large Commercial and Industrial (C&I)
Medium Commercial
Small Commercial
Residential
None of the above

Display This Question:

If Q5 = Utility

Q49M For which of the following customer types, if any, does the ESP have programs for ESP-owned customer-sited distributed generation or storage? (Select all that apply)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Large Commercial and Industrial (C&I)
Medium Commercial
Small Commercial
Residential
None of the above

Display This Question:

If Q5 = Utility

Q50M For which of the following customer types, if any, has the ESP implemented any programs to install behind-the-meter technologies (e.g., smart thermostats, direct load control devices)? (Select all that apply)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Medium Commercial
Small Commercial
Residential
None of the above

Display This Question:

If Q5 = Regulator

Or Q5 = Utility

Q51M Does the state require ESPs to have customer energy usage data privacy policies? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Yes
No
Unsure

Display This Question:

If Q5 = Utility

Or Q5 = Regulator

Q52M Does the state require the ESP to have a standard methodology for customers to access energy usage data or grant access to third parties? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Yes
No
Unsure

Display This Question:

If Loop current: Q52M = Yes

Q53M Which of the following interfaces are used for customers to access energy usage data or grant access to third parties? (Select all that apply)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Green Button
Opower/Oracle
Internally Built
Other (specify) _____

Display This Question:

If Q5 = Utility

Q54M At what frequency is the customer usage data which is made available updated? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Hourly
Daily
Weekly
Monthly
Unsure

Display This Question:

If Q5 = Utility

Q55M At what granularity can the customers access their energy usage data? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

One Minute
5 Minutes
15 Minutes
30 minutes
Hourly
Daily
Other (specify) _____

Display This Question:

If Q5 = Utility

Q56M Can customers grant third party access to their energy usage data on at least a daily basis? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

- Yes
- No
- Unsure

Display This Question:

If Q5 = Utility

Q57M At what level does the ESP have customer segmentation analytics capabilities? (Select all that apply)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

	Implemented at Scale	**Pilot program**	**Being considered**	**Unsure**
Used to identify customer classes beyond typical Commercial, Industrial and Residential	○	○	○	○
Used to Customize customer programs and offerings	○	○	○	○
Used to improve communication with customers	○	○	○	○
Other (specify)	○	○	○	○

Display This Question:

If Q5 = Utility

Q58M If the ESP uses data analytics, what are the core systems that supply the data for those analytics? (Select all that apply)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

- Customer billing
- Advanced metering (AMI)
- Grid connected sensors (i.e. line sensors)
- Advanced reclosers
- Substation instrumentation
- SCADA
- ADMS
- OMS
- DERMS
- Third-party data feeds
- Third-party research
- Other (specify) _____
- ESP does not use data analytics

QGOm The next series of questions are related to grid optimization.

Display This Question:

If Q5 = Utility

Q59M Does the ESP have remote meter reading functionality and/or coverage (i.e. AMI)? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

- Yes
- No
- Unsure

Display This Question:

If Q59M = Yes

Q60M By customer class, what percent of meters are AMI? (Select one for each)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

	0%	1-10%	11 – 20%	21 – 30%	31-40%	41-50%	51-60%	61-70%	71-80%	81-90%	91-100%	Unsure
Large Commercial and Industrial	○	○	○	○	○	○	○	○	○	○	○	○
Medium Commercial	○	○	○	○	○	○	○	○	○	○	○	○
Small Commercial	○	○	○	○	○	○	○	○	○	○	○	○
Residential	○	○	○	○	○	○	○	○	○	○	○	○

Display This Question:

If Q5 = Utility

And Q59M = Yes

Q61M Which third party devices, if any, does the ESP allow to connect to their AMI meter and have access to real-time data? (Select all that apply)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

- Home energy management systems
- In-home displays
- Programmable thermostats
- Smart appliances
- EV chargers
- Other (specify) _____
- None of the above

Display This Question:

If Q5 = Utility

And Q59M = Yes

Q62M With which of the following, if any, does the ESP integrate AMI? (Select all that apply)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Outage Management System
Customer analytics system
Automated outage management customer communication systems
Mobile workforce management system
Geographic Information System
None of the above

