

Xcel Power Line Update

October 2, 2008

Agenda

- **Status of the six new tall poles**

Two new tall poles constructed in November 2007

Four new tall poles to be constructed in spring 2009

Questions and Answers period

- **What is next**

- **History**

First expansion – 2003

Second expansion – 2005

Third expansion – 2007 to be constructed in ~2011

Questions and Answers period

Two New Tall Poles

constructed in November 2007

- The 165 feet high pole (brown)

This pole was removed in April 2008.

It will be replaced with a silver ~120 feet high pole in ~2011.

- The 180 feet high pole (brown)

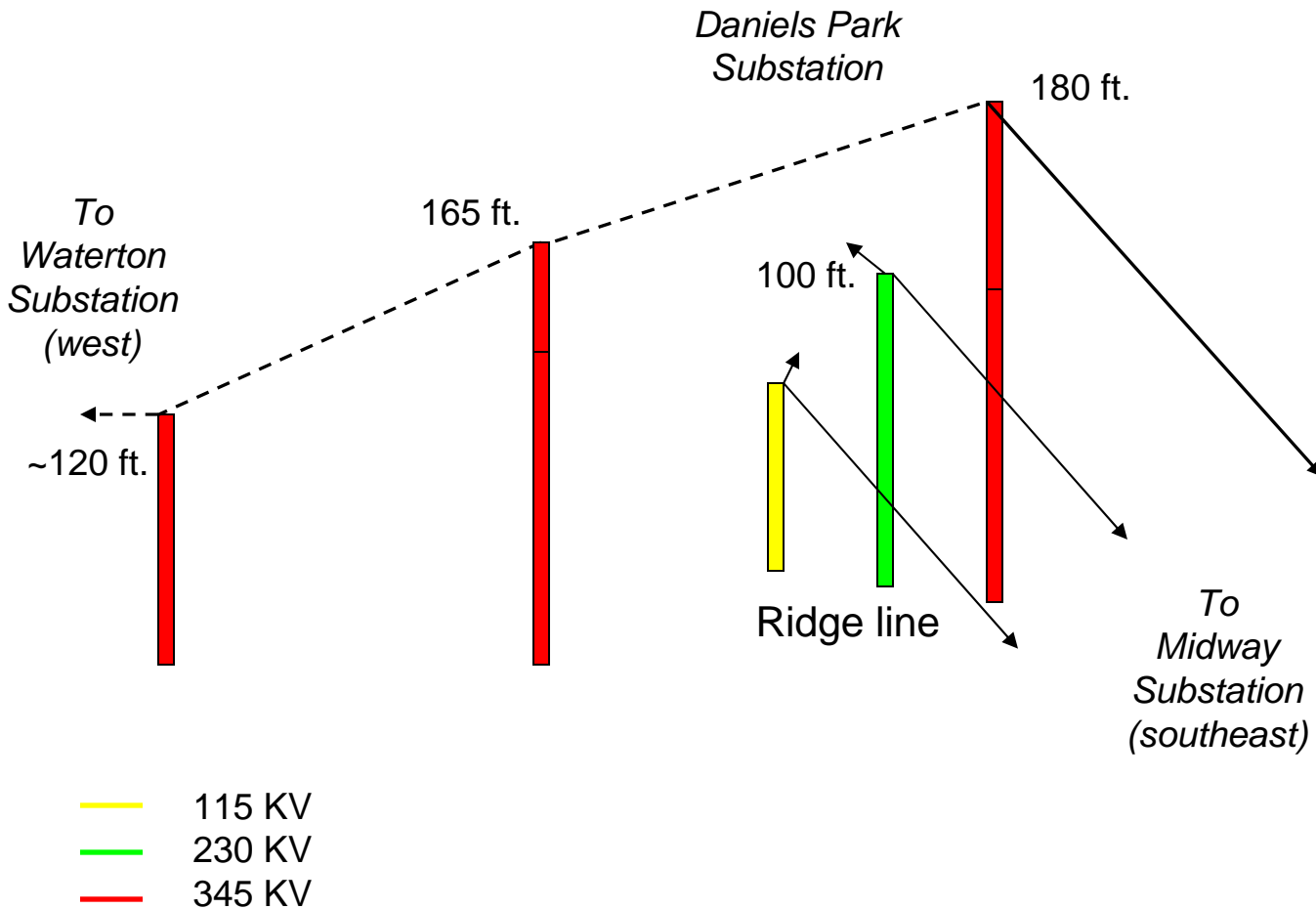
This pole will be replaced with a brown 105 feet high in late 2008.

