

# Re-Imagine Mobility With the Electric PiCycle

Interview w/ Marcus Hays,  
founder, PiMobility

The electric bicycle is the school by which we can promulgate an alternative to the automobile. And the electric bicycle is an exponential reduction strategy for carbon emissions.

What solution could I come up with for the host of issues specific to a battery powered bike? Where to store the pack? How to cool the battery? And how to design system as a singular tool, which could be produced in relatively high volume?

The arch. Literally, I just sketched it on a drawing pad. It's a simple structure that connects to two wheels, and that's the "Pi." The arch houses the battery as well as replaces the basic bicycle bar structure, which makes for a very stylish design. That design propelled the way to PiMobility and our line of all-electric and pedal assisted PiCycles.

Then there was the environmental challenge of using a durable housing that was also lightweight and economical. I decided on aluminum – inexpensive, accessible, and lightweight.

Yet, the problematic byproduct of using energy is heat. So my sketch had to reach beyond creativity. The cavity of the arch of the PiCycle houses the battery, which is bonded to the inner wall and acts as dissipater and heat transfer.

Basically, the design enables air to flow through the tube while the bike is in motion, this dissipates the heat, so the arch won't feel hot to the touch. On the contrary, if you were to use plastics or injection molding

to house the battery, then you would have been able to feel the heat.

You see, I learned a few things over the years, even during my sort-live student life at the Pasadena Art Center. In 1991, I had enrolled in the yacht program, but quickly switched to transportation design. Soon, I became bored with my studies and jumped at a chance to work with one of two incubators for alternative vehicles in Burbank. The program was a result of California's Air Resources Board (CARB) 1990 rule that ten percent of all 2003 model year cars meet zero emissions, if being sold in the state.

Then in 1995, I had the privilege of working as a consultant to Lee Iacocca at EV Global Motors who developed the

E-Bike. Iacocca was former president of Ford and retired top executive from Chrysler, and now operates several philanthropic ventures.

During the 2000s, I also had the honor of friend and mentor by the late Dr. Paul MacCready, who invented and developed General Motor's electric car – the EV1. Therein was the great divide. Even with the possibility of the electric car on the road, the political climate was proving more of a threat to global climate change than pollution itself. And disappointingly, California became intoxicated with the concept of hydrogen-powered vehicles.

On the other hand, innovators like Paul knew electric vehicles would bounce back in a more extensible fashion. His belief was that the electric bicycle would provide the most exponential reduction strategy of all elements of the global warming debacle

In developing the PiCycle, I drew on inspiration from Paul in designing a battery that would suit the curved design of the arch. Critical for environmental advantage is continually expanding the lifecycle of the goods we use. The Pi design and shape invites future options. We envisioned the capacity of the cavity of the arch so that future technology can be inserted into the tube-like fitting. The Pi structure could last a couple hundred years. No one is going to take our PiCycle to a landfill after just a few years or a few rides. Matter of fact, customers can come in and get fitted to their vehicles - color and sizing tailor-made.