Display This Question:

If Q5 = Utility

Q65M What is the total number (integer count, not distance) of distribution feeders in the ESP's service territory? (Enter a number only)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

_____

Display This Question:

If Q5 = Utility

Q63M What is the percentage of the distribution system (based on the total number of feeders) presently covered by the following technologies? (Select one for each)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

	0%	1 – 10%	11 – 20%	21 – 30%	31 – 40%	41 – 50%	51 - 60%	61 - 70%	71 – 80%	81 – 90%	91 – 100%	Unsure
Volt/VAR optimization	○	○	○	○	○	○	○	○	○	○	○	○
Fault detection, isolation, and restoration (FDIR) or fault location, isolation, and system restoration (FLISR)	○	○	○	○	○	○	○	○	○	○	○	○
Near real-time load flow analysis	○	○	○	○	○	○	○	○	○	○	○	○
Remote operation of feeder breakers and switches	○	○	○	○	○	○	○	○	○	○	○	○
Remote operation of line reclosers	○	○	○	○	○	○	○	○	○	○	○	○
Advanced visualization	○	○	○	○	○	○	○	○	○	○	○	○
Asset optimization and utilization analytics	○	○	○	○	○	○	○	○	○	○	○	○
Conditioned-based maintenance (extension of analytics to deterministically identify asset	○	○	○	○	○	○	○	○	○	○	○	○

conditions and maintain assets based on actual usage as opposed to predicted usage)												
Forensic and diagnostic analysis												
Probabilistic risk assessment (system operations based on risk of overloading specific equipment on a circuit to handle N-0/N-1 situations)												
Enhanced outage management processes (predictive or non-predictive)												
Distributed energy resource forecasting analytics												
Grid performance analytics												

Display This Question:

If Q5 = Utility

Carry Forward Displayed Choices from "Q63M"

Q66M What percentage of coverage of these technologies across the distribution system (based on the total number of feeders) does the ESP consider the target level for complete deployment? (Select one for each)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

	0%	1 – 10%	11 – 20%	21 – 30%	31 – 40%	41 – 50%	51 - 60%	61 - 70%	71 – 80%	81 – 90%	91 – 100%	Unsure
Volt/VAR optimization	○	○	○	○	○	○	○	○	○	○	○	○
Fault detection, isolation, and restoration (FDIR) or fault location, isolation, and system restoration (FLISR)	○	○	○	○	○	○	○	○	○	○	○	○
Near real-time load flow analysis	○	○	○	○	○	○	○	○	○	○	○	○
Remote operation of feeder breakers and switches	○	○	○	○	○	○	○	○	○	○	○	○
Remote operation of line reclosers	○	○	○	○	○	○	○	○	○	○	○	○
Advanced visualization	○	○	○	○	○	○	○	○	○	○	○	○
Asset optimization and utilization analytics	○	○	○	○	○	○	○	○	○	○	○	○
Conditioned-based maintenance (extension of	○	○	○	○	○	○	○	○	○	○	○	○

analytics to deterministically identify asset conditions and maintain assets based on actual usage as opposed to predicted usage)												
Forensic and diagnostic analysis												
Probabilistic risk assessment (system operations based on risk of overloading specific equipment on a circuit to handle N-0/N-1 situations)												
Enhanced outage management processes (predictive or non-predictive)												
Distributed energy resource forecasting analytics												
Grid performance analytics												

Display This Question:

If Q5 = Utility

Carry Forward Displayed Choices from "Q63M"

Q64M What is the primary benefit the ESP realizes from the following technologies on the distribution system? (Select all that apply for each)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

