Recent Progress:

1. global g added for `lmod` and `tg` models.
2. ML vs OCTAVE speed test
3. 2.x $\longrightarrow$ 3.x Models assigned to Dan
4. GitHub updated:
   `https://github.com/thadhaines/MT-Tech-SETO`

Sandia Action Items:

- Find more lit review items related to:
  - modeling fidelity of ...
  - power electronics-based models
  - AGC
- Work on converter-based resource models (pwermod, ivmmod)

Current Tasks:

1. Explore v3 example cases
2. Reference Trudnowski code for 'structured array, functionalized' approach.
3. Reference Stajcar code for basic transient stability simulation flow.
4. Work on understanding PST operation
5. Document findings of PST functionality
6. Investigate Octave compatibility
7. Create modulation case: ramp/noise
8. Continue to work on data plots

Possible Future Tasks:

1. Investigate Sandia integrator stability methods. See if the modified PST used by Sandia in 2015 paper exists for an example of how they implemented different integration routines / stability calculations. (Contact Ryan?)

Coding Thoughts:

1. Condense ≈340 globals into 1 structured array with ≈18 fields based on category that contain PST arrays used for vector calculations. ex: `g.lmod.lmod_con`, `g.sys.t`
2. Enable 'objects' (structure of arrays), but include functions to interact with condensed globals so vectorized operations are still possible.
   This requires more conceptual modeling to understand what needs to be passed/references/changed for each 'object'. Would enable addition of area definitions to models.
3. Separate total system calculation of derivatives into scripts/functions to allow for easier changing of integration method. Possibly employ `feval` for a more dynamic calculation routine.
4. Rework how switching & perturbance events are handled into a more flexible and general format. (use flags)
5. Generate something similar to unit test cases to verify code changes don't break everything during refactor.
6. Generate comparison scripts to verify simulated results match after code changes.

Current Questions:

1. Matt thoughts on Dan's documentation for pwrmod/ivmmod
2. Minimum requirements for system case?
   - system model
   - Load flow solver
   - Network solver
   - Machine models
   - Governor model
   - Exciter models
   - converter models
   - load modulation models
   - ...
3. PST modeling of transformers?
4. PST modeling of faults:
   Uses alternate Y matrices?
   Creates fault bus?