- How was this accomplished

Note: This effort took place between 12/07 and 1/08

First – Two New Tall Poles

Original – November 2007

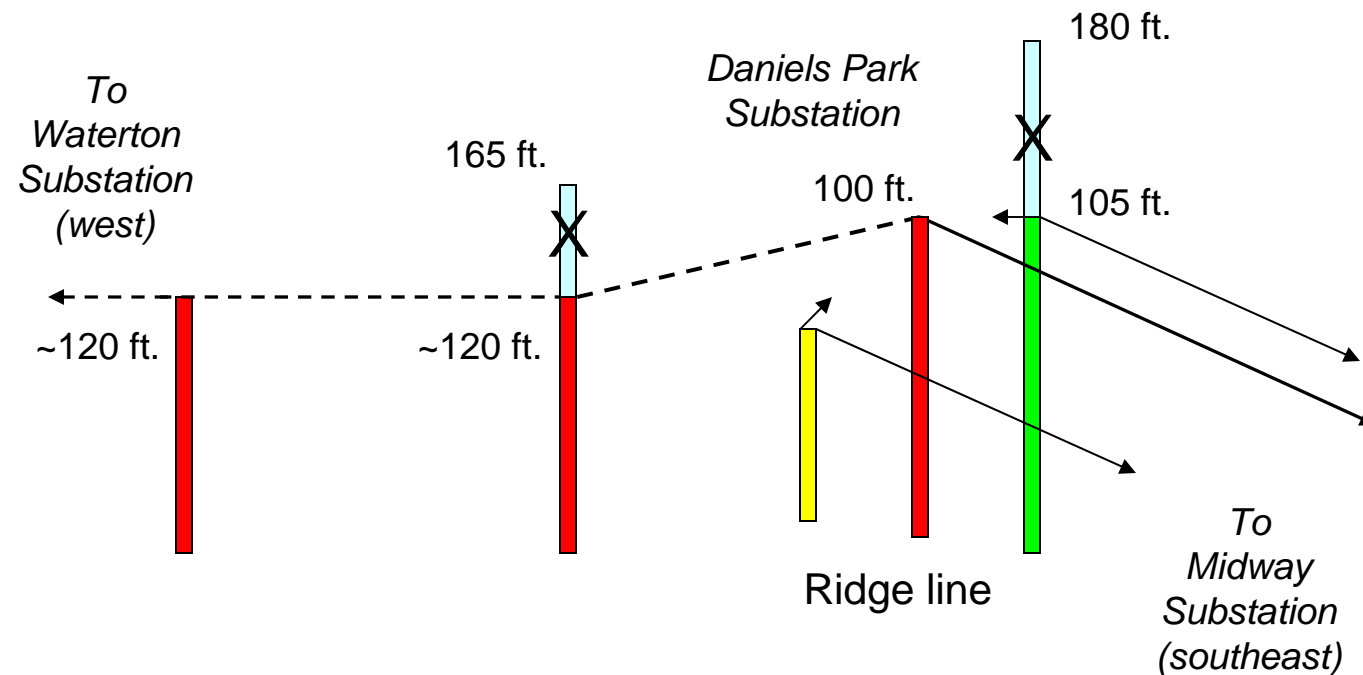


The reason for the two tall poles was the circuit on the red poles had to cross **over** the circuit on the green poles, and the circuit on the green poles had to cross **over** the circuit on the yellow poles

**Two
cross overs
required**

First – Two New Tall Poles

Final – December 2008



The 165 ft. pole was removed in April 2008. The replacement ~120 ft. pole will be installed in 2011

The 180 ft. pole will be removed prior to January 2009 and will be replaced with a 105 ft. pole

**One
Cross over was
eliminated**

115 KV
230 KV
345 KV

Four New Tall poles

to be constructed in spring 2009

- The southern two poles (150 feet high proposed)

These two poles will now be constructed 60 feet high and be replaced by a single silver structure consisting of three poles.

- The northern two poles (170 feet high proposed)

