

NERC Compliance Update

vermont electric power company



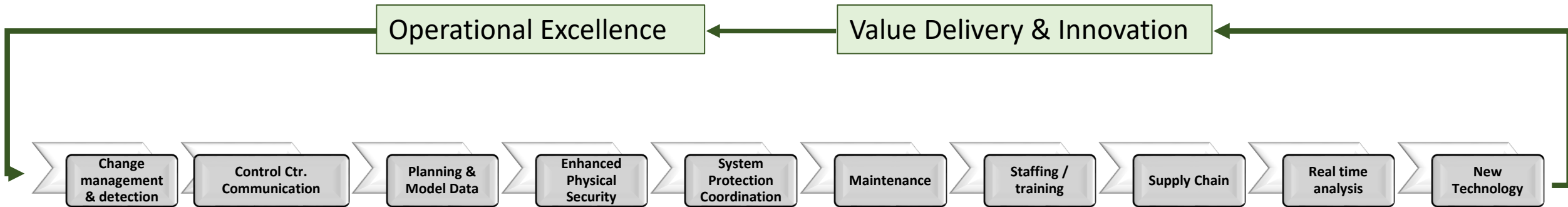
Operating Committee

July 16, 2020

Kim Moulton

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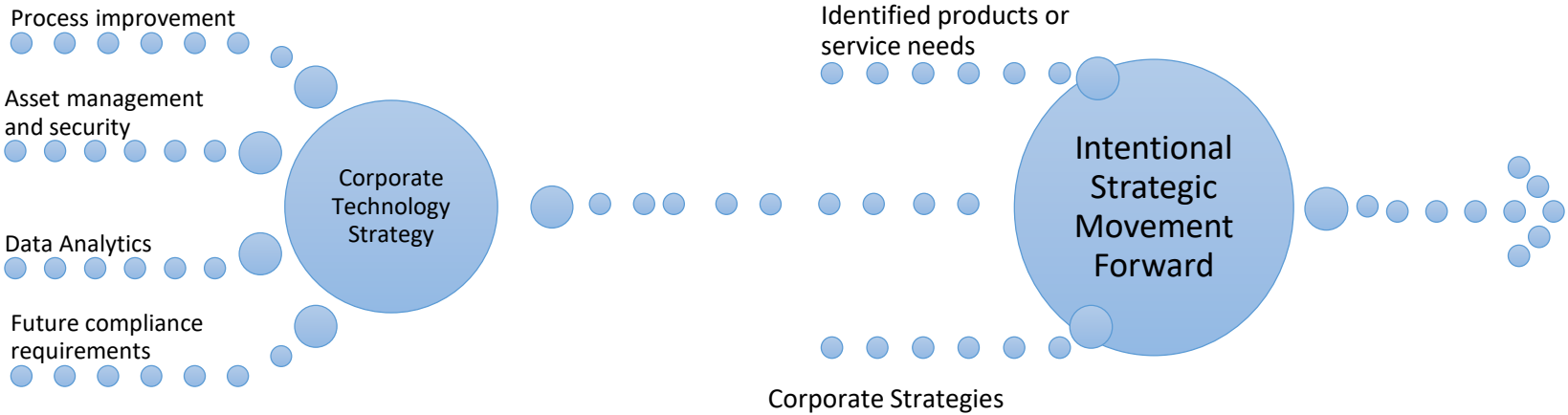
FUTURE REGULATORY IMPACTS



2020 FERC & NERC IDENTIFIED RISKS

| Management of employee and insider access | Insufficient long-term & operational planning due to inadequate models | Inhibited ability to ride through events | Inadequate real-time analysis during tool and data outages | Improper determination of mis-operations | Spare equipment with extended lead time | Gaps in program execution |
|---|--|---|---|---|--|--|
| <ul style="list-style-type: none"> •Cyber and physical security threats resulting from the exploitation of insider access, weak security practices of utilities and third-party service providers, and the growing sophistication of bad actors and nation states. | <ul style="list-style-type: none"> •Substandard planning assessments caused by the lack of visibility into distribution-side loads, the evolving resource mix, outdated models, and uncoordinated relay settings. | <ul style="list-style-type: none"> •Substandard planning assessments caused by the lack of visibility into distribution-side loads, the evolving resource mix, new failure mechanisms (i.e. momentary cessation), outdated models, and uncoordinated relay settings. | <ul style="list-style-type: none"> •The loss of situational awareness caused by lack of fully capable back-up tools, improper staffing, or the associated operator training. | <ul style="list-style-type: none"> •Insufficient analysis and/or corrective actions after a protection system mis-operations that may worsen the impact from events, and significantly increase the risk for BES instability or cascading. | <ul style="list-style-type: none"> •Extended restoration times associated with manufacturing and replacement of equipment disabled by physical/cyber attacks, weather, inadequate maintenance, or geomagnetic disturbances. | <ul style="list-style-type: none"> •Compliance performance degradations seen in the unexpected growth in CIP, vegetation management, facility ratings, and protection system maintenance violations |

