

## **New York Transmission Owners (New York Transco LLC; Central Hudson Gas and Electric Corporation; Niagara Mohawk Power Corporation d/b/a National Grid; and New York State Electric & Gas Corporation)**

Case 13-M-0457: Application of New York Transmission Owners Pursuant to Article VII for Authority to Construct and Operate Electric Transmission Facilities in Multiple Counties in New York State – January 20, 2015 filing in Response to the December 16, Order of the New York State Public Service Commission

- The application includes a modification to the October 2013 proposal and eight alternatives
- The TOTS that were included in the October 2013 filing have been withdrawn because they were selected as p/o the IP contingency plan
- The recently formed NY Transco has joined as a co-applicant
- “The proposals will utilize the existing transmission ROW and will require no expansion. Visual impacts will be improved through the rebuild of the existing corridor and utilizing new structures that are approximately the same height as the existing structures.”
- Claims there is no need to acquire additional land to expand the ROW and in the Hudson Valley, where projects include the construction of a new circuit in place of existing circuits, the total number of structures will be reduced, and that new structure heights will be comparable to existing.
- Each segment and most of the possible points of interconnection are within the companies’ existing transmission corridor network
- “It is expected that the transfer increases provided by these alternatives are likely to mitigate the need for the new capacity zone in the Hudson Valley.”

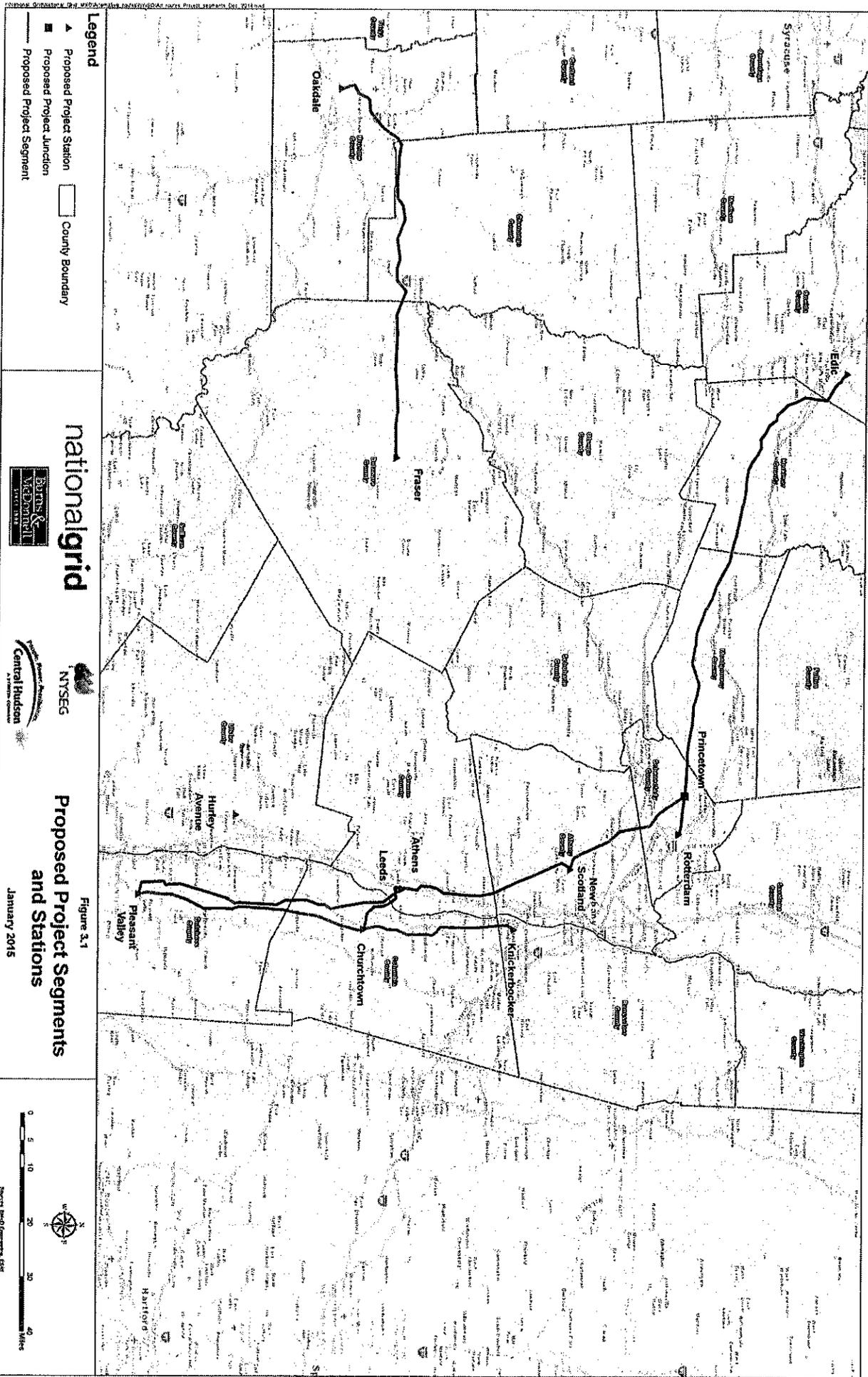
Transco now offers 9 alternatives in two groupings:

- Group 1: UPNY/SENY interface alternatives: primarily increase transfer capacity across the UPNY/SENY Interface only, and are therefore lower-cost proposals
  - KB-PV: Knickerbocker to Pleasant Valley 345 kV Transmission Line
    - A new 345 kV overhead electric transmission line from a new Knickerbocker Switching station in Town of Schodack, Rensselaer County to Pleasant Valley over 54.2 miles in two segments:
      - **KB- CT** (Knickerbocker to Churchtown) removal of one existing double circuit 115kV lattice and construction of new 115/345 kV double-circuit 115 kV lattice in 21.9 mi ROW ending at rebuilt and expanded 115 kV Churchtown switching station in Claverack, Columbia County
      - **CT-PV** (Churchtown to Pleasant Valley) removal of two existing 115 kV double circuit lattice structures and construction of new 115/345 kV double-circuit 115 kV lattice in 32.3 mi ROW ending at Pleasant Valley, where all work will be within existing fenceline
    - In service September 2019; Cost: \$522,563,000
    - UPNY/SENY N-1 normal thermal increase of 1,100 to 1,200 MW and CE N-1 normal thermal increase of 300-350 MW
    - No CE transfer benefits; will reduce the number of structures in the ROW and address aging and resiliency
  - LD-PV(R): Leeds to Pleasant Valley 345 kV Transmission Line Reconductoring
    - Reconductoring of two existing 345 kV overhead electric transmission lines and replacement of certain structures from the Leeds Switching station in Town of Athens, Greene County to Pleasant Valley within the existing ROW in one segment over 39.8 miles; includes an existing aerial crossing of the Hudson

