Transmission Planning

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Avangrid Criteria Update
NYSEG & RGE

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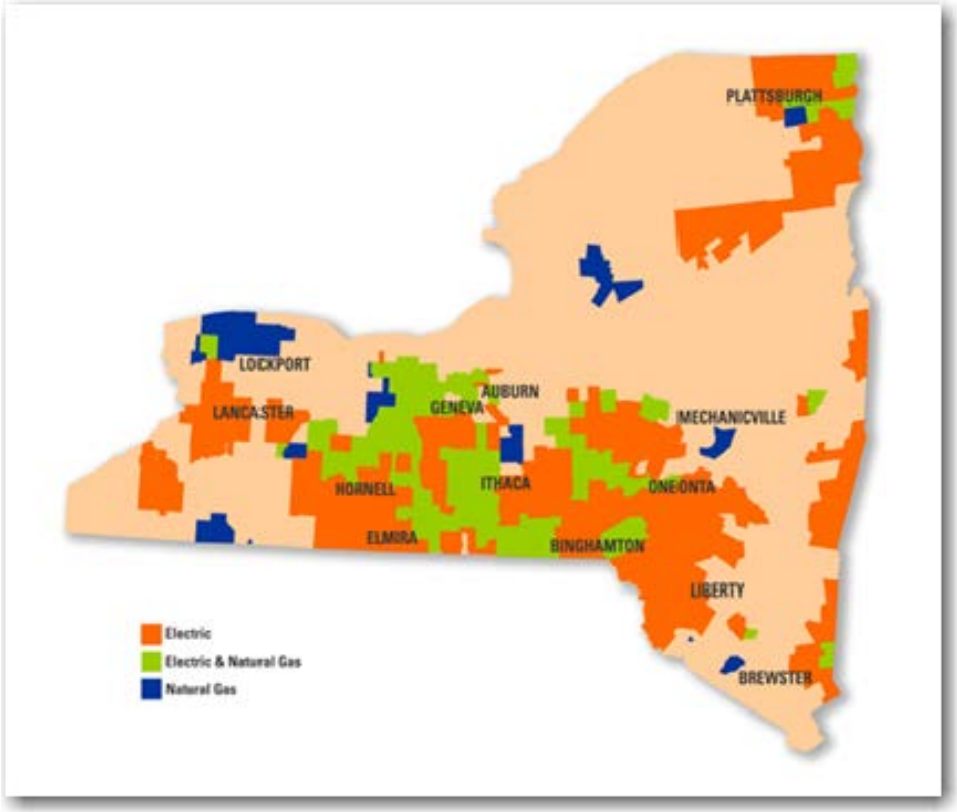
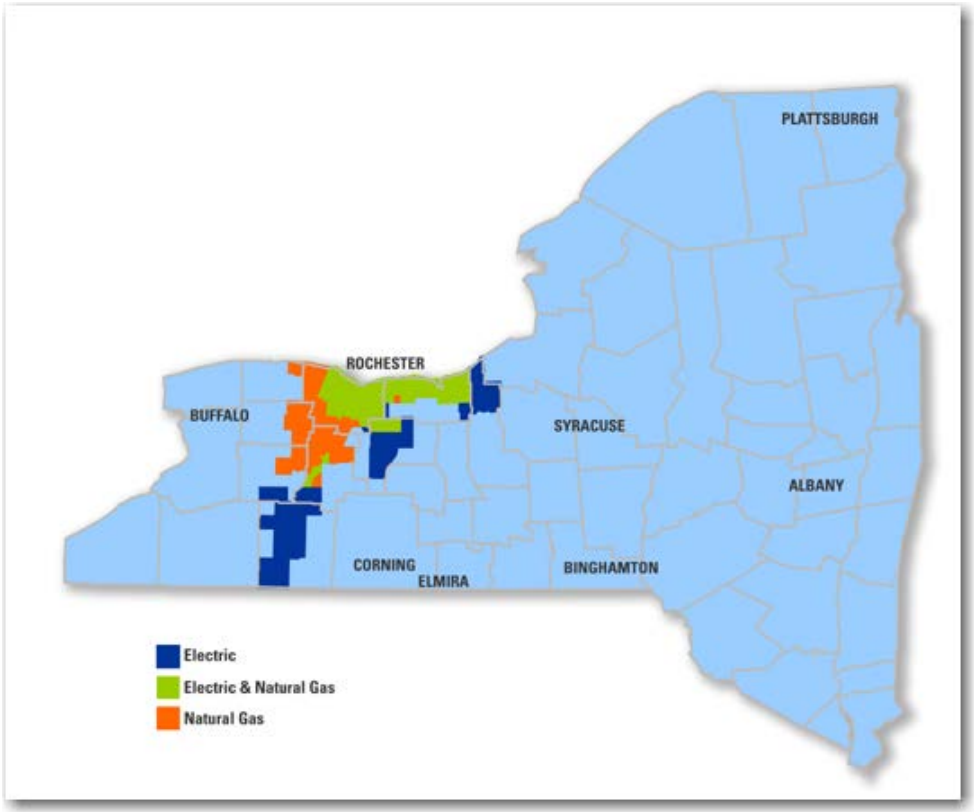
Avangrid's service areas in New York

New York State Electric & Gas (NYSEG): Serves ~881,000 electricity customers across ~18,400 square miles of upstate New York. It operates and maintains an electricity delivery system that consists of 4,500 miles of transmission lines and 34,000 miles of distribution lines

