LMU|LA

Sustainable Shared Mobility Solutions

September, 2018

- *The First Sustainable eDocking Solution for charging and organizing the Emerging Shared Mobility Device Market.*

With some of the highest traffic congestion and clean energy needs in the nation, Los Angeles can continue to pioneer clean transit with solar charging stations that can provide ancillary revenue to the city.

Shared Mobility Devices (MD) in LA

21K+ **Shared e-scooters and e-bikes**

In Los Angeles

17.3% **Projected market growth**

Over 4 years

8 **Shared MD companies in LA**

With a collective $1.3 billion raised

Problems

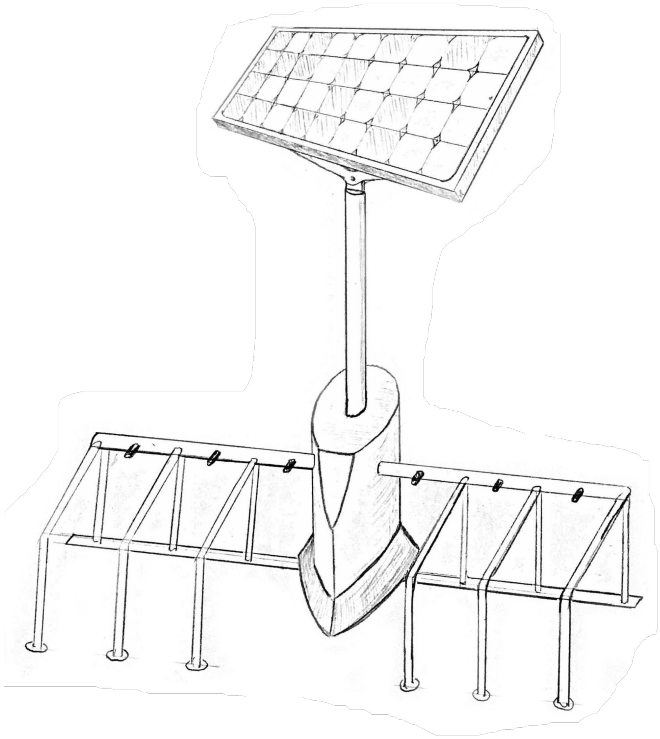
Shared MDs are only as sustainable as the city's power grid
*(Los Angeles's grid is 29% renewable but needs to be 50% by 2030)**

Los Angeles needs organization infrastructure for this growing market: *Shared MDs are abandoned on private property and block public sidewalks*

Companies operating in Los Angeles County use ~67,000kWh of non-renewable energy per month to have their devices charged (see appendix)

*U.S. Energy Information Administration

Solution - Charging Stations That:



- Use cutting edge solar technology for a zero-net energy charging solution
- Show that Los Angeles leads the innovation of clean transportation
- Monetize public works projects with a public/private partnership
- Dock shared MDs for increased organization and safety

