**Design Challenges / Questions:**

* Does the STM32 DAC need an external reference for the accuracy requirements?
* What additional components are necessary for the STM32 chip to function?
* Will a linear regulator be suitable to derive the 3.3V supply from 5V?
* Is course and fine control necessary with a 12-bit DAC?
* Will the INA149 introduce too much noise to the current measurement?
* 100A or 50A maximum current?
* If 50A, is a higher resistance shunt feasible?
* With hFE ≈ 20, the load will need at least 5A of additional power to sink 100A through the input.
* Does the voltage sense need anything other than a potential divider?
* Is the price of a contactor to disconnect the load justifiable?
* Transistors or logic gates for emergency shutoff?
* Is Ethernet worth the complexity?
* How complex should the display for the UI be? Character LCD, OLED, TFT LCD, etc…
* Does the Mean Well PSU need additional voltage regulation to handle ripple?
* Could the existing heatsink fans need replacing due to damage?
* What is the best way to thermally isolate the control electronics from the power electronics?
* How many sensors should be used for the control system? Theoretically full closed-loop control can be achieved with just current and voltage sense. Any additional sensors increase complexity but in reality they also increase reliability and accuracy.