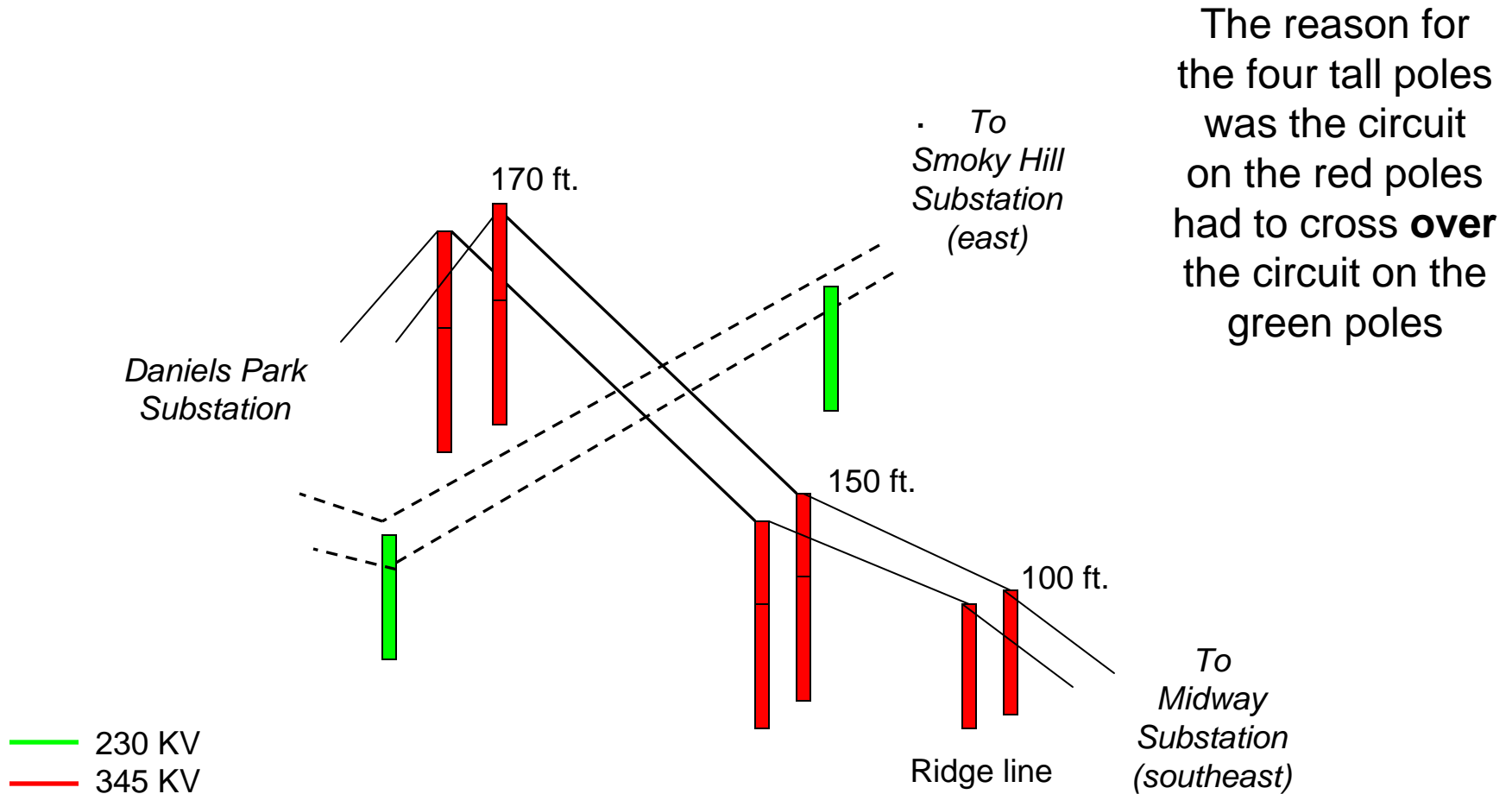
These two poles will now be constructed 75 feet high and be replaced by a single silver structure consisting of three poles.