First Design

Compatible with Multiple Shared MD Companies

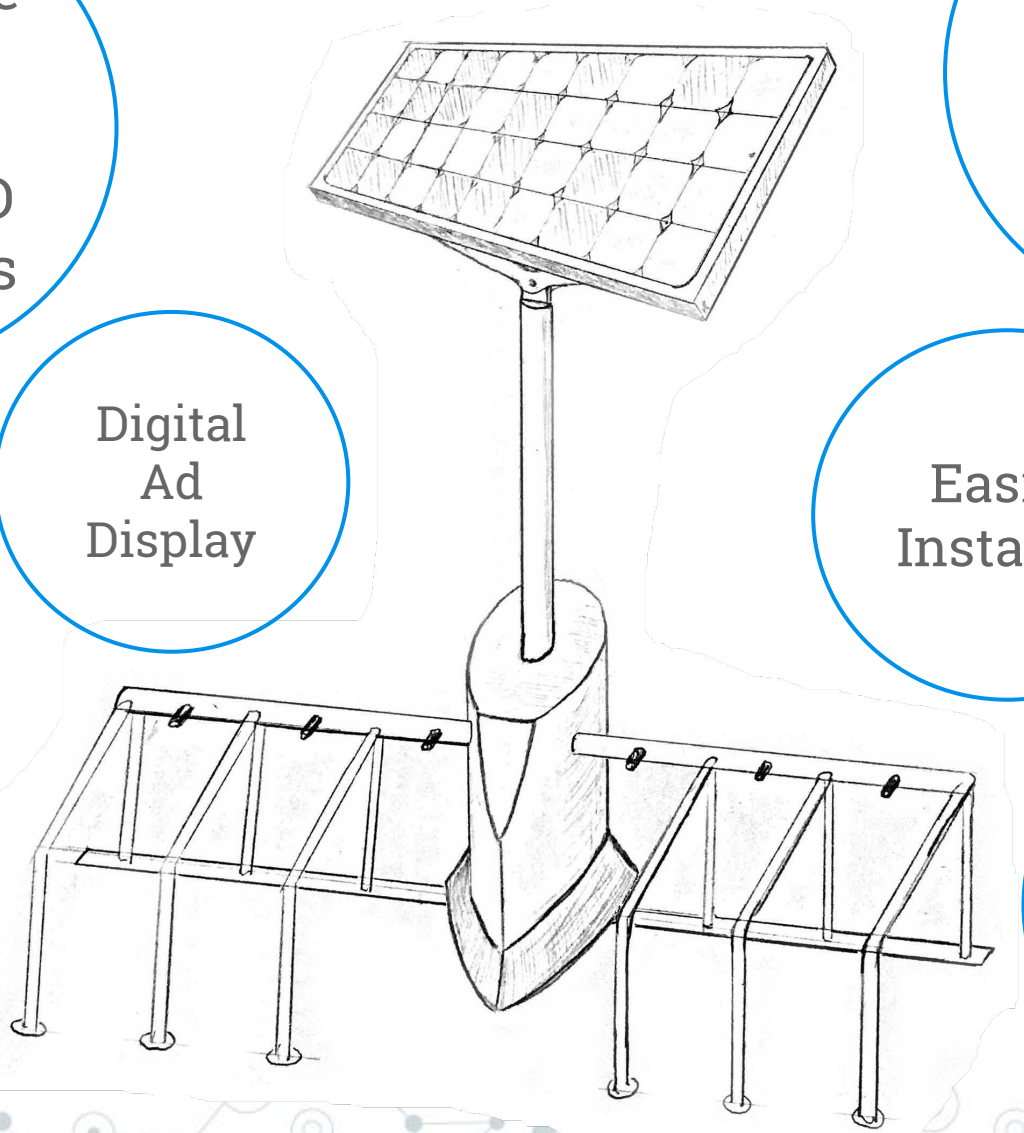
6-12 Chargers Per Station

Digital Ad Display

Easily Installed

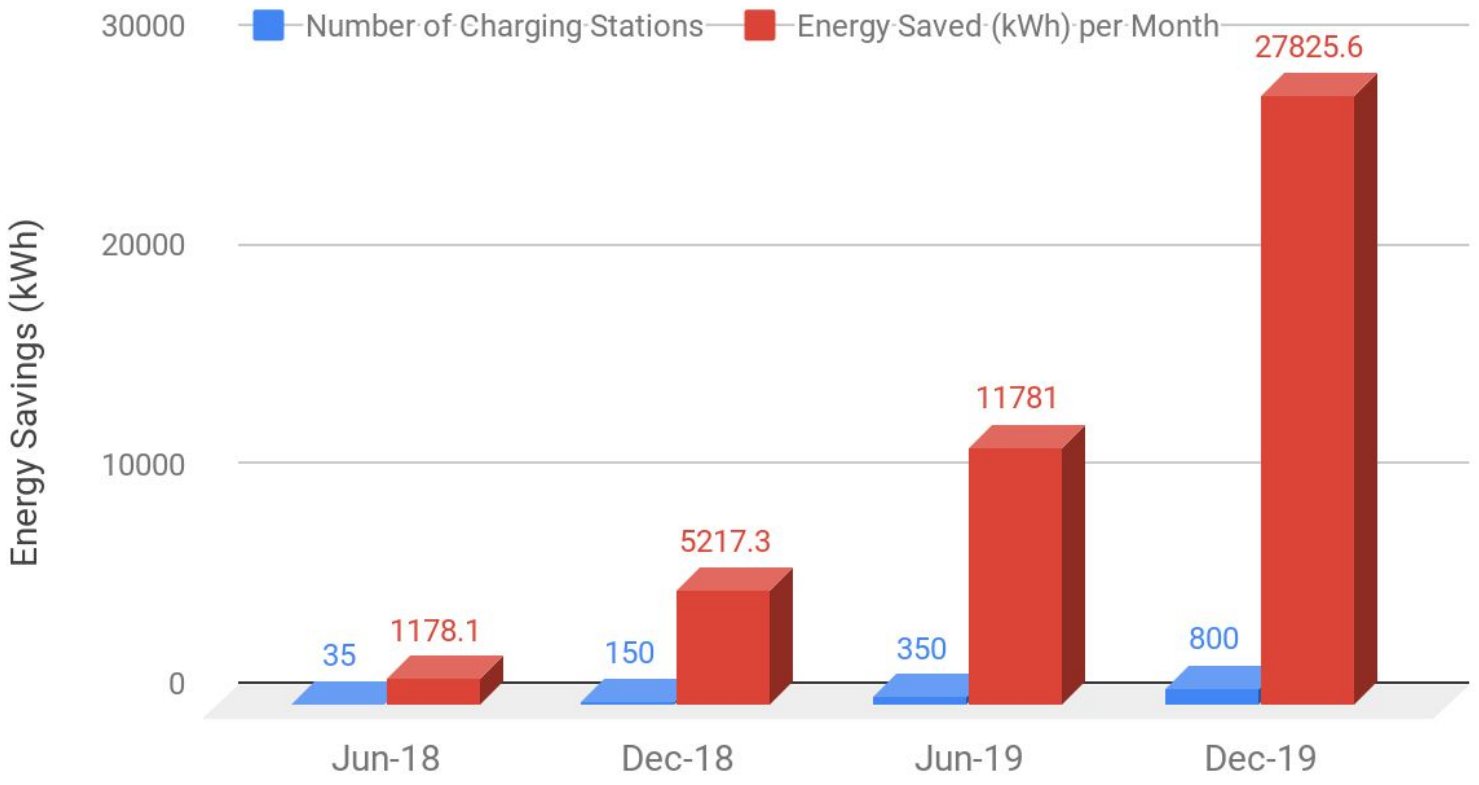
Solar Powered

Grid Connected



Energy Savings

Conservative Estimate



After two years, the energy saved could power **445 households** for a month **(403,923 kWh)**

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Business Model Opportunity

Digital Display Advertising

Charge Shared MD Companies Fee per Device Charged

Significant Shared Revenue with the City

Timeline

Sept
Feasibility and Concept Development

Mid Oct
Software Development Begins

Jan
Initial Prototype Completed/Installed

May~
Installation Begins

Hardware Development/Build Begins
Oct

Design Firm Collaboration/ Software Integration Begins
Jan

Certified Product Complete
Apr/May

Potential Partnerships

Shared MD

BIRD

SPIN

JUMP

Lime

Investment/Strategy

LACI

FIFTH WALL

Outdoor Advertising

OUTFRONT media

LAMAR ADVERTISING COMPANY

Solar Panels

Panasonic

horizon SOLAR POWER

TESLA

The Team

Billy Walker
Mechanical Engineering
Team Lead
With experience launching and leading various ventures, he knows how to leverage a team and drive results. Industry experience includes e-commerce, digital marketing, crowdfunding, strategic partnerships, manufacturing, product design, and product testing and certifying.

Masaki Takamatsu
Mechanical Engineering
Design Lead
Proven talent for aligning product design with business strategy to achieve maximum operational impacts. Mission driven professional with expertise spanning design, international manufacturing, e-commerce, and project management.

