
DFIG MINUTES

#6---10/21/2014

Discussed within meeting

- Greg – RM 101 technician functions
- Mike should have it running within a week
- Unify rahichb's model with the new model for fault analysis
 - Machine is operating as a current source
 - All things in SEL are operating as voltage sources
 - Question becomes how to protect a current source
 - Volt (open it)
 - To protect a current source (you short it to somewhere else)
 - Controls – and behavior of faults – to see if it behaves as a current source
 - Figure out – current source inverters (old) – worked well for high loads. Rock crushers – cement – high current source – large inductor.
 - Use on ships – how do they protect it???
 - Assistance with building
 - Check with him to see if torque sensor is calibrated
 - Part stock for special items?
- Field oriented – torque control for AC machines
 - A lot of programming
 - Control algorithms – future grad student
 - Ask Normann about control algorithm – performance – related to protection
 - Current based?
 - Have a fault – normally expect gen to dump generator to dump energy
 - Set up for type 3 to keep current smooth
 - Voltage goes weird
 - What is making controls stabilize current
 - Propriety – putting certain amount of energy in – control puts same out
 - Control can sense current out – immediately backs off
 - Watch what current out
 - Detect it, but don't want to detect noise.
 - Voltage may collapse on the other hand
 - No load – no resistance – low voltage (on one phase?)
 - Probably no access to control side of it

- May need to help mike with the modeling and the DFIG
- Tiras sent email to Chris Dyer
 - See what he knows from power engineers
 - Will send email to Larry Elliot
- If we have a problem with scheduling RTDS – talk to Dr. Johnson about getting time on machine.
- **Get** appointment with
 - Ideas – ideas for protections
 - **Dr. Johnson – controls and systems**
 - **Dr. Law – machines and converters**
config – 4:30pm double for Fridays

Thoughts to Ponder

- Look into voltage collapse
 - Controls are backing off on current
 - Voltage may change
 - Internal generated voltage may change as well.
 - Other control algorithms
 - Negative sequence – becomes as big as the positive sequence – ect
 - Voltage a – ground to ground in a reliable way can be a problem
 - Faults start off inductive or capacitive can turn into resistive
 - Talk to Dr. Johnson about control algorithms – he may know a good bit
 - Current source inverters – How do they use it on a boat and protect
 - All power systems modeled as a VS behind the item.
 - Inductor – open – extinguish arc – safe!
 - Open Is not a safe condition – not easy to get to.
 - Might need to move away from SEL general practice – current not voltage.
 - Current has to go somewhere
 - Generator as a current source – line as a voltage source
 - 2 breakers – short current source first – open voltage source
 - How do we detect the fault

Items to address

- Look at what is needed at the end of the semester
 - If we need any parts – order during Christmas for buffer time
 - Product from SEL?
- Get appointments with
 - Dr. Johnson
 - Dr. Law

- Get appointment for design review.
 - Sooner than later
 - Invite everyone
- Finish up wiki-page