

Active Transmission System Modeling Working Group (ATSMWG)

WECC MVS Meeting
December 2nd, 2021

P. Pourbeik



Agenda Items



- Roadmap of Active Transmission System Modeling
- Current status of Various Models





Roadmap ATSMWG



Roadmap for the ATSMWG



- The charter was approved some time ago and is on the WECC website: <https://www.wecc.org/Corporate/ATSMWG%20Charter.pdf>
- **Next Steps:**
 - Considerations to be given to extending vhwdc1 (vhwdc2(?)) for use to model off-shore wind
 - To start work on implementation/testing of the SVSMO4 model in the commercial tools:
https://www.wecc.org/layouts/15/WopiFrame.aspx?sourcedoc=/Administrative/Pourbeik%20-%20Memo_SVSMO4_112320_Rev2.pdf&action=default&DefaultItemOpen=1
 - Getting SCMOV into all software tools – APS proposal from last meeting
 - IPP generic implementation for WECC wide cases – requested by MVS Chairman S. Wang





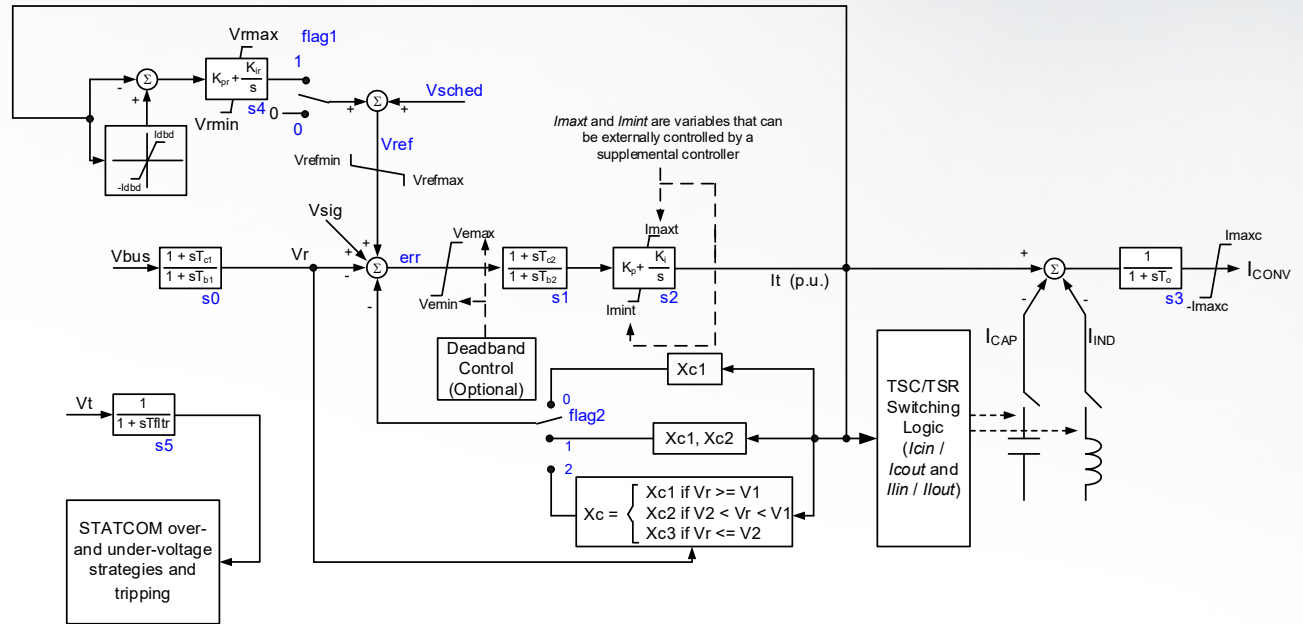
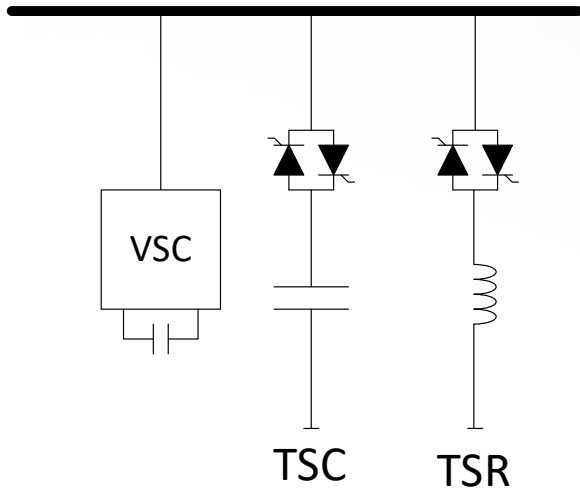
FACTS Models



