<http://www.esp8266.com/viewtopic.php?f=13&t=3875>

Hope my analysis will help those who are designing with batteries and to help choose the apt power supply.  
Please see the attached waveforms for a better insight.  
Peak current at startup: approx 320mA @3.3V, so your power supply must be able to handle this. I use a large cap (470uF SMD) as the peak only comes up periodically.   
  
Normal operation with AP connected: 35mA average. Note the peaks of 290+mA during packet operations. Interesting point is that when AP is not connected there is a constant drain of 70mA. (wifi.stat.disconnect()), so I guess for better battery usage you better be connected to an AP )  
  
In wifi.ap mode the drain is significantly more: approx 80mA  
  
In deep sleep (node.dsleep(xxx,nnn)) it is about 0.1 mA. During wake up the power usage goes bat-crazy, so keep your deep sleeps far between to counter wakeup drains. For deep sleep you must connect RST to GPIO16 + Pullup with 10K or else the module will not wake up. For ESP-V7 you can leave the GPIO0 and GPIO2 floating.  
  
To summarize in my experience a typical 2500mA AAx3 will give you approx 30hours of continuous service. Obviously you do not want that, so the typical 59 minute deep sleep and 1 minute wakeup pattern of 50 minute will get you around 15-20 days  
  
PS: Please note that I removed the red LED before doing the analysis saving me 5mA constant drain

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