	Improved reliability	Improved resiliency	Improved cost-effectiveness	Reduction of carbon emissions	Other
Volt/VAR optimization	☐	☐	☐	☐	☐
Fault detection, isolation, and restoration (FDIR) or fault location, isolation, and system restoration (FLISR)	☐	☐	☐	☐	☐
Near real-time load flow analysis	☐	☐	☐	☐	☐
Remote operation of feeder breakers and switches	☐	☐	☐	☐	☐
Remote operation of line reclosers	☐	☐	☐	☐	☐
Advanced visualization	☐	☐	☐	☐	☐
Asset optimization and utilization analytics	☐	☐	☐	☐	☐
Conditioned-based maintenance (extension of	☐	☐	☐	☐	☐

analytics to deterministically identify asset conditions and maintain assets based on actual usage as opposed to predicted usage)					
Forensic and diagnostic analysis	☐	☐	☐	☐	☐
Probabilistic risk assessment (system operations based on risk of overloading specific equipment on a circuit to handle N-0/N-1 situations)	☐	☐	☐	☐	☐
Enhanced outage management processes (predictive or non-predictive)	☐	☐	☐	☐	☐
Distributed energy resource forecasting analytics	☐	☐	☐	☐	☐
Grid performance analytics	☐	☐	☐	☐	☐

Display This Question:

If Q5 = Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Or If

Q5 = Utility

And Q6 != None of the above

Q69M What is the total number (integer count, not distance) of transmission lines operated and maintained by the ESP? (Enter a number only)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Display This Question:

If Q5 = Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Or If

Q5 = Utility

And Q6 != None of the above

Q70M Based on the number (integer count, not miles) of transmission lines operated and maintained by the ESP, what percentage of those circuits have the following technologies, devices, or applications applied to them? (Select one for each)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

	0%	1 – 10%	11 – 20 %	21 – 30%	31 – 40%	41 – 50%	51 - 60%	61 - 70%	71 – 80%	81 – 90%	91 – 100%	Unsure
Condition-based maintenance	○	○	○	○	○	○	○	○	○	○	○	○
Enhanced situational awareness to increase asset utilization	○	○	○	○	○	○	○	○	○	○	○	○
Forensic and diagnostic analysis	○	○	○	○	○	○	○	○	○	○	○	○
Probabilistic risk assessment	○	○	○	○	○	○	○	○	○	○	○	○

Display This Question:

If Q5 = Utility

Carry Forward Displayed Choices from "Q70M"

Q71M Based on the number of transmission lines (integer count, not miles) operated and maintained by the ESP, what does the ESP consider the target level for complete deployment? (Select one for each)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

	0%	1 – 10%	11 – 20%	21 – 30%	31 – 40%	41 – 50%	51 - 60%	61 - 70%	71 – 80%	81 – 90%	91 – 100%	Unsure
Condition-based maintenance	○	○	○	○	○	○	○	○	○	○	○	○
Enhanced situational awareness to increase asset utilization	○	○	○	○	○	○	○	○	○	○	○	○
Forensic and diagnostic analysis	○	○	○	○	○	○	○	○	○	○	○	○
Probabilistic risk assessment	○	○	○	○	○	○	○	○	○	○	○	○

Display This Question:

If Q5 = Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Or If

Q5 = Utility

And Q6 != None of the above

Q68M What is the primary benefit of the following technologies on the transmission system? (Select all that apply for each)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

	Improved reliability	**Improved resiliency**	**Improved cost-effectiveness**	**Reduction of carbon emissions**	**Other**
Condition-based maintenance	☐	☐	☐	☐	☐
Enhanced situational awareness to increase asset utilization	☐	☐	☐	☐	☐
Forensic and diagnostic analysis	☐	☐	☐	☐	☐
Probabilistic risk assessment	☐	☐	☐	☐	☐

Display This Question:

If Q5 = Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Or If

Q5 = Utility

And Q6 != None of the above

Q72M Within the next 5 years, how much net-new transmission capacity do you plan to add (including that needed for NERC contingency scenarios)? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

None
0 – 250 MW
250 – 500 MW
500 – 750 MW
750 – 1,000 MW
1,000 – 1,250 MW
1,250 MW – 1,500 MW
1,500 – 2,000 MW
2,000 - 3,000 MW
3,000 – 4,000 MW
More than 4,000 MW

Display This Question:

