



# FERC Order 1000 Upgrade Definition

RPPTF

Wednesday, May 22, 2013

- Prior to Order 1000, an 'upgrade' was any enhancement or expansion to the existing Transmission System
- FERC directed PJM to clarify and re-define the term 'upgrade'
- Order 1000 requires more specificity to how the term 'upgrade' is used

## Objectives:

- Clearly delineate “what is an upgrade” (and what is not)
- Agree upon proposed definition for the term “upgrade”

- **General Principles**
  - Observe property rights (land, facilities, rights of way)
  - Some projects will be 100% upgrades, while others may be nearly 100% “new”
    - However – connections/attachments of “new” projects to existing facilities will be upgrades
    - These connections and attachments are responsibility of Incumbent TO(s)
  - To clarify when an enhancement or improvement is not an upgrade – PJM has proposed long line and short line criteria
  - PJM intends to include discrete factors (i.e. distance & percentage of total transmission facility length) to assist in delineation of upgrade vs. new projects
- **Specific Examples**
  - Substations (additions within, adjacent to, or non-contiguous to)
  - Attachment to, relocation and/or re-construction of existing towers/lines
  - Existing Rights of Way

- FERC 1000-A: [at P426]

“... the term upgrade means an improvement to, addition to, or replacement of a part of, an existing transmission facility. The term upgrades does not refer to an entirely new transmission facility. The concept is that there should not be a federally established monopoly over the development of an entirely new transmission facility”

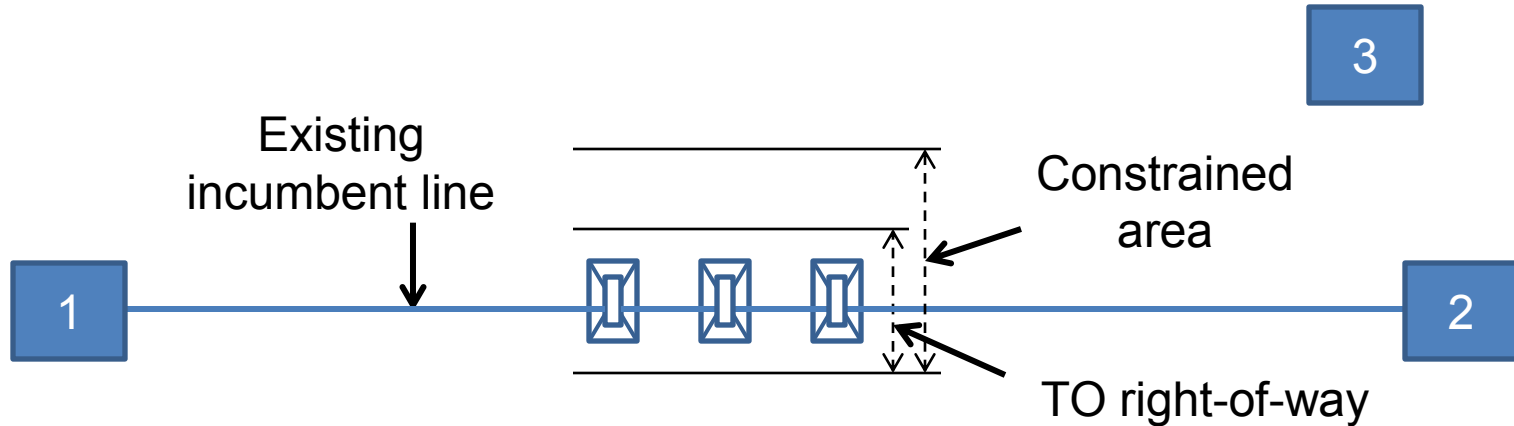
- A project or a segment of a project that is a modification to an existing transmission facility (overhead or underground) is an upgrade, such as:
  - Relocation and/or replacement to existing tower(s)
  - New conductors added to existing multi-circuit tower(s)
  - Re-conductoring lines/rebuilding existing towers
  - Increase in nominal voltage
  - Installing additional equipment on an existing line such as:
    - Additional structures to increase a sag limit
    - Sectionalizing switch

# Upgrade Segment Examples

Scenario: Substations 1, 2, and 3 are existing facilities. The transmission line from 1-2 is existing and runs through an area that is geographically constrained.