- How was this accomplished

Note: This effort took place between 1/08 – 9/08

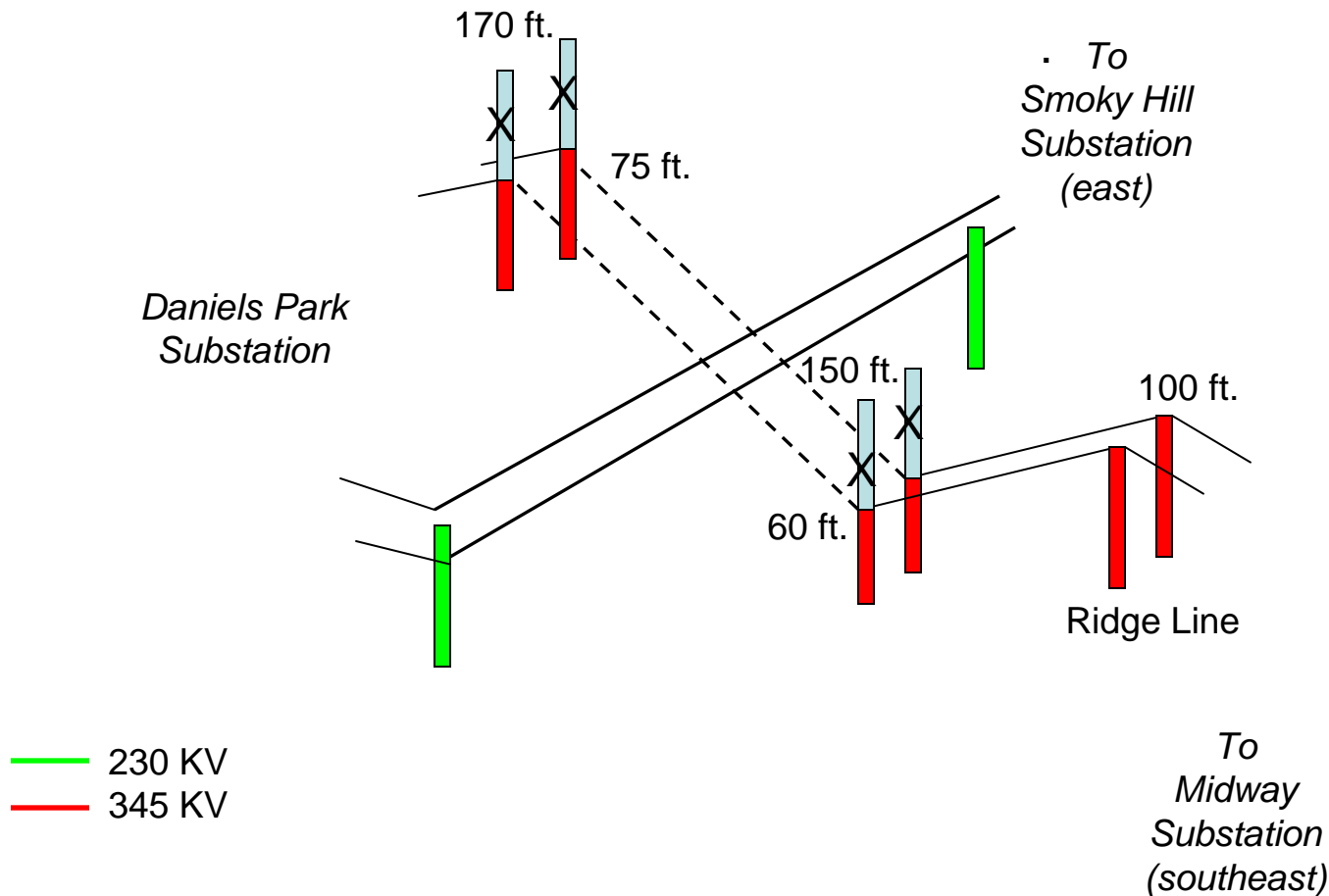
Second – Four New Tall Poles

Original – December 2007



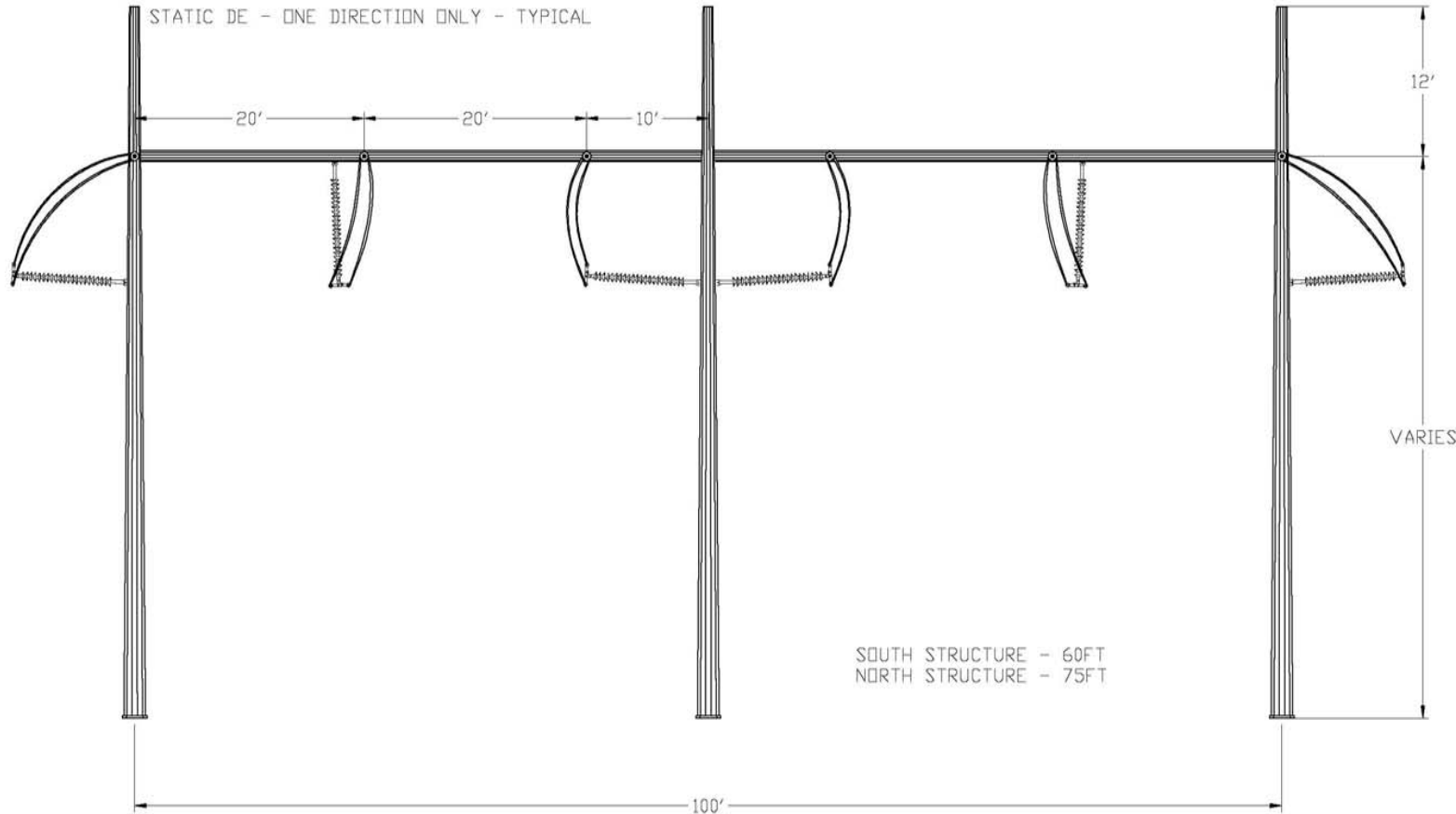
Second – Four New Tall Poles

Final – Spring 2008



The reason for the four short poles is now the circuit on the red poles crosses **under** the circuit on the green poles