Matt Tejada
Entrepreneurship
Business Lead
Started his first venture at the age of 16. Since entering in college he has worked on various ventures where he gained experience in business development, marketing, and sales.

Charity Waddy
Mechanical Engineering
Operations Lead
Multi-talented with experience in emerging channel business sales and marketing. Has sales internship experience, conducted automotive engineering research abroad, and held multiple college leadership roles. Has the ability to communicate to audiences with diverse industry backgrounds.

Additional Members
Mechanical Engineering: Andre DeLeon, Ahmed Kalifeh
Computer Science: Emily Shoji, Ben Davis, Nico Pidlaoan

The Advisors

Devin Breen

President of 3sixtyHR, and founder of CalPow, a solar consulting company. His expertise includes scaling sales teams, executive leadership, and technology products.

Lisa Farris

Accomplished market development & digital media executive focused on innovation, execution, and leveraging technology. Recognized business transformation strategist.

David Choi

National award-winning Director of Entrepreneurship. He worked for 10 years in the private sector with companies like the Boston Consulting Group and Titan Corporation before embarking on his many entrepreneurial endeavors.

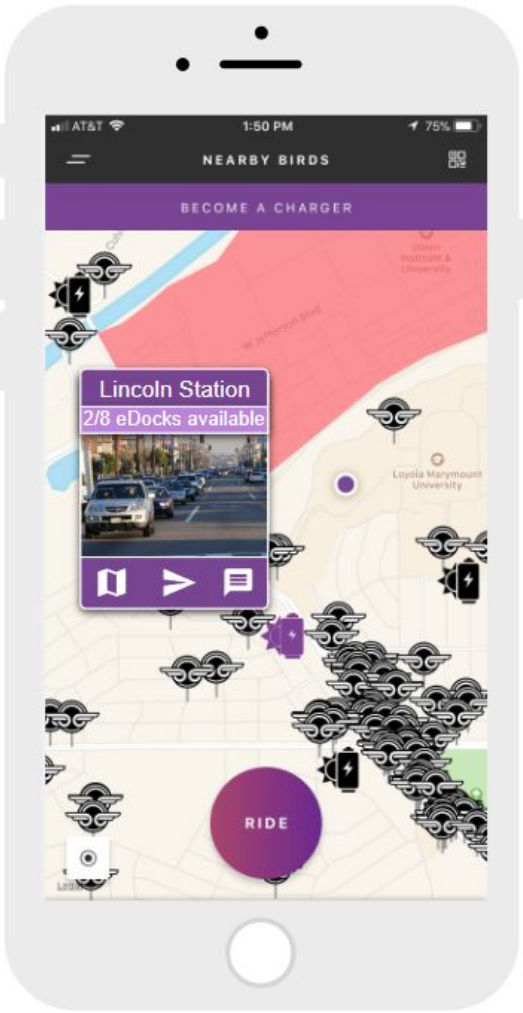
Next Steps

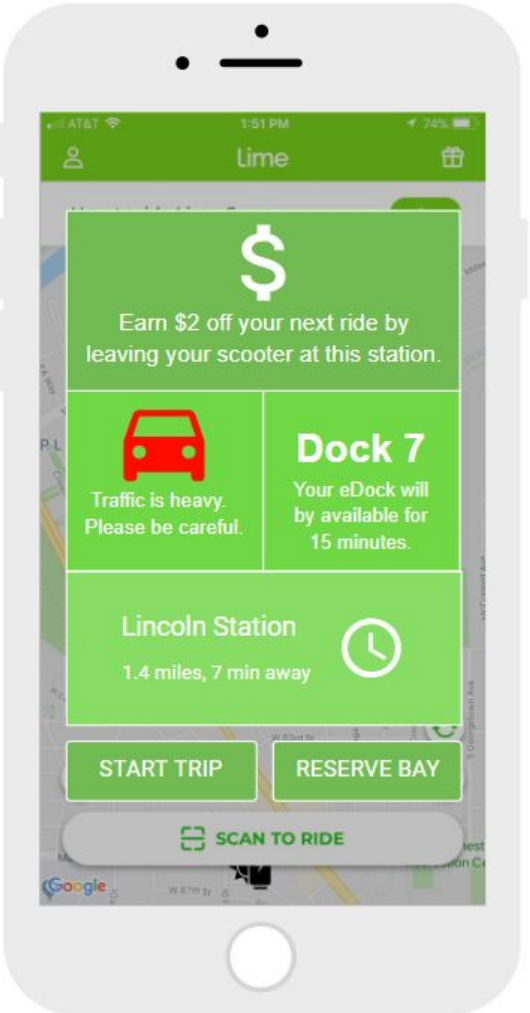
- Better understand the City's problems and goals surrounding the shared MD market
- Create partnership with the City and gain support from City officials
- Obtain industry standard certifications for public installation
- Gain City permits for installation (3 pilot locations)