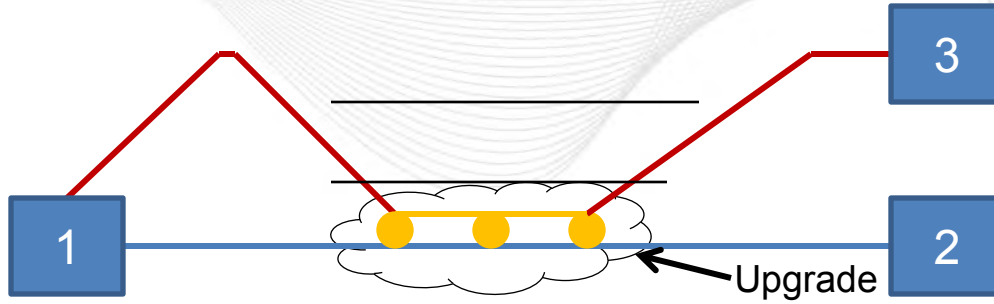
Proposed Solution:

(1) New transmission line between substations 1 and 3.



# Upgrade Segment Examples

Replace existing lattice towers with multi-circuit towers.

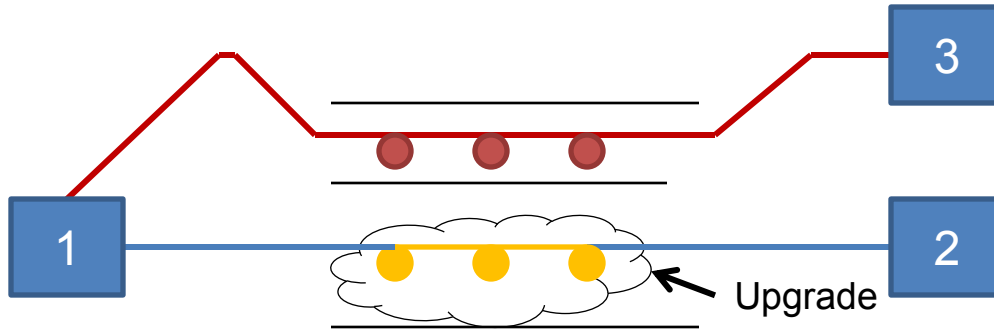


Solution 1 – Tower replacement

Key

- Existing
- New
- Upgrade

Replace existing lattice towers with single-circuit towers and move within the TO RoW to allow for the new towers in the new RoW.



Solution 2 – Relocation of existing tower

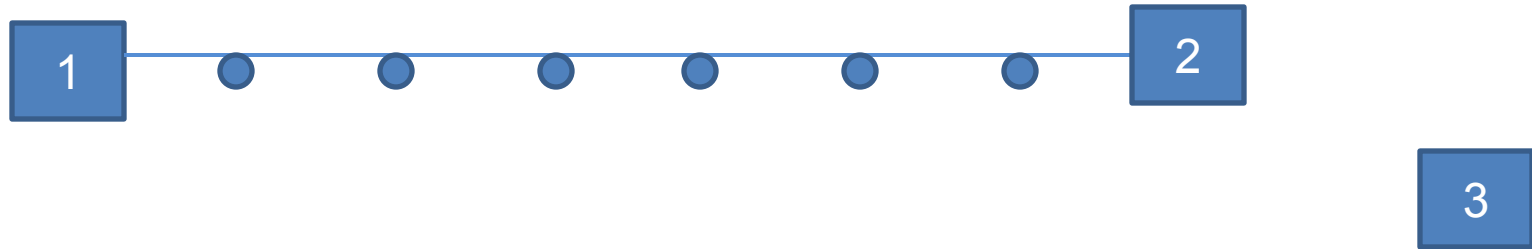


# Transmission Line Examples

Scenario: Existing transmission line between substations 1 and 2 is built with the capability to have a second line strung. Substations 1, 2, and 3 are existing facilities.