The shorter Structures (poles) will be one structure with three poles each and will be silver per CPN's request



S:\TSB-TB\Transmission Engineering Drawing Repository\TRANS\PROJECTS\Daniels Park-Comanche 2007\Daniels Park Sub\Fix 2-3 DP

 PUBLIC SERVICE COMPANY OF COLORADO A Xcel Energy Member Company		Electric Engineering Services Division Transmission Engineering Department		FILENAME: Fix F-2 DP R-CODE: SCALE: N/A		09/04/07 NO. DATE RLD DWN CHK INITIAL ISSUE		REVISION E M C MF	
DWN: RLD DATE: 09-03-08 CHK: DJP DATE: 09-03-08		FIX 2-3 DP SHEET 1 OF 1 REV 0							

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What is next ?

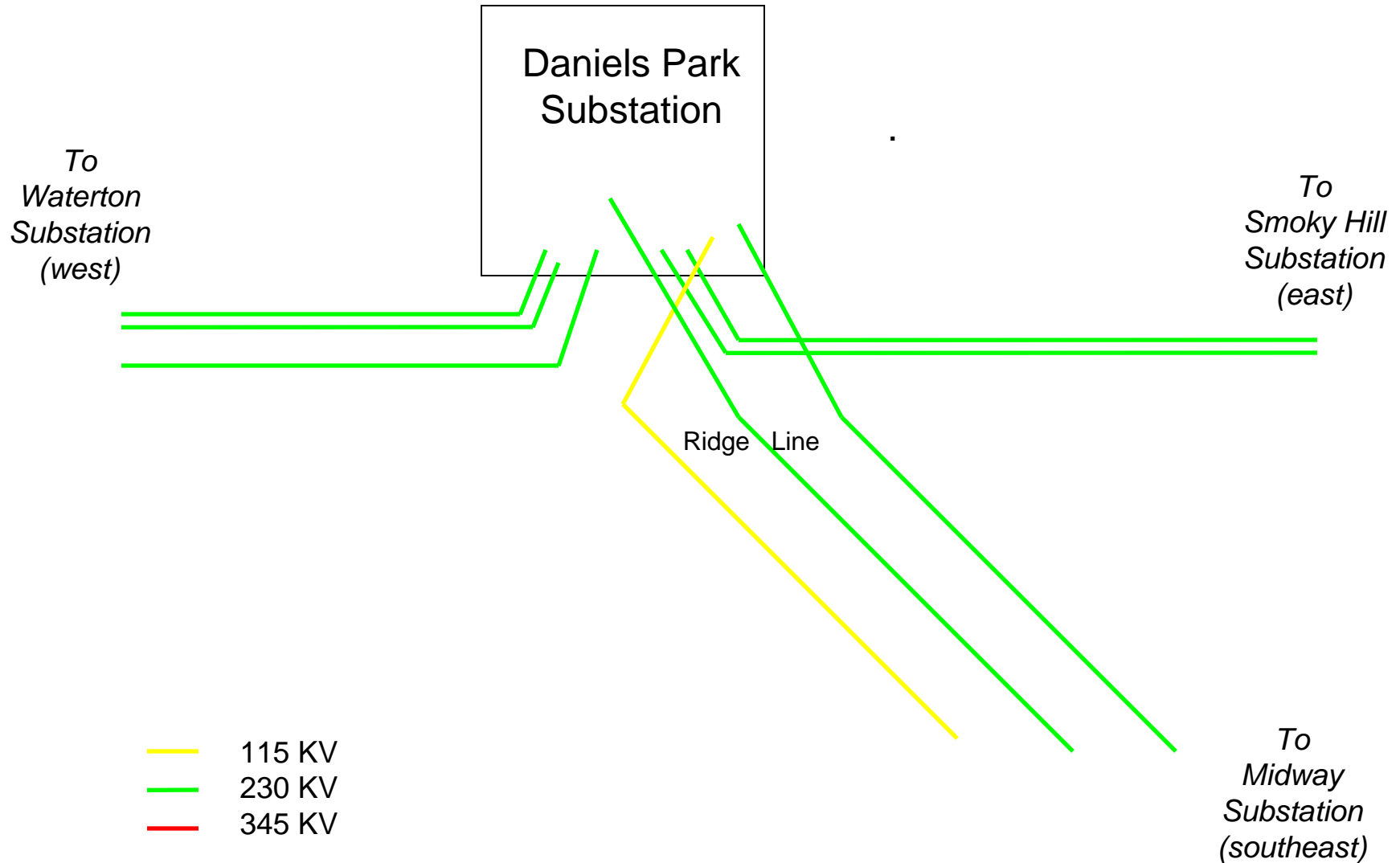
- Xcel has no additional plans in the vicinity of CPN at this time for:
 - The Daniels Park – Midway corridor
 - The Daniels Park – Waterton Corridor
 - The Daniels Park Substation
- The Daniels Park – Smoky Hill corridor is likely to be upgraded to accommodate 345 KV transmission lines some day. Not on the radar at this time.