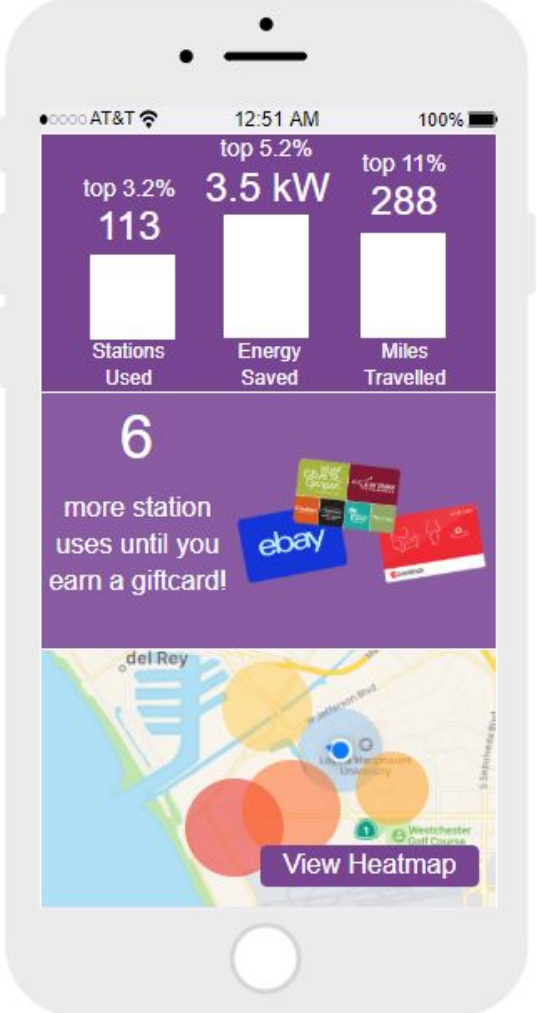
Thank You!

Appendices Below

App Integration

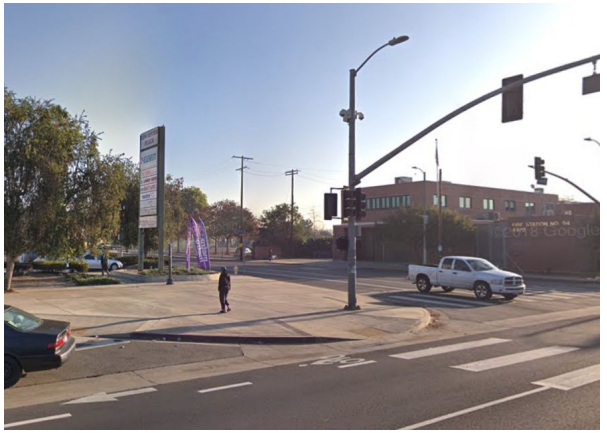






Station Availability Rider Incentives Incentive Tracking

First Location Possibilities:



LMU: Loyola Blvd and 80th St.