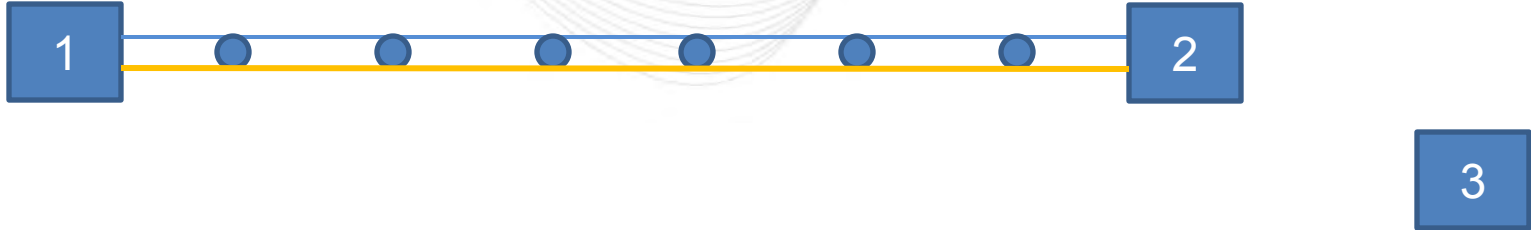
Examples of potential solutions proposed:

- (1) New transmission line between substations 1 and 2 on the existing towers.
- (2) New transmission line between substations 1 and 3 on new towers.
- (3) New transmission line between substations 1 and 3, which utilizes a portion of the unused side of the 1-2 transmission line towers and a portion on new towers.

