Open-Loop DC/AC Half Bridge Converter

Power Circuit

- Now have grounded midpoint on DC link
- Both switches need to be bidirectional

Gate Controls

- Updated somewhat from DC/DC case
Create sinsoidal \( m(t) \) function

\[
VM_{pu} + \sum T + \sum T + TIMEX - w^t \times cos VM_{pu} - M
\]

Create sinsoidal \( m(t) \) function

(file HalfBridgeDCAC.pl1; x-var t) t:M
AC voltage between the two inductors compared to ac source

(file AveragedDCAC.pl4; x-var t) \( v_{IA} \) \( v_{VS} \)

AC current

(file HalfBridgeDCAC.pl4; x-var t) \( c:VA \) \( i_{AC} \)
Zoomed current

Current in switch 1
Averaged converter model

![Averaged converter model diagram]

AC current

![AC current graph]

(file AveragedDCAC.pl4; x-var t) c::VA -IAC c::IACAV -IS
Zoom in on part of waveform

- Voltage at converter terminal (zoomed in)
PSCAD/EMTDC implementation

- **IS1**, **ID1**, **Vpos**, **Vneg**, **Vpos**, **Vneg**, **Va**, **Vo**, **IL**, **d1**, **s1**, **GateS1**, **IS4**, **ID4**, **V0**, **IL**, **d4**, **s4**, **GateS4**

- **R=0**

- **Vpos** = 0.00069 [H]
  - **0.00588 [ohm]**

- **Vneg** = 0.00069 [H]
  - **0.00588 [ohm]**