Definitions

- Circuit: An alternating current (AC) transmission line that has three phases (3 wires) per circuit.
- Dual Circuit: Two circuits supported on one structure.
- KV: 1000 volts. (households have 220 V and 110 V)
- Current (amperage): The higher the amps and higher the voltage the more energy transmitted.
- Noise (corona effect): (measured in dB)
- Electromagnetic Field (EMV): (measured in mg)

Prior to Expansions

What it looked like in 2002



First Expansion - 2003

- Replace the eastern single circuit 230 KV transmission line with a dual circuit 230 KV transmission line capable of 345 KV in the Daniels Park - Midway corridor.
- CPN Master Association got involved

Since the CPN MA is a group they had to be represented by an attorney. Two others intervened as individuals.

CPN residents wanted the new lines to be buried and that was the strategy.

Results

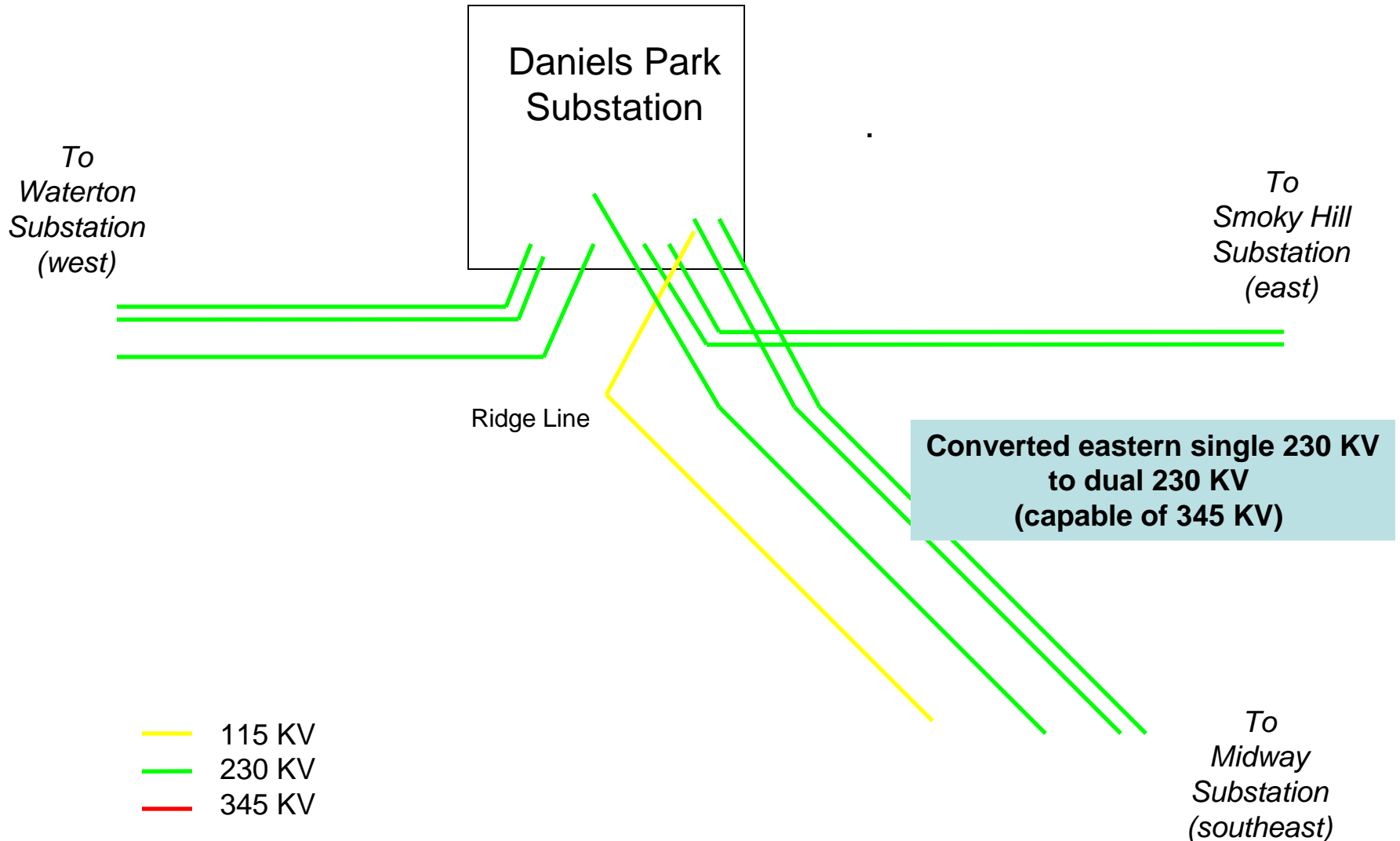
- The Public Utilities Commission approved Xcel Energy's plan
- Why:

The cost to bury high voltage transmission lines is very expensive compared to transmission towers.

Xcel's plan was to operate at 230 KV which met all current standards (Noise and EMF). (Note: The PUC did not take under consideration the transmission lines were to be constructed capable of 345 KV.)

