

PSE&G Examples of Supplemental Projects

Thermo-mechanical Movement–Thermo-mechanical Bending

A sampling of recent projects...

s0309	K-1311: Bayway – Federal Sq 138kV	In-Service
s0310	Q-1369: Bayway – Doremus Place 138kV	In-Service
s0294	L-1364: Kuller Road to Fairlawn 138kV	12/31/2016
s0687	N-1366: Doremus Place - Newark Sw. 138 kV	5/31/2016
s0688	B-1328/C-1355: Foundry St. - ECRRF - Essex 138 kV	12/31/2018

- ❑ To address TMM/TMB, circuits were recondored and secured.
- ❑ Paper-propylene-paper (PPP) insulation allows large conductors to be installed in existing pipes.
- ❑ Old circuits were 2000kcmil, new are 3000 or 3500kcmil. The larger size increases the rating.
- ❑ The increased rating may allow for the delay of reliability projects and or reduce congestion by providing additional capacity.



Example of cable replacement delaying a project

s0309/s0310 projects facilitated the delay of the Newark load project by 2-3 years

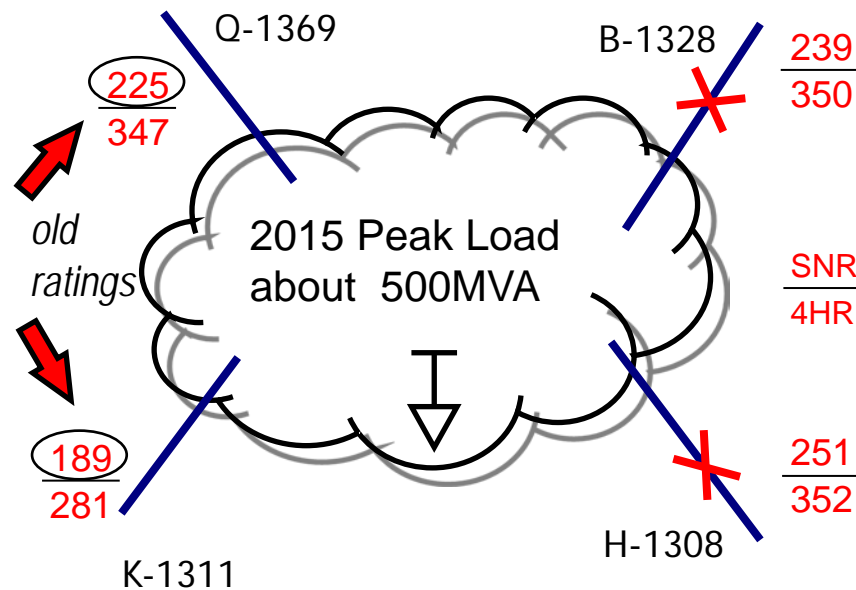


- General Reliability Concern: Reliability issue as a result of existing 138 kV cable movement due to elevation and track movement.
- Proposed Solution:
 - Reconductor the K-1311 (Bayway – Federal Square) 138 kV cable (S0309).
 - Reconductor the Q-1369 (Bayway – Doremus Pl) 138 kV cable (S0310).
 - Reconductor the B1328 (Foundry St. - ECRRF) 138 kV cable (S0311).
- Estimated Project Cost:
 - \$48.1 M
 - \$31.0 M
 - \$9.0 M
- Expected IS Date: 12/31/2013



Newark – Federal Sq – Foundry St – Doremus Pl Load Pocket

Reliability criteria requires the pocket to withstand the outage of two circuits...



- ❑ New K-1311 has a rating of 280/466MVA
- ❑ New Q-1369 has a rating of 283/412MVA

...leaving a transmission supply capacity of 414MVA.

Additional Cable Capacity

s0497 Build the Athenia-Bergen 230 kV with higher rating conductor

5/15/2016

- ❑ The existing Q-2217 and the F-2337 cables parallel the new Athenia-Bergen circuit.
- ❑ The O66 Project required a rating of 305MVA; however, the existing parallel cables are 468 and 502MVA respectively.
- ❑ The new cable would become a limit in the future with a replacement cost of \$80M. The higher rating will also eliminate potential congestion.



PSE&G Transmission Zone

- Hudson transmission project (O66) is building a new under ground 230 kV circuit from Athenia to Bergen (n1035) with a low rating conductor (2500 kmcil). To replace the circuit once built for potential future overloads would cost approximately \$80 M. The circuit is can be built with higher conductor rating (3500 kmcil), with additional initial cost of \$7 M.
- Build the Athenia – Bergen 230 kV with higher rating conductor (S0497).
- Estimated Project Cost: \$ 7 M
- Expected IS Date: 6/1/2015



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This higher circuit rating allows for greater west to east transfers in Northern PSE&G.