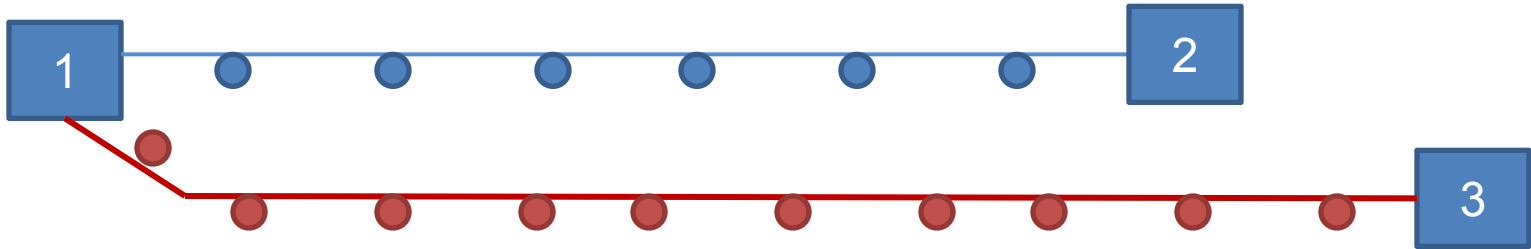


# Transmission Line Examples

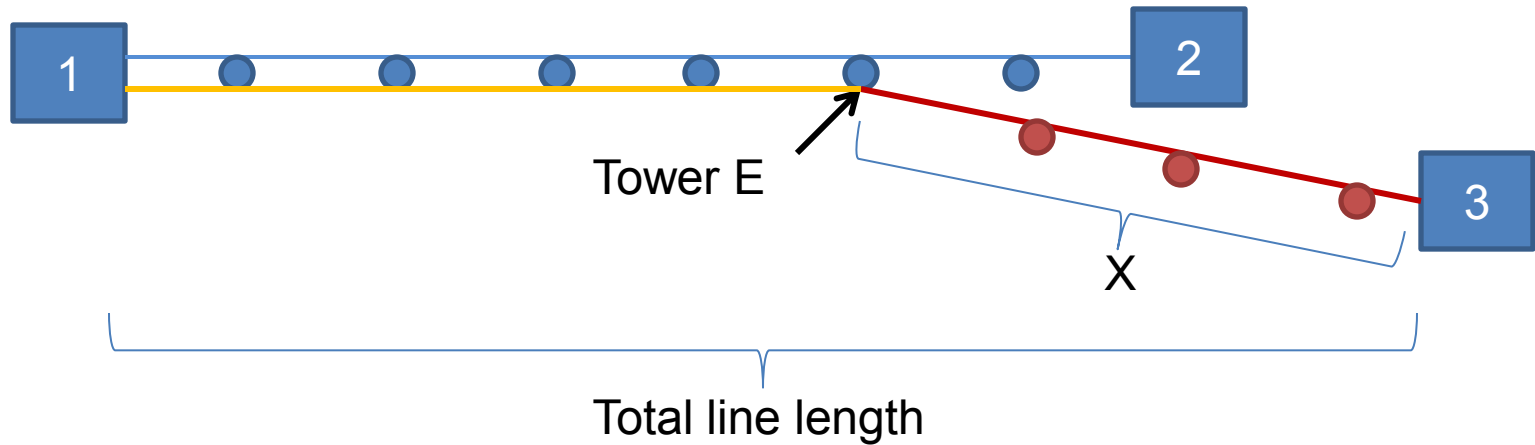
Project proposal 1: Upgrade



Project proposal 2: New



Project proposal 3: Combination of new and upgrade segments.





# Combination of New and Existing Transmission Line

- PJM - Projects may be comprised of segments some of which are upgrades and some of which may be considered new
- PJM proposes to modify the upgrade definition to include a distance and percentage of total transmission criteria:
  - For lines 20 miles or greater (“Long Lines”): the entire project is an upgrade only if the new line segment X is less than 10 miles or less than 10% of the total transmission line length.
  - For lines less than 20 miles (“Short Lines”), the entire project is an upgrade only if the new line segment X is less than 50% of total transmission line length.

# Transmission Line - Long Line Examples

Total 1-3 Line Length	'X' Length	Mile Requirement	Percentage Requirement	Determination
120	10.1	NA	10.1 mi < 10%	Total project is an upgrade
120	13	NA	13 mi > 10%	Segment 1-E: upgrade Segment E-3: new
120	110	NA	110 mi > 10%	Segment 1-E: upgrade Segment E-3: new
90	10.1	10.1 > 10	10.1 mi > 10%	Segment 1-E: upgrade Segment E-3: new
90	9.1	9.1 < 10	9.1 mi > 10%	Total project is an upgrade

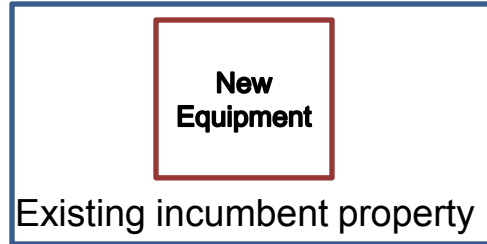
# Transmission Line - Short Line Examples

Total 1-3 Line Length	'X' Length	Percentage Requirement	Determination
9	7	7 mi > 50%	Segment 1-E: upgrade Segment E-3: new
9	4	4 mi < 50%	Total project is an upgrade
15	8	8 mi > 50%	Segment 1-E: upgrade Segment E-3: new
15	7	7 mi < 50%	Total project is an upgrade

## PJM proposes that, consistent with current practices:

- Any substation project relying on property of an existing substation will observe property rights and be considered an upgrade.
- Any substation project adjacent to or non-contiguous to an existing substation property will be a new facility.

# Upgrade Examples - Substations



New equipment within existing substation property

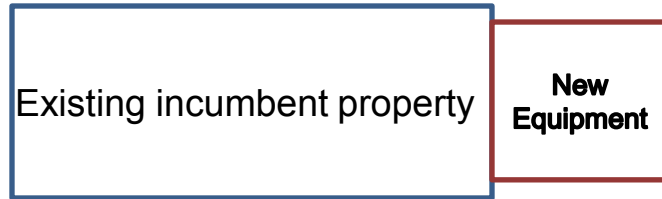


New equipment in expanded substation property

Proposed projects to be considered as upgrades to existing transmission facilities



# New Equipment Examples - Substations



New equipment in adjacent substation property



New equipment in remote substation property

These proposed projects are **not** considered upgrades to existing transmission facilities

- All rules will observe property rights (land, facilities, and rights-of-way)
- Projects can be comprised of segments built and owned by various parties
- All work within an existing substation is an upgrade and is responsibility of incumbent
- Existing facilities with no designated future use are assigned consistent with current practice with generation and merchant upgrade projects

- Right-of-way is not a determinant of whether or not a project is an upgrade,

BUT

- Availability of right-of-way is a consideration when evaluating proposals with respect to cost, schedule and regulatory risk issues