First Expansion

What it looked like in 2005



Second Expansion - 2005

- Replace the center single circuit 230 KV transmission line with a dual circuit 230 - 345 KV transmission lines in the Daniels Park - Midway corridor. Expanded Daniels Park Substation to accommodate 345 KV transmission lines. Convert eastern dual circuit 230 KV transmission lines to 230 / 345 KV transmission lines in the Daniels Park – Midway corridor.
- CPN Master Association decided not to get involved (cost of attorney)
Partnered with a resident in Charter Oaks, who lives adjacent to the Daniels Park – Midway corridor. (Note: PUC would only allow residents adjacent to the transmission lines to intervene effectively.)

The strategy was not to require the transmission lines to be buried, since this was not going to happen, but to make sure the Noise and EMF levels were reasonable.

(Note: The State standard for Noise was 50 dB for residential and 70 dB for industrial and EMF was vague. Following the first expansion Xcel attempted to get the State Legislature to approve a higher Noise level stating the current standard was vague and too low. Fortunately the State Legislature voted to put the determination of Noise and EMF limits solely in the hands of the PUC.)

Results

- The Public Utilities Commission approved Xcel Energy's plan with conditions – set the Noise and EMF limits
- Why:

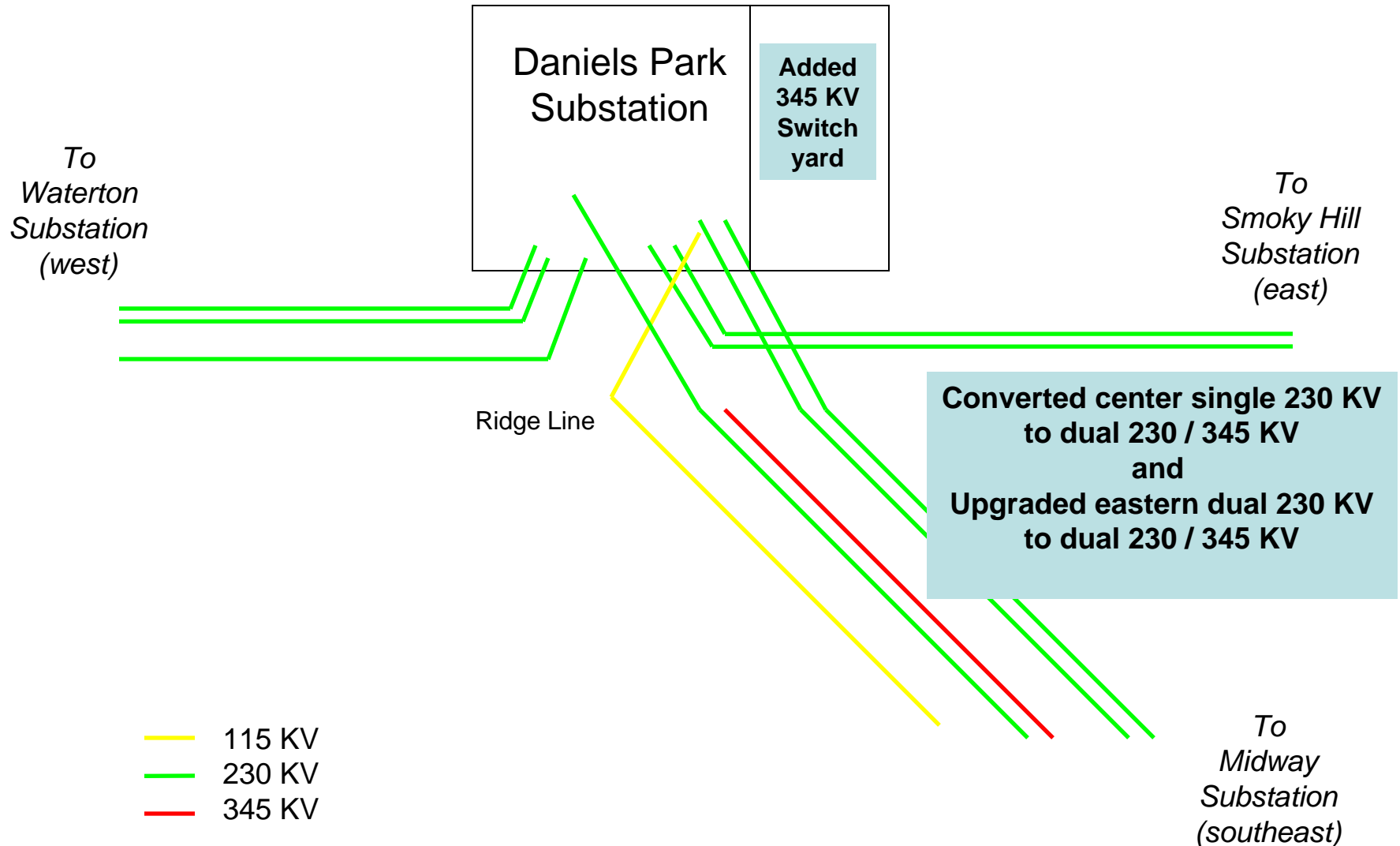
The battle required three hearings.