If Q5 = Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

And Loop current: Q72M != None

Or If

Q5 = Utility

And Q6 != None of the above

And Loop current: Q72M != None

Q73M Please allocate the percentage of this new transmission capacity to be attained by each of the following over the next 5 years (total must equal 100%)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

	Percentage
New construction using traditional materials and construction methods.	
Deployment of Dynamic Line Rating technology.	
Reconductoring existing lines with Advanced Conductor technology.	
Deployment of Advanced Power Flow Controls technology.	
Other (specify)	

Total	

Display This Question:

If Q5 = Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Or If

Q5 = Utility

And Q6 != None of the above

Q74M What percentage of your transmission assets is presently covered by Dynamic Line Rating technology? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

0%
1 – 10%
11 – 20 %
21 – 30%
31 – 40%
41 – 50%
51 - 60%
61 - 70%
71 – 80%
81 – 90%
91 – 100%
Unsure

Display This Question:

If Q5 = Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Or If

Q5 = Utility

And Q6 != None of the above

Q75M What percentage of your transmission assets are presently conducted with Advanced Conductor technology? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

0%
1 – 10%
11 – 20 %
21 – 30%
31 – 40%
41 – 50%
51 - 60%
61 - 70%
71 – 80%
81 – 90%
91 – 100%
Unsure

Display This Question:

If Q5 = Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Or If

Q5 = Utility

And Q6 != None of the above

Q76M What percentage of your transmission assets are presently using Advanced Power Flow Control (APFC) technology to control line utilization? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

0%
1 – 10%
11 – 20 %
21 – 30%
31 – 40%
41 – 50%
51 - 60%
61 - 70%
71 – 80%
81 – 90%
91 – 100%
Unsure

Display This Question:

If Q5 = Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Or If

Q5 = Utility

And Q6 != None of the above

Q77M What percentage of the net-new transmission capacity identified above is the result of providing service to new Large Loads (connected entity with a demand greater than 50 MW)? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

0%
1 – 10%
11 – 20 %
21 – 30%
31 – 40%
41 – 50%
51 - 60%
61 - 70%
71 – 80%
81 – 90%
91 – 100%
Unsure

Display This Question:

If Q5 = Utility

Or Q5 = Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Q78M What applications and processes are used to manage the maintenance of grid modernization enabling technologies? (Select all that apply)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Do nothing- run assets to failure
Include new assets in existing asset management processes
Implement standalone or specialized grid modernization asset maintenance
Other (specify) _____

Display This Question:

If Q5 != Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Q79M Is the state or ESP currently investing in grid modernization? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Yes
No
Unsure

Display This Question:

If Loop current: Q79M = Yes

Q80M What is the 2024 grid modernization budget (in MILLIONS of dollars) for the ESP or cumulative for the state? (Enter a number only, no dollar sign needed)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

_____

Display This Question:

If Loop current: Q79M = Yes

Q81M What is the percentage of the 2024 budget allocated to each of the following? (Must total 100%)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

	Percentage
Technologies for distribution system	
Technologies for transmission system	
Customer programs	
EVs	
Other (specify)	
Total	

Display This Question:

If Q5 = Utility

Or Q5 = Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Q82M What percentage of the ESP backhaul and/or backbone data circuits utilize fiber technology? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

0%
1 – 10%
11 – 20 %
21 – 30%
31 – 40%
41 – 50%
51 - 60%
61 - 70%
71 – 80%
81 – 90%
91 – 100%
Unsure

Display This Question:

If Q5 = Utility

Or Q5 = Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Q83M Does the ESP use radio-based technology for the field area network to communicate with field devices? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Yes
No
Unsure

Display This Question:

If Q83M = Yes

Q84M What is the percentage of field devices covered by the following technologies? (Select one for each)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

	0%	1 – 10%	11 – 20%	21 – 30%	31 – 40%	41 – 50%	51 - 60%	61 - 70%	71 – 80%	81 – 90%	91 – 100%	Unsure
Public cellular network	○	○	○	○	○	○	○	○	○	○	○	○
Private LTE	○	○	○	○	○	○	○	○	○	○	○	○
Vendor radio network	○	○	○	○	○	○	○	○	○	○	○	○
Other (if no "other", select zero and enter "none" in the box)	○	○	○	○	○	○	○	○	○	○	○	○