SVSMO4



- Have presented on it at last two MVS meetings
- Proposed model specification memo is on ATSMWG webpage, under the discussion items tab



Feedback on SVSMO4



- We sought, directly, input from several equipment vendors and utilities
- Feedback thus far:
 - One vendor gave positive feedback saying it looked quite reasonable
 - Two others also gave an initial feedback that it seems reasonable, but they will look at it in more detail and offer any other comments
 - BC Hydro (Sam Li) gave some constructive suggestions (see next page)
- **Action Items:**
 - Update memo – will do so and send out by next meeting
 - Have small group meeting to discuss implementation





HVDC Modeling



HVDC Models



- LCC-HVDC Models done for some time (*chvdc1*) and currently based on work by BPA, PDCI is modeled with *chvdc1* in the WECC base cases
- VSC-HVDC Model now completed and approved (*vhvdc1*) and benchmark tested (as shown at the last meeting) in:
 - GE PSLFT[™]
 - PowerWorld
 - Siemens PTI PSS[®]E
 - DigSilent PowerFactory
- PowerTech Labs almost ready, still finalizing it



See Memo for *vhvdc1* tests



- https://www.wecc.org/Reliability/Memo_Spec_VSC-HVDC_102821_rev11.pdf

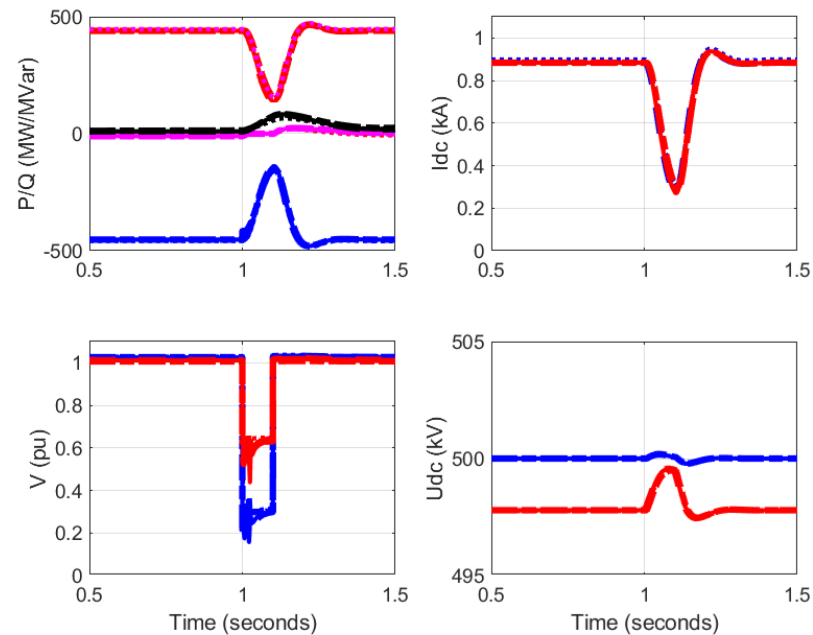


Figure 15: Test 5, severe rectifier side ac fault. **Blue** lines are rectifier quantities. **Red** lines are inverter quantities. Solid lines are GE PSLF, dashed-lines are Siemens PTI PSS®E, dot-dashed lines are PowerWorld, and dotted lines are DigSilent PowerFactory.



Next Steps



- Look into *vhvdc2(?)* for off-shore/islanded generation connection to a grid using VSC-HVDC
- Engage with LADWP to implement a *chvdc1* parameterization of IPP for simpler cases conversions for the WECC wide base cases across software platforms – request from MVS chairman S. Wang

