

Thesis Schedule:

1. Draft thesis to Donnelly and Southergill
Week of **Feb 10**.
2. Revised thesis to Committee week of
Mar 9 (pre-spring break).
3. Thesis Defense week of **April 13**.
4. Final thesis and docs to Southergill week
of **April 20**.
5. Other tasks:

Register for graduation

Complete other graduation forms

Book room for defense

Get EIT references

Recent Progress:

1. New Branch Flow Power Calculations:

$$I = \frac{V_S e^{j\delta_S} - V_R e^{j\delta_R}}{(R + jX)\sqrt{3}} \quad (1)$$

$$P = V_S \sqrt{3} |I| \cos(\delta_S - \angle I) \quad (2)$$

$$Q = V_S \sqrt{3} |I| \sin(\delta_S - \angle I) \quad (3)$$

2. Old Branch Power Flow calculations:

$$P = \frac{V_R V_S}{X} \sin(\delta_S - \delta_R) \quad (4)$$

$$Q = \frac{V_R}{X} (V_S \cos(\delta_S - \delta_R) - V_R) \quad (5)$$

$$I = \frac{|P + jQ|}{V_R \sqrt{3}} \quad (6)$$

3. Branch Flow calculation correction
4. GitHub updated:
<https://github.com/thadhaines/>

Current Tasks:

1. work on feed forward governor design
2. work on feed forward gov scenario
3. Create daily load cycle agent to read EIA
data (hourly forecast and demand values)
4. Solidify test cases for engineering
problem
5. Update Code flowchart and finalize code
6. Thesis work

Proposed MiniWECC test cases:

duration: 4-6 hours

- system noise
- wind generation ramps
- daily load cycle (during peak/valley
transition)

Control variations:

Normal gov deadband and large gov deadband
Fast (seconds) and slow (minutes) AGC

Three cases:

- normal gov, Slow AGC
- normal gov, Fast AGC
- large gov, Fast AGC

Experimental Measures:

- Valve movement
- NERC mandate adherence

Current Questions:

1. Progress on case data?
2. VAR calculation - Real power and AMPS
match, Reactive power off (see reverse)