- **Group 2: UPNY/SENY and CE Composite Alternatives:** (combines an UPNY/SENY solution with a CE component (Edic to New Scotland)); this gives congestion benefits, as well as aging infrastructure replacement and resiliency benefits
  - **O-F/ED-PV: (Enhanced October 2013 Proposal)**
    - The project consists of three parts:
      - **ED-NS:** construction of a new 345 overhead transmission line from the Edic Substation in the Town of Marcy, Oneida County, to the New Scotland Substation over a total distance of 91.5 miles in three segments:
        - **ED-PT:** (Edic to Princetown Junction) Starting at existing Edic substation, consists of the removal of two existing 230 kV lines and the construction of a new 345 kV line within 66.8 miles of existing ROW, and terminating at Princetown Junction in the Town of Princetown, Schenectady County
        - **PT-NS:** (Princetown Junction to New Scotland) construction of a new 345 kV line within 19.7 miles of existing ROW, utilizing 11.5 miles of H frame structures, 6.3 miles of monopole structures and 1.9 miles of 115/345 kV double circuit monopole structures, terminating at the New Scotland substation
        - **PT-RD:** (Princetown Junction to Rotterdam) Starting at Princetown, removal of two existing 230 kV H-frame structure lines and construction of two new 345 kV compact monopole structure lines within 5 miles of existing ROW
      - **KB-PV:** construction of a new, 345 kV overhead electric transmission line from a new Knickerbocker Switching Station in the Town of Schodack, Rensselaer County to the Pleasant Valley substation over a distance of 54.2 miles, in two segments:
        - **KB- CT** (Knickerbocker to Churchtown) removal of one existing double circuit 115kV lattice and construction of new 115/345 kV double-circuit 115 kV lattice in 21.9 mi ROW ending at rebuilt and expanded 115 kV Church town switching station in Claverack, Columbia County
        - **CT-PV** (Churchtown to Pleasant Valley) removal of two existing 115 kV double circuit lattice structures and construction of new 115/345 kV double-circuit 115 kV lattice in 32.3 mi ROW ending at Pleasant Valley, where all work will be within existing fenceline
      - **O-F:** construction of a new 345 kV overhead electric transmission line within existing ROW but parallel to the existing line from the Oakdale substation in the Town of Union, Broome County to the Fraser Substation in the Town of Delhi, Delaware County over a distance of 57.5 miles
    - In service date September 2019 Cost: O-F component: \$246,000,000 + ED-NS/KB-PV component: \$1,184, 965,000 = Total: \$1,430,965,000
    - Will increase the transfer capability of the UPNY/SENY N-1-1 thermal interface by approximately 1,050 to 1,250 MW and the CE N-1 voltage interface by approximately 350-450 MW

- Combining ED-NS with KB-PV allows for upgrade to UPNY-SENY interface and replaces aging infrastructure and provides resiliency
  - This is the only proposal that will increase visual impact (due to the Oakdale to Fraser segment); this segment facilitates moving renewable resources from western part of the state to eastern part of the state; O-F can be considered on its own merits
- ED-NS/KB-PV: Edic to New Scotland 345 kV Transmission Line and Knickerbocker to Pleasant Valley 345 kV Transmission Line
  - The project consists of two parts:
    - **ED-NS:** construction of a new 345 overhead transmission line from the Edic Substation in the Town of Marcy, Oneida County, to the New Scotland Substation over a total distance of 91.5 miles in three segments, as described above
    - **KB-PV:** construction of a new, 345 kV overhead electric transmission line from a new Knickerbocker Switching Station in the Town of Schodack, Rensselaer County to the Pleasant Valley substation over a distance of 54.2 miles, in two segments, as described above
  - In service date September 2019; Cost: \$1,184,965,000
  - Will increase the transfer capability of the UPNY/SENY N-1-1 thermal interface by approximately 1,050 to 1,250 MW and the CE N-1 voltage interface by approximately 350-450 MW
- ED-NS/NS-LD-PV(R): Edic to New Scotland 345 kV Transmission Line and New Scotland to Leeds to Pleasant Valley 345 kV Transmission Line reconductoring
  - The project consists of three parts:
    - **ED-NS:** construction of a new 345 overhead transmission line from the Edic Substation in the Town of Marcy, Oneida County, to the New Scotland Substation over a total distance of 91.5 miles in three segments, as described above
    - **NS-LD (R):** Reconductoring of two existing overhead lines from the New Scotland Substation in the Town of New Scotland, Albany County over a distance of 25.9 miles within an existing ROW to the Leeds Switching Station in the Town of Athens, Greene County
    - **LD-PV(R):** Reconductoring of two existing 345 kV overhead electric transmission lines and replacement of certain structures from the Leeds Switching station in Town of Athens, Greene County to Pleasant Valley within the existing ROW in one segment over 39.8 miles; includes an existing aerial crossing of the Hudson River; also includes reductoring the two existing 345 kV lines within the 0.5 mi section from Athens Junction to Athens substation
  - In service date August 2019; Cost: \$1,005,628,000
  - Will increase the transfer capability of the UPNY/SENY N-1-1 thermal interface by approximately 1,350 to 1,550 MW and the CE N-1 voltage interface by approximately 300-500 MW
- ED-NS/HA: Edic to New Scotland 345 kV Transmission Line and Hurley Avenue PARs
  - The project consists of 2 parts:
    - **ED-NS:** construction of a new 345 overhead transmission line from the Edic Substation in the Town of Marcy, Oneida County, to the New