- High pedestrian traffic area
- Shared MDs banned on campus: they pile up here
- Westchester

Venice: Venice Blvd & Speedway

- High pedestrian traffic, & local businesses
- Heavy shared MD usage

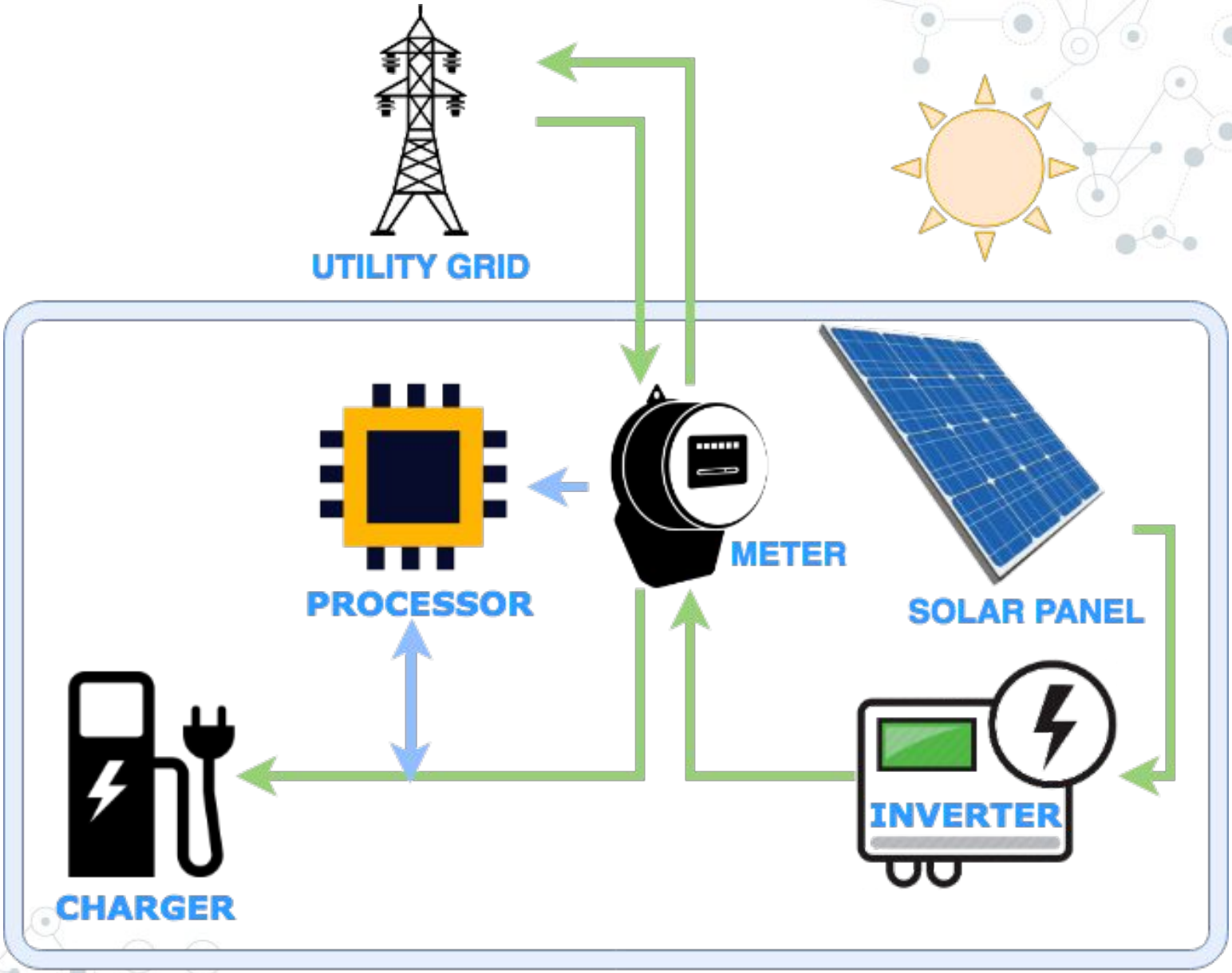
Crenshaw: Martin Luther King Jr Blvd and Coliseum St.

- Low income neighborhood
- High pedestrian traffic area
- Shared MD usage

City Regulations

- Approval for construction
  - Department of Public Works, Bureau of Engineering (BOE)
  - LADOT approval