a load current limit circuit coupled to receive the average output AC and limit the cycle-to-cycle current at the switching frequency of the pulse-width modulation circuit and generating load current output AC and a load current limit signal,

an output dual inductor LC filter coupled to the receive the load current output AC from the load current limit circuit and having a first inductor and a second inductor coupled in parallel and a bypass relay coupled to the parallel first and second inductors for decoupling the second inductor in response to an LC filter bypass control signal when the load limited AC current applied to a load is below a predefined level, and

a load disconnect relay for disconnecting the load limited output AC from the load in response to a load disconnect control signal; and

the AC output bridge further comprising an AC bridge controller coupled for receiving at least the load current limit signal, the AC bridge controller programmed to generate the load disconnect control signal to open and close the load disconnect relay, an LC filter bypass control signal to open and close the output bypass relay, and at least one modulation control signal coupled to the pulse-width modulation circuit.

2. The adaptive AC power exchanger of claim 1 further comprising:

~~the [[an]] input EMI filter, coupled to receive the input AC power, for filtering high frequency noise generated internally by the adaptive AC power exchanger; and~~

an AC output EMI filter coupled to the load disconnect relay for filtering high frequency noise from the output AC power and generating a voltage sense signal.

3. The adaptive AC power exchanger of claim 1 further comprising a monitoring processor coupled to the AC input power and the AC output power for receiving AC input power information and AC output power information, and further coupled to the PFC controller for obtaining information indicative of the performance of the adaptive AC power exchanger.