- Scotland Substation over a total distance of 91.5 miles in three segments, as described above
    - HA: Installation of equipment at the Hurley Avenue substation in Town of Ulster, Ulster County; Requires expansion of the footprint of the Hurley Avenue substation (as described above)
      - In service date July 2019; Cost: \$764,383,000
      - Will increase the transfer capability of the UPNY/SENY N-1-1 thermal interface by approximately 400 MW and the CE voltage interface by 0-100 MW
  - ED-NS/NS-LD(R)/LD-PV: Edic to New Scotland 345 kV Transmission Line and New Scotland to Leeds 345 kV Transmission Line Reconductoring and Leeds to Pleasant Valley 345 kV Transmission Line
    - The project consists of three parts:
      - **ED-NS:** construction of a new 345 overhead transmission line from the Edic Substation in the Town of Marcy, Oneida County, to the New Scotland Substation over a total distance of 91.5 miles in three segments, as described above
      - **NS-LD (R):** Reconductoring of two existing overhead lines from the New Scotland Substation in the Town of New Scotland, Albany County over a distance of 25.9 miles within an existing ROW to the Leeds Switching Station in the Town of Athens, Greene County
      - **LD-PV:** construction of a new 345 kV overhead electric transmission line from the Leeds Switching Station to the Pleasant Valley Substation over 39.3 miles in two segments, as described above
    - Will increase the transfer capability of the UPNY/SENY N-1-1 thermal interface by approximately 1,400 to 1,600 MW and the CE N-1 voltage interface by approximately 300 to 500 MW
    - In service date: February 2020; Cost: \$1,186,786,000
- The application materials for all 9 alternatives contain the same language in the Engineering Justification (Exhibit E-4). Claimed benefits include:
  - Improve system reliability by reinforcing the transmission system and increasing transmission capacity; claims increased transmission capacity into the Hudson Valley region would likely have fully mitigated the need for the new G-J Local Capacity Zone
  - Will replace aging structures
  - Operational flexibility from adding a parallel transmission path across a constrained interface to allow for maintenance outages
  - Congestion relief = demand\$ congestion savings
  - Economic development from increased employment and local taxes
  - Emissions reductions from integration of renewable energy resources
  - Leverages existing ROWs; re-use of disturbed land and economies of scale by replacing and expanding existing transmission facilities with new higher voltage lines or by adding to existing capacity
  - Expandability = capability to serve system load increases and interconnect new generation



**Legend**

- ▲ Proposed Project Station
- ▣ County Boundary
- ▬ Proposed Project Junction
- ▬ Proposed Project Segment