The PUC set maximum limits for Noise at 55 dB and the EMF at 150 mg at the edge of Right of Way in this corridor. (Note: Xcel wanted a much higher limit for Noise.)

This was a great win. It proved Xcel can be challenged with a sound and reasonable approach and CPN established itself as a formable force/voice.

Second Expansion

What it looked like in 2007



Third Expansion – May 2007

- Replace the southern single circuit 230 KV transmission line with a dual circuit 230 / 345 KV transmission lines in the Daniels Park - Waterton corridor.
- In this situation Xcel wanted to get the PUC to accept their plan without going through the public hearing process and CPN had one month to respond/intervene.

Results

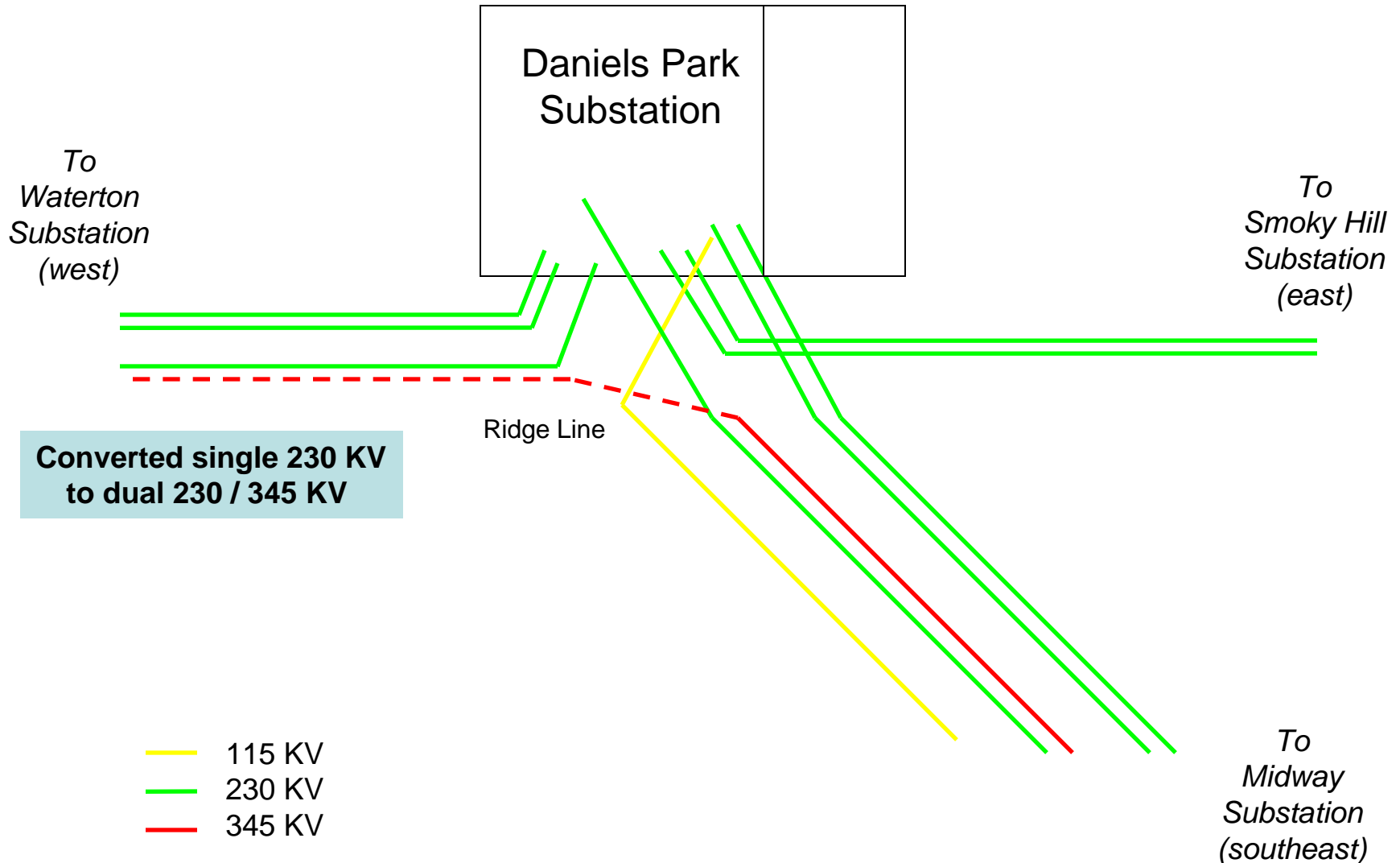
- The Public Utilities Commission approved Xcel Energy's plan without a public hearing
- Why:

This time Xcel did their homework. They proposed the best possible solution and had the engineering models to backup their design, which they allowed CPN to review in depth.

CPN Master Association held a Public Meeting to provide information and allow resident input. After many excellent questions and discussion, 90+% of the residents attending the meeting recommended not to intervene. Xcel agreed to silver poles at CPN's request.

Third Expansion

Proposed in May 2007 – to be constructed in ~2011



What will it look like

Spring 2009