NERC Compliance as a driver of innovation...



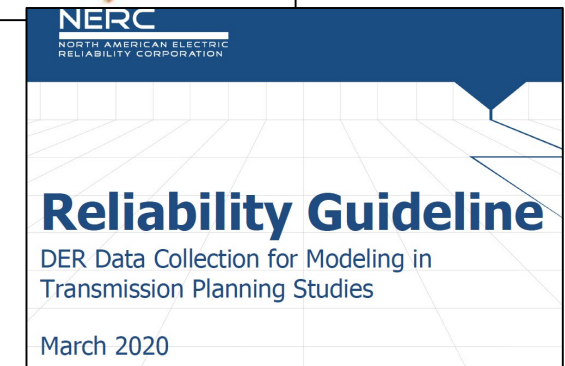
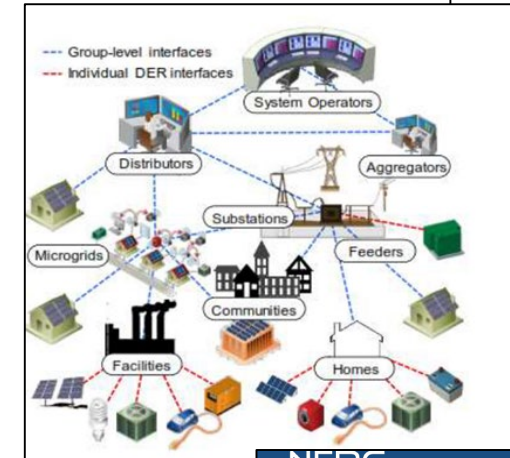
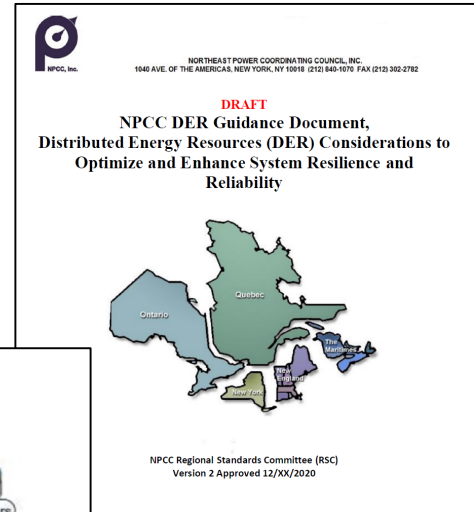
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Utility Services assessment of data readiness

- Readiness Review analysis seeks to enable VELCO to proactively identify anticipated data, security and technology requirements of transmission operators due to distributed energy resource impacts on grid reliability.
- Results will be used to drive collaborative actions and generate ideas to ensure electric grid reliability. First and foremost this review will inform VELCO's work.
- Emerging NERC requirements on securing accurate and timely data on grid-connected, renewable resources will also drive inclusion of DU customer/owners.
- Readiness Review goal is to ensure as much as possible helps Company meet future compliance obligations but also supports VELCO's Sustainable Vermont vision centered around clean, reliable and affordable energy

The readiness review will assess performance against the NERC Reliability Standards listed below:

- MOD-031-2 Demand and Energy Data
- MOD-032-1 Data for Power System Modeling and Analysis
- PRC-006-NPCC-2 Automatic Underfrequency Load Shedding
- FAC-002-2 Facility Interconnection Studies
- TPL-001-4 Transmission System Planning Performance Requirements
- EOP-005-3 System Restoration from Blackstart Resources
- EOP-011-1 Emergency Operations
- TOP-001-4 Transmission Operations
- TOP-003-3 Operational Reliability Data
- CIP-013-1 Cyber Security - Supply Chain Risk Management



Estimated draft findings Q3 of 2020