**nationalgrid**

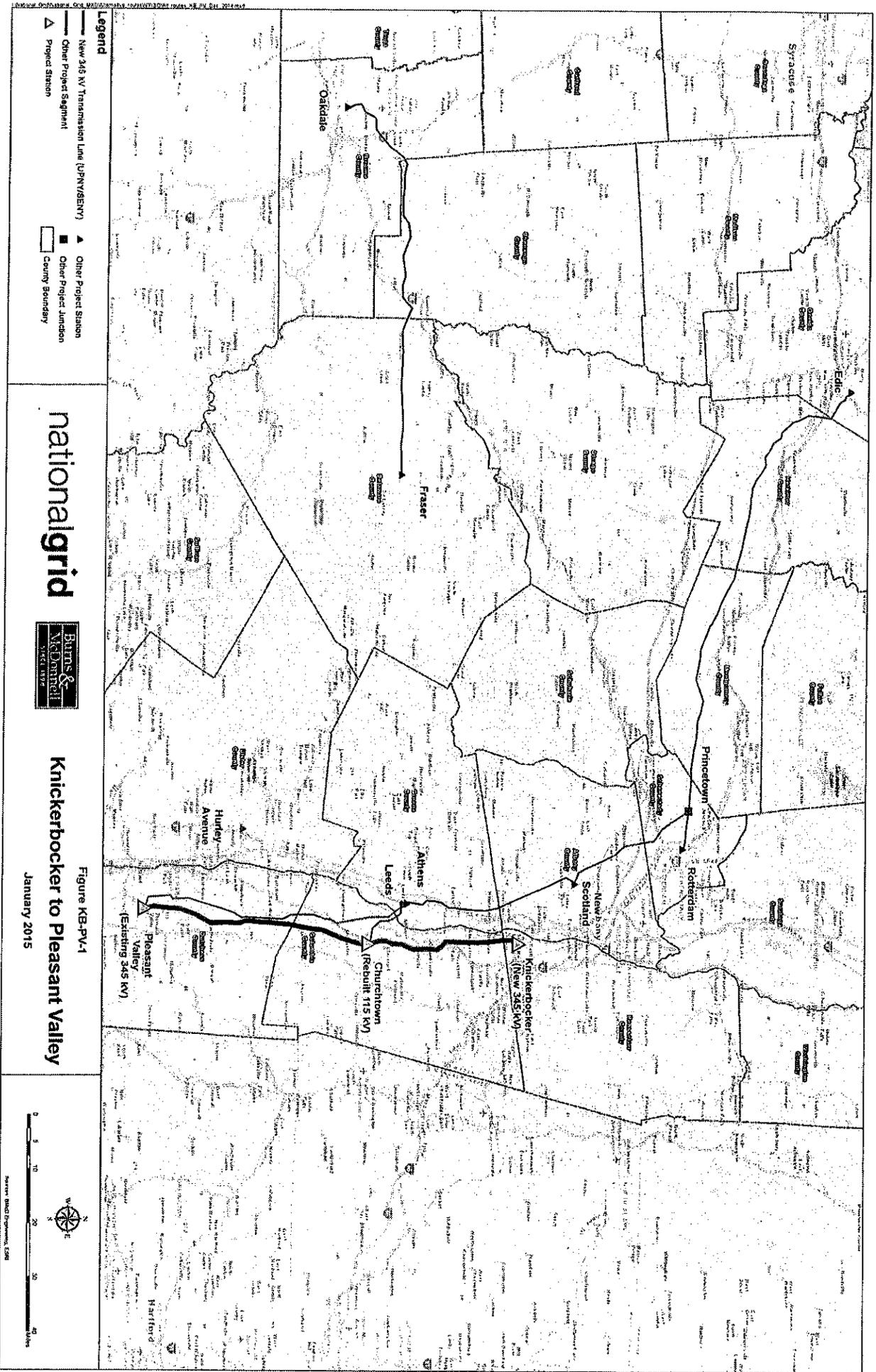


**Proposed Project Segments and Stations**

Figure 3.1

January 2015



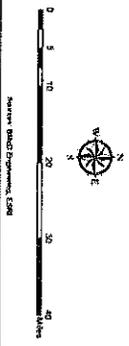


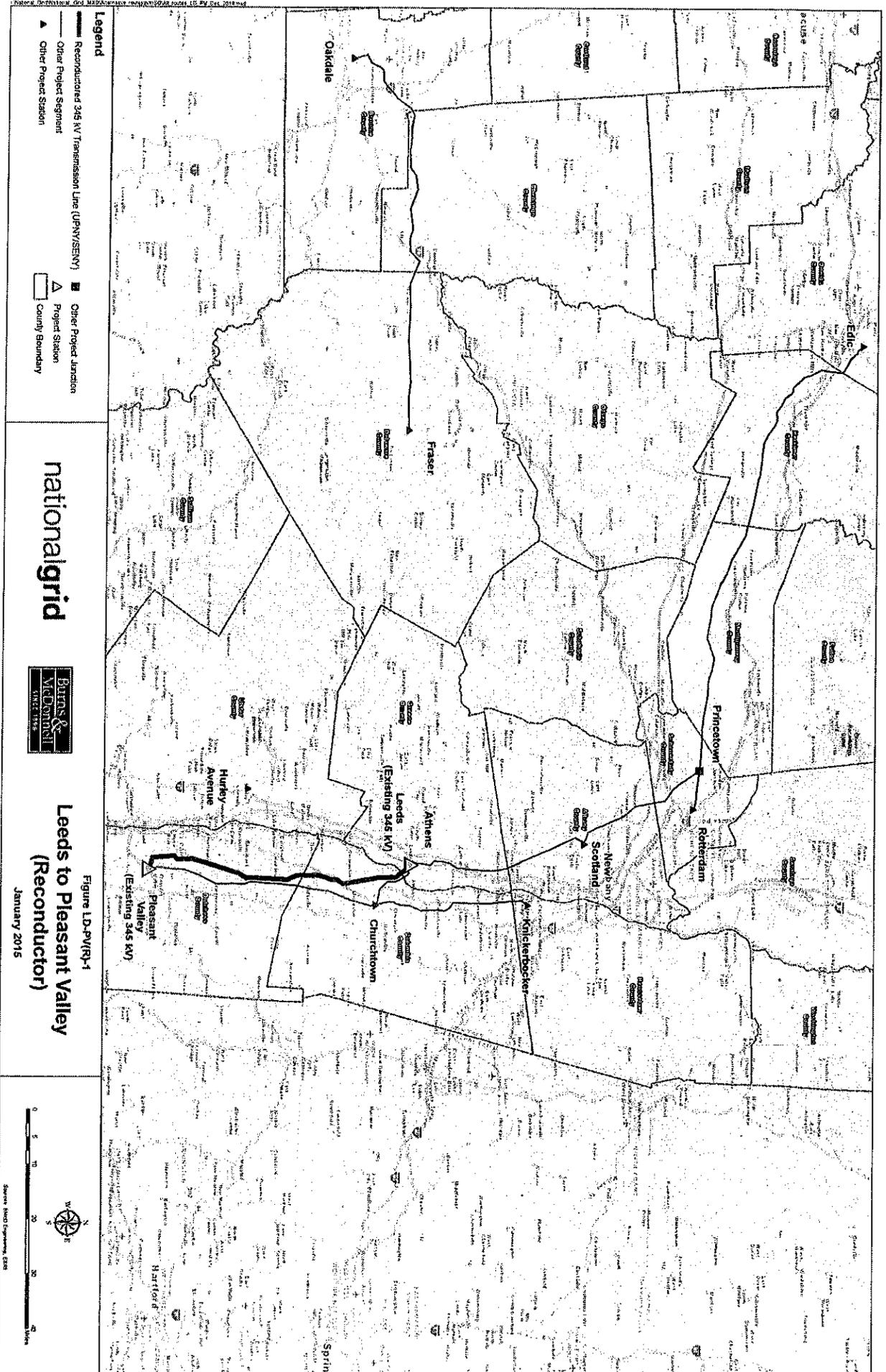
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**Knickerbocker to Pleasant Valley**