Display This Question:

If Q5 != Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Q85M Does the state require, or does the ESP have in place, an interconnection standard for DERs? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

- Yes
- No
- Unsure

Display This Question:

If Q5 != Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Q86M Does the state require, or does the ESP conduct, analysis on the hosting capacity of the grid? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Yes
No
Unsure

Display This Question:

If Loop current: Q86M = Yes

Q87M How is hosting capacity information shared with third party providers and/or customers? (Select all that apply)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

ESP public website with no password required
Customer portal requiring login
Interconnection portal requiring login
Third party website
Via email upon request
Direct file transfer upon request
Other (specify) _____

Display This Question:

If Q5 = Utility

Q88M Is the ESP required to evaluate non-wires alternatives in their distribution planning function? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Yes
No
Unsure

Display This Question:

If Q5 = Utility

Q89M For which of the following does the ESP have a standardized process for interconnect? (Select all that apply)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Electric vehicle
Distributed generation
Storage
Other (specify) _____

QSDm The next series of questions are related to system design and coordination.

Display This Question:

If Q5 = Policy maker

Or Q5 = Regulator

Q90M Does the state require a submission of an Integrated Resource Plan (IRP) by the ESPs? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Yes
No
Unsure

Display This Question:

If Q90M = Yes

Q91M Which of the following are IRP requirements? (Select all that apply)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Traditional, thermal, and turbine-based generation
Large-scale transmission based DERs, including renewables
Distribution connected DERs, including renewables
Transmission planning information
Distribution planning information
Regional planning information
Other (specify) _____

Display This Question:

If Q5 = Policy maker

Or Q5 = Regulator

Q92M Which critical infrastructure networks that are connected to the electric grid, if any, has the state evaluated for risks from loss of electric grid supply or electric grid infrastructure? (Select all that apply)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Natural gas supply
Telecommunications
Water
Wastewater treatment
Terrestrial radio and television
Public Transportation
Other (specify) _____
None

Display This Question:

If Q5 = Policy maker

Or Q5 = Regulator

Q93M Has the state put in place requirements or regulations intended to address or mitigate issues related to extreme weather and/or security hazards? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Yes
No
Unsure

Display This Question:

If Q5 = Policy maker

Or Q5 = Regulator

Q94M Does the state have reliability plans in place for extreme weather and security hazards that take into account the relationship between the electric grid and the aforementioned critical infrastructure networks? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Yes
No
Unsure

Display This Question:

If Q94M = Yes

Q95M For which of the following critical infrastructure networks is there a reliability plan in place? (Select all that apply)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Natural gas supply
Telecommunications
Water
Wastewater treatment
Terrestrial radio and television
Public Transportation
Other (specify) _____

Display This Question:

If Q5 != Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Q96M Do balancing authorities in the region share real-time operational data? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Yes
No
Unsure

Display This Question:

If Q5 != Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Q97M Which of the following impacts does the state incorporate, or require ESPs to incorporate, into their resource planning efforts relative to the need for central generation capacity? (Select all that apply)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

- Impacts of distributed generation
- Impacts of storage
- Impacts of transportation electrification
- Impacts of building electrification
- Other (specify) _____

Display This Question:

If Q5 != Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Q98M Has the state and/or ESPs in the state considered different market mechanisms or operational models for the future of the ESP? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

- Yes
- No
- Unsure

Display This Question:

If Q5 != Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Q99M Has the state engaged in discussions with ESPs and third-party DER owners about a market design for the distribution system relative to increasing DER penetration? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

- Yes
- No
- Unsure

Display This Question:

If Q5 = Utility

Or Q5 = Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Q100M If the ESP is operating within the jurisdiction of an Independent System Operator (ISO) or Regional Transmission Organization (RTO), is Locational Marginal Pricing (LMP) being applied by the ISO or the RTO at the transmission level? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Yes
No
Unsure

Display This Question:

If Q5 = Utility

Or Q5 = Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

And If

Loop current: Q100M = Yes

Q101M If Locational Marginal Pricing (LMP) is applied, is it driving investments at the distribution level to mitigate constraints in supply assets? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Yes
No
Unsure

Display This Question:

If Q5 = Utility

Q102M Does the ESP own and operate or allow third party or customer ownership of single-party microgrids? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

Yes
No
Unsure

Display This Question:

If Q102M = Yes

Q103M How are these single-party microgrids used? (Select all that apply)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

- Price response
- Resilience
- Peak shaving
- Other (specify) _____

Display This Question:

If Q5 = Utility

Q104M Does the ESP share and seek out information and best practices from regional neighbors? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

- Yes
- No
- Unsure

Display This Question:

If Q104M = Yes

Q105M What issues, challenges, or risks have driven collaboration across the region for ESPs? (Select all that apply)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

- DSO market operational model
- Grid interoperability
- Extreme weather events
- Resiliency
- Reliability
- Availability of energy supply
- Affordability
- Rapid penetration of DERs
- Accelerated load growth
- Electrification of transportation
- Electrification of buildings and facilities
- Decarbonization
- Economic development
- Cybersecurity concerns
- Equitability
- Other (specify) _____

Display This Question:

If Q5 = Policy maker

Or Q5 = Regulator

Q106M Has the state participated in discussions with other states in its region, or at the federal level, to coordinate electric grid planning and future operational needs? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

- Yes
- No
- Unsure

Display This Question:

If Q5 = Policy maker

Or Q5 = Regulator

Q107M How does the state know how its electric grid fits into the regional grid operations? (Select all that apply)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

- Data provided by ESPs
- Data provided by ISO/RTO
- Data collected directly by state
- Other (specify) _____
- The state does not know

Display This Question:

If Q5 = Policy maker

Or Q5 = Regulator

Q108M Does the state share and seek out information and best practices from regional neighbors or external groups? (Select one)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

- Yes
- No
- Unsure

Display This Question:

If Loop current: Q108M = Yes

Q109M What issues, challenges, or risks have driven collaboration across the region for state regulators or policy makers? (Select all that apply)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

- DSO market operational model
- Grid interoperability
- Extreme weather events
- Resiliency
- Reliability
- Availability of energy supply
- Affordability
- Rapid penetration of DERs
- Accelerated load growth
- Electrification of transportation
- Electrification of buildings and facilities
- Decarbonization
- Economic development
- Cybersecurity concerns
- Equitability
- Other (specify) _____

Display This Question:

If Q5 != Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

Q110M In which of the following ways does the state provide funding for ESP's innovation efforts? (Select all that apply)

Please answer this question for the state of: ${STATE 1/ChoiceGroup/SelectedChoices}

- Direct grants
- loans/bonds
- Rate recovery
- Rate rider
- Allocation of federal funds
- State university research programs
- Other (specify) _____
- The state does not provide funding for this purpose

Display This Question:

If Q5 = Utility

Or Q5 = Transmission-only entity (i.e ISO, RTO, TransCo, etc.)

AI1m Is the ESP using artificial intelligence (AI) to augment, enhance, or improve performance? (Select one)

Yes
No
Unsure

Display This Question:

If Loop current: AI1m = Yes

AI2m In what areas is the ESP using artificial intelligence (AI) to augment, enhance, or improve performance? (Select all that apply)

Administrative (General Services)
Transmission Planning
Distribution Planning
Transmission Engineering
Substation Engineering
Distribution Engineering
Construction Planning
Construction Scheduling
Project Management
Asset Management
Asset Condition Assessment
Vegetation Management
Crew Management
Work Order Management
Real-Time Operations
Switching Order Management
Fault Location
Outage Management
Customer Contact
Customer Service
Other (specify) _____

QENDSTATE You've now reached the end of questions for state of ${STATE 1/ChoiceGroup/SelectedChoices}, click the "next" button below to move on to the next section. Please note that once you click "next", your answers for that state are locked and can't be changed.

End of Block: MULTI STATE QUESTIONS