



Interoffice Memorandum System Planning

MEMO: SP-2013-03
DATE: January 22, 2013
TO: Scott Waples
FROM: Richard Maguire
SUBJECT: 2013 IRP Generation Study – Monroe Street HED

Introduction

This study addresses a request from Avista's Power Supply Department for the 2013 IRP regarding adding 80 MW of additional capacity to Monroe Street HED.

This preliminary study addresses the following:

- Thermal impact to the transmission system
- Voltage stability impact to the transmission system
- Transmission System upgrades necessary to deliver requested generation

History

The Monroe Street facility was the Company's first generating unit. It started service in 1890 near what is now Riverfront Park. Rebuilt in 1992, the single generating unit now has a 15.0 MW maximum capacity and a 14.8 MW nameplate rating.

Study Methodology and Assumptions

The five year planning horizon, Avista planning cases, as documented in SP-2011-03 – 2011 Planning Cases Summary Data are modified with the following projects and adjustments before system analysis:

- LGIR #5
- LGIR #35
- Lind 115 kV Substation Reactive Support
- Increases in Monroe Street generation are balanced by decrementing an injection group including all Avista generation with the exception of generation at Monroe Street HED and Upper Falls HED.
- *Western Montana Hydro* is limited to 1650 MW
- *West of Hatwai* is limited to 4277 MW

The most limiting case found during this study is the *Light Summer with High West of Hatwai Flows* (Heavy Summer, High Hydro Case) numbered *AVA-11Is1ae-12BA1251-WOH4277*. This is the primary case used in this study.

Figure 1 below presents a high-level view of the Transmission System near Monroe Street HED with the additional 80 MW of generation supplied by a study generator.

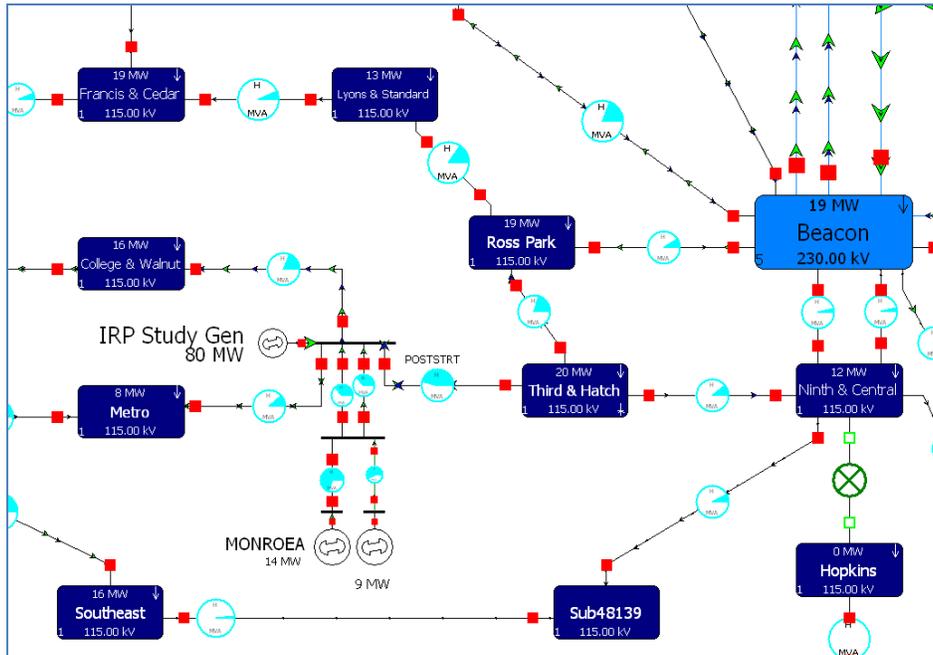


Figure 1: Avista Transmission System near Monroe Street HED

Study Results

Thermal Performance during N-0

This preliminary power flow study indicates the Avista Transmission System has adequate capacity to integrate 80 MW of additional generation at Monroe Street HED with all lines in service.

Thermal Performance during N-1

This preliminary power flow study indicates the Avista Transmission System has adequate capacity to integrate 80 MW of additional generation at Monroe Street HED during N-1 contingency conditions. Table 1 shows the results of a study using PowerWorld Simulator's *Available Transfer Capability* tool for Monroe Street HED. The study reveals the next closest N-1 contingency violation as an overload of the Post Street – Third and Hatch 115 kV transmission line during the PSF: Westside 115 kV contingency if the additional generation capacity at Monroe Street HED was 122.85 MW.

Table 1: PowerWorld ATC results for Monroe Street HED

Trans Lim	From Name	To Name	Limiting CTG
122.85	POSTSTRT	THIRHACH	PSF: Westside 115 kV
132.47	POSTSTRT	THIRHACH	BF: A470 Westside 115 kV, College & Walnut-Westside
135.41	POSTSTRT	THIRHACH	BF: A410 Westside 115 kV, Sunset-Westside
139.77	POSTSTRT	THIRHACH	BF: A413 Westside 115 kV, Ninemile-Westside
142.54	POSTSTRT	THIRHACH	BUS: Westside 115 kV

Voltage Stability

Preliminary voltage studies show that 80 MW of additional generation at Monroe Street HED does not introduce any new voltage issues on the Avista Transmission System.

Conclusion

This preliminary study indicates the requested generation at Monroe Street HED performs adequately on the local Transmission System pending any conditions revealed through further detailed thermal, voltage, and transient stability studies.

Distribution:

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