Figure KB-PV1  
January 2015





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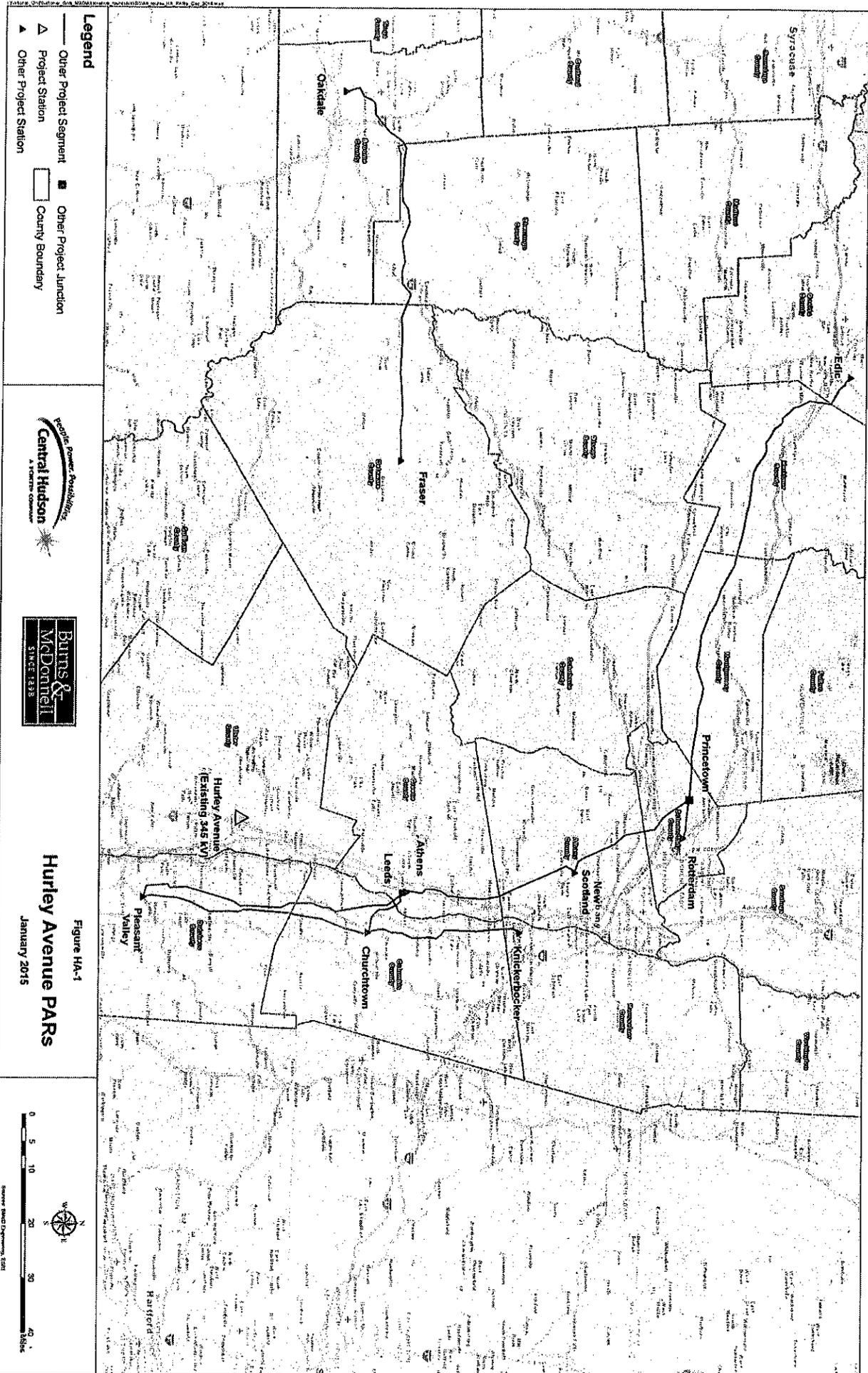


**Leeds to Pleasant Valley  
(Reconductor)**

January 2015

Figure LD-PV/RV-1

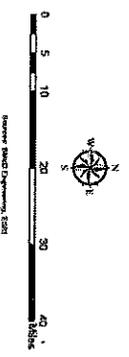


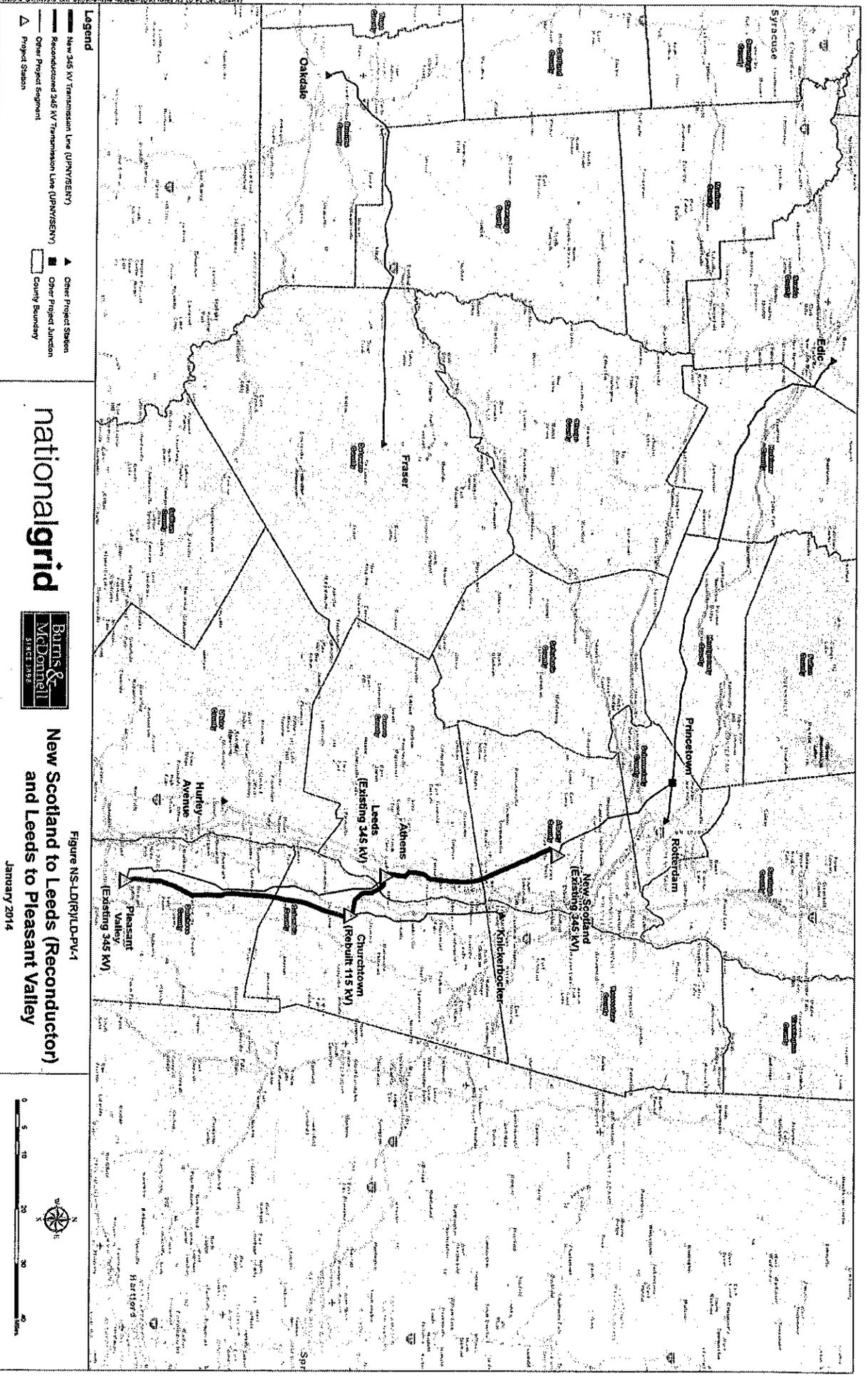


- Legend**
- Other Project Segment
  - ▲ Project Station
  - ▴ Other Project Station
  - Other Project Junction
  - County Boundary