Rochester Gas and Electric (RG&E): serves ~371,000 electricity customers in the metropolitan Rochester area and surrounding region, covering an area of ~2,700 square miles





Background

- Section 25.6.1.1.1.1 of Attachment S to the NYISO
  - *In order for the ISO to recognize any revisions to Connecting Transmission Owner criteria as Applicable Reliability Requirements under this Attachment S or Applicable Reliability Standards under Attachments X and Z, the Connecting Transmission Owner shall present proposed revisions to such criteria to the Operating Committee or one of its subcommittees. To the extent such revised criteria are not inconsistent with Order No. 2003 or the ISO's interconnection procedures set forth in Attachments S, X and Z to the OATT, the ISO will accept such revised criteria*.
- Modifications to Criteria are intended to introduce new requirements to better plan for the future and also to clarify existing language

Voltage Criteria Update

- Inclusion of Voltage Collapse
- Inclusion of Delta-V requirements to summary table

Limit	Level	Comment
Maximum	1.05 pu	Applies to all planning time periods
Minimum (Steady State)	0.95 pu	Applies to time periods greater than 30 sec (i.e. after automatic actions including LTC's etc.)
Minimum (Transient)[1]	0.9 pu	Applies to time periods less than 30 sec (i.e. prior to automatic actions including LTC's etc.)
Collapse	0.8 pu / Non-Convergence	Results calculated at or below 0.80 pu are considered to be indeterminate
Delta-V (N-0)	3%	Delta-V testing includes the effects of routine switching such as Transformer or Reactor LTC's and Capacitor Bank Switching or the starting of large industrial loads
Delta-V (N-1)	5%	

Generation Assumption Addition

- For studies completed in New York Avangrid considers the unavailability of a single generator in a region to be a realistic and prudent parameter to include when studying an area

Loss of Load Addition

- Consequential Load Loss
  - Limit load loss to 25 MW for single line and transformer design contingencies
  - Load loss not to exceed 10 MW between automatic sectionalizing motor operated disconnect switches
  - Not automatically sectionalize in more than two locations for each single line or transformer design contingency

- Large commercial or industrial customers not subject to criteria

Stability Criteria Update

- Reference applicable ISO Criteria

Normal Operating Conditions Update

- The system will be designed such that it would be sufficient to carry 90/10 load at N-0 without any load transfers / system reconfigurations

Spare BES Equipment Addition

- Study the impact to the BES system if long lead time equipment is unavailable during P0, P1, P2 NERC events

- Corrective Action Plan required for any criteria violation identified due to long lead times for these equipment
  - Transformers
  - Underground Cables
  - Phase-Angle Regulating Transformers (PAR)
  - Shunt Devices

Criteria Posting

The following URLs are the location where Avangrid's Planning Criteria is posted:

- https://www.nyseg.com/wps/portal/nyseg/networksfooter/suppliersandpartners/!ut/p/z1/rZNLc4IwFIV_SxcumVxNoLqkDEIdBQUjJBsGFGw6EhCpffz6xk47dVPpK6ubmXPz3Tn3BHEUIy7To9imrahkulN3xo0E92e2Syzw_Kk_gAVMnNGIBpj2MYouCwDxP_Sbof69fvjimJ38FeKIr2Vbt3eIyedDvk23TfLpQQ-KqmrzpgeHh7reibw5pHJTp00rVXlqrtdigxgusGHomGiQ6blGhoWupbDOtA0YpDCGBskG-UkdWbPEmfo35jSxfG9px0vEeuCx0HZMJ0i8M_D4HRyegecf4KhrMfyyLdFpmI7NXRK8raYLwtSQ12cv2KsxLJwBmQS3LiZAUHQU-SOismpKFbbwd3YuqB0o0n856wKadKVGfQtxv99zU2Wnkm3-1KL45-GpS0ppOcSlFoOYl1b24hLOzKtXCrRWnw!!/?1dmy&current=true&urile=wcm%3apath%3a%2Fnysegagr_suppliersandpartners%2Fsuppliersandpartners%2Fnc_regulatoryinformation%2Ftransmissionservices%2Ftransmissionservices

- https://www.rge.com/wps/portal/rge/networksfooter/suppliersandpartners/!ut/p/z1/xVNNU4MwFPwreuDIJBSoeEQGqbalLS0CuTCBphgHAg1p_fj1Bg9VZ2xxdBxzSt7sy272bQACMUAM72mBBa0ZLuU5QcNU16buyHCg711aNlxAx7Hm_ngADR1EJwEzDaDf9EPze_3wyLJhX_8dQADlTDTiHiS8ILjgabtrmpIS3mK2bjAXTG4V-HWV5Sknxa7EoubPlG1qBQqOWVvRtpUWtoTvaU7az9WzDsirN5M7_iana5Bg09QHeJOrg0vTUo2NBlUrGxoqzrJc17ThGpuDDh0509SbzK7sSerM_JUbr0CiwMBzbS9I_cP0FHhd14JwBS4_KJ8flAcH2TfvahTYMxFpGTpteNRp7MnESUA39D6SRIq8OHrD2ATRnpJHELLuYSVY_szlRegGkumPDR9BcNsXU_kP6cN2i2wZ1poJ8iRA_C9pbaowDCtLr9QY0nnlZC8jAyX2-SsX3519/dz/d5/L2dBISEvZ0FBIS9nQSEh/?current=true&urile=wcm%3Apath%3A%2Frgeagr_suppliersandpartners%2Fsuppliersandpartners%2Fnc_regulatoryinfo%2Ftransmissionservices%2Ftransmission%2Binformation