Univenture / Algaeventure Systems (AVS) has demonstrated an innovative technology for removing the water from suspended algae that dramatically reduces energy consumption by utilizing surface physics and capillary action to more effectively harvest, dewater, and dry algae (HDD). The HDD offers the potential to transform the economics of algae-based biofuel production, removing the major barrier to large-scale commercialization of this renewable alternative fuel source. A lab-scale prototype system has demonstrated 95% energy reduction in comparison to conventional centrifuge methods. Based on surface physics of materials, it uses several interacting web surfaces to continually extract algae from very low algae-water concentrations and dry it to less than 5% moisture content. The development approach is to scale the lab prototype system, using it as a testing platform and in parallel mature core component technologies including web materials and process controls. This approach provides an efficient and low-cost approach to parallel development and testing of new materials and devices to accelerate technology development. Production scale HDD systems will be designed, fabricated and tested on mobile platforms in both salt water and fresh water environments.