Figure HA-1  
**Hurley Avenue PARS**  
 January 2015





- Legend**
- New 345 kV Transmission Line (UP/NVSEN)
  - Reconstructed 345 kV Transmission Line (UP/NVSEN)
  - Other Project Segment
  - Project Station
  - Other Project Station
  - County Boundary

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**New Scotland to Leeds (Reconductor)  
and Leeds to Pleasant Valley**

Figure NS-LD(R)/LD-PV-1  
January 2014



**Legend**

- New 345 kV Transmission Line (UPNY/SENY)
- New 345 kV Transmission Line (Central East)
- 345 kV Transmission Rebuild (Central East)
- New 345 kV Transmission Line (Total East)
- Project Station
- Project Jurisdiction
- Other Project Station
- County Boundary
- Other Project Segment

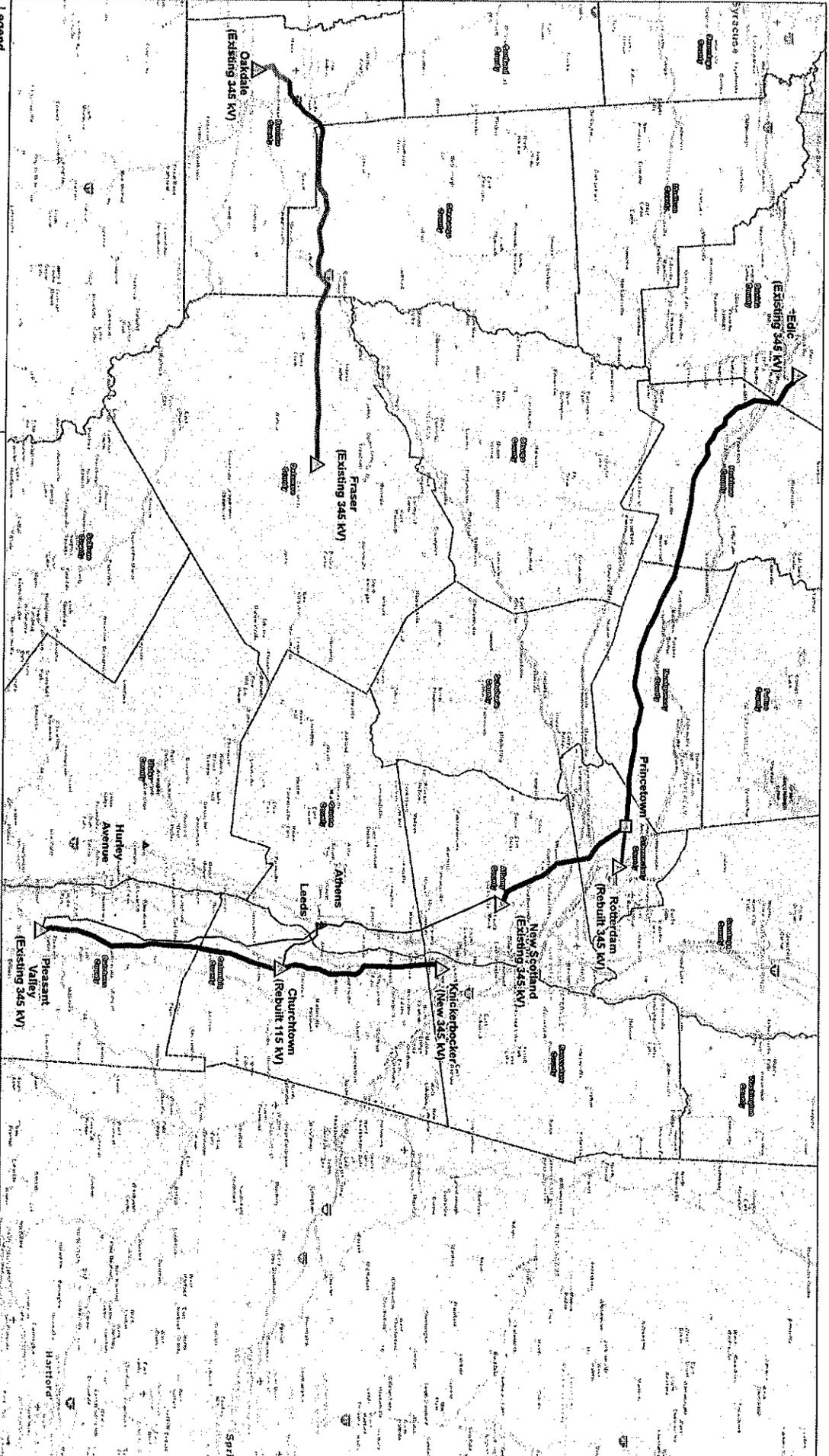
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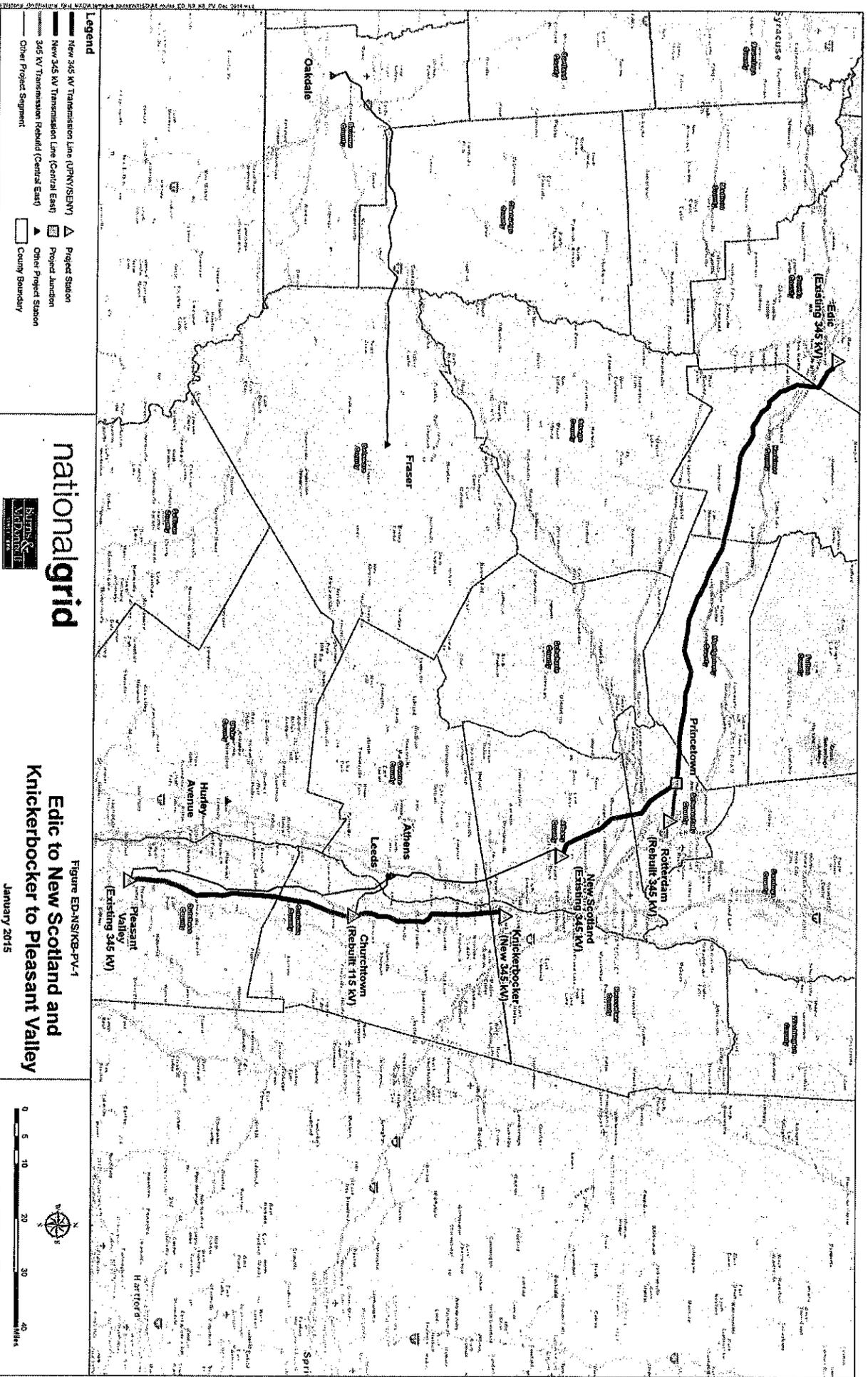
**NYSEG**

**Figure 04/ED-PV-1**  
**Oakdale to Fraser and**  
**Edic to New Scotland and**  
**Knickerbocker to Pleasant Valley**  
 January 2015

0 5 10 20 30 40 Miles

Source: Map Drawing ES&I





- Legend**
- ▲ New 345 kV Transmission Line (UPN/ISEN)
  - New 345 kV Transmission Line (Central East)
  - ▲ 345 kV Transmission Rebuild (Central East)
  - Other Project Segment
  - ▲ Project Station
  - Project Junction
  - ▲ Other Project Station
  - County Boundary

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**Edic to New Scotland and  
Knickerbocker to Pleasant Valley**

Figure ED-NS/KB-PV-1

January 2015



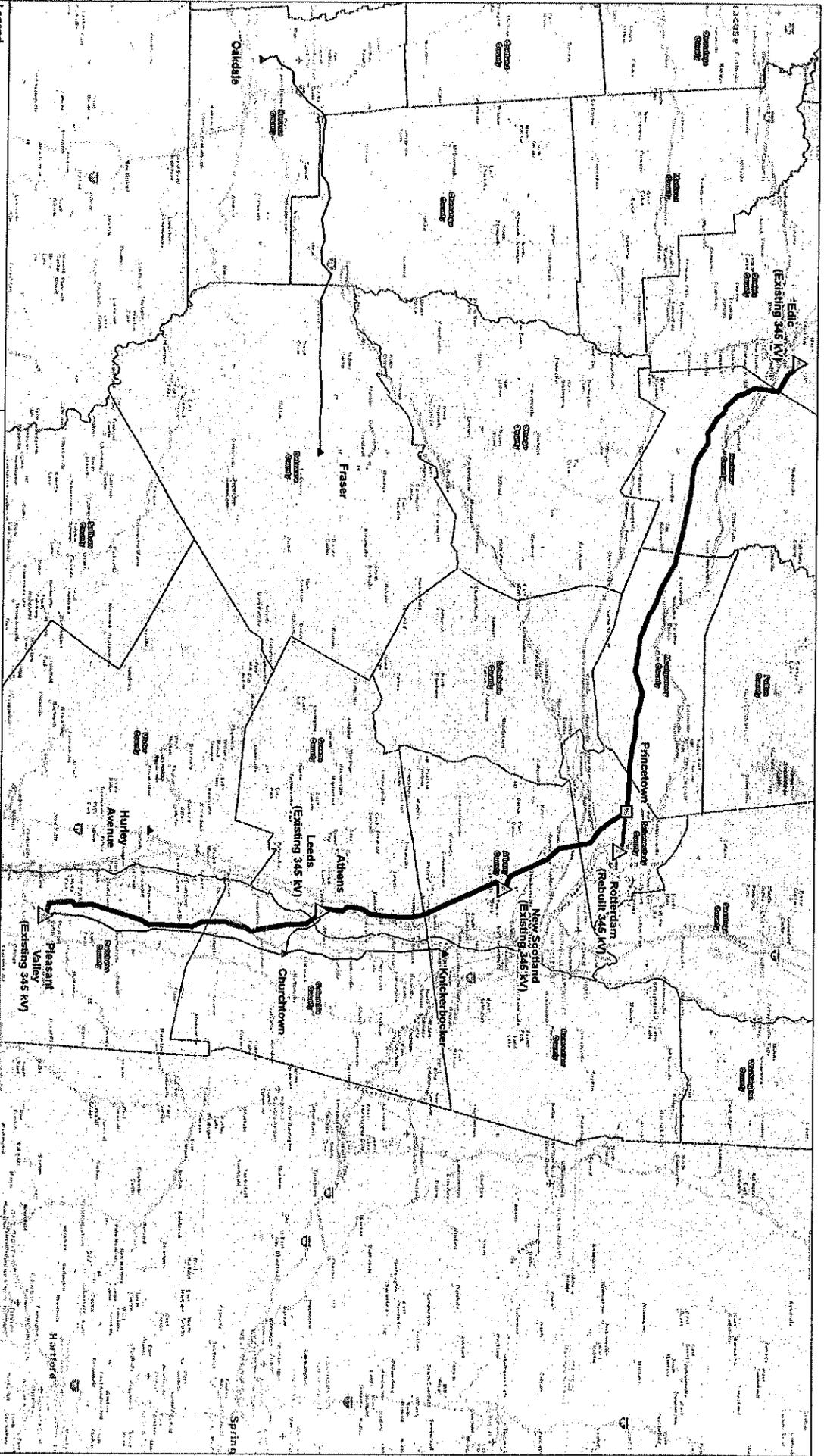
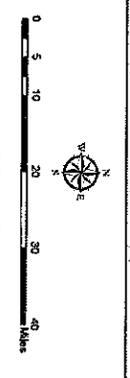
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Source: ENR, OpenStreetMap, ESRI

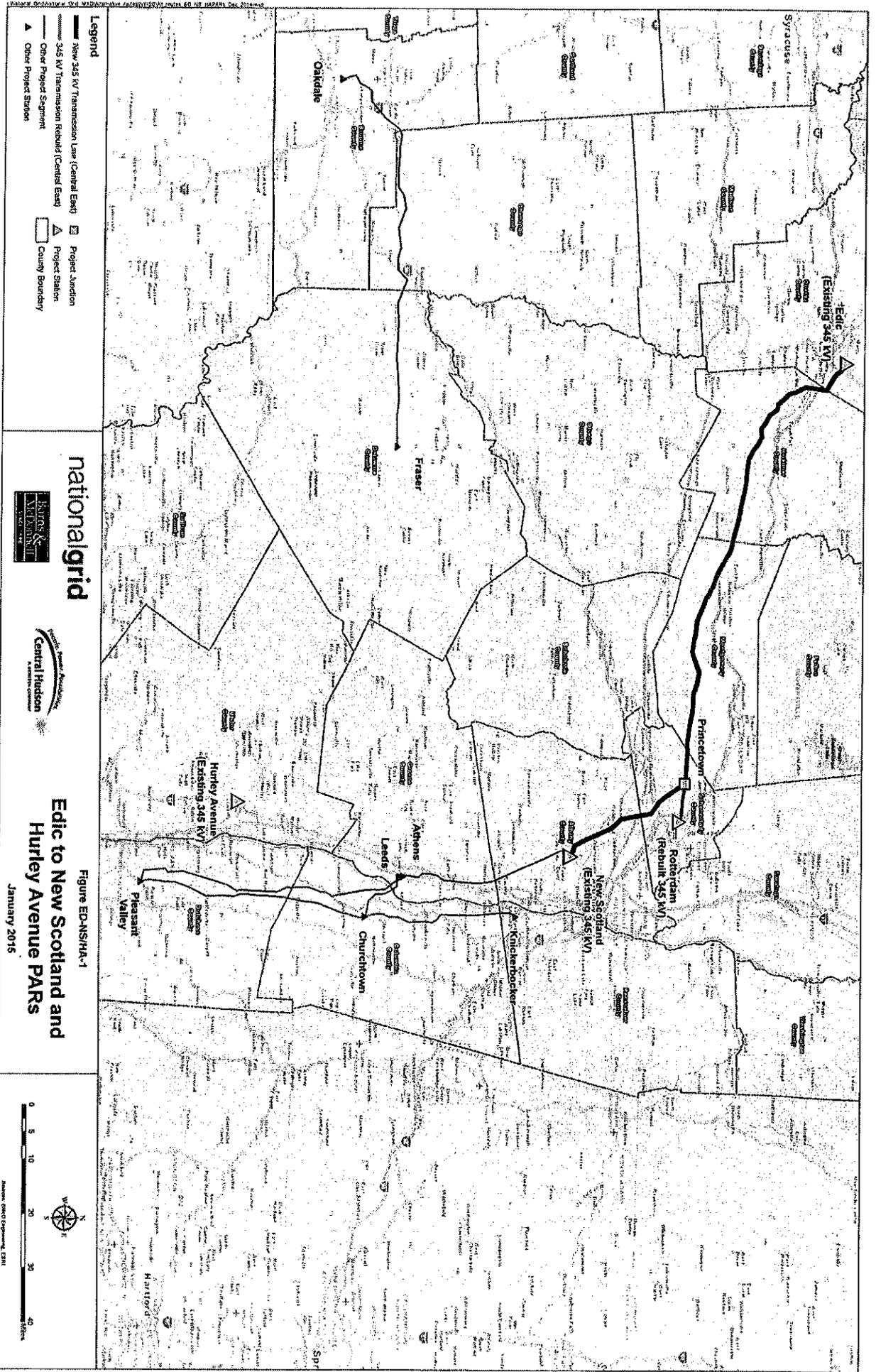
- Legend**
- New 345kV Transmission Line (Capital East)
  - Reconstructed 345kV Transmission Line (UPV/SEB7)
  - 345 kV Transmission Rebuild (Capital East)
  - Other Project Segment
  - Project Station
  - Project Junction
  - Other Project Station
  - County Boundary



**Edic to New Scotland and  
New Scotland to Leeds to Pleasant Valley  
(Reconductor)**

Figure ED-NS-INS-LD-PV(R)-1  
January 2015





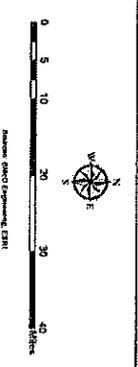
- Legend**
- New 345 kV Transmission Line (Central East)
  - Existing 345 kV Transmission Rebuild (Central East)
  - Other Project Segment
  - ▲ Other Project Station
  - ▴ Project Station
  - ▭ County Boundary

**nationalgrid**



**Figure EDANS/HA-1**  
**Edic to New Scotland and Hurley Avenue PARs**

January 2015



Source: ES&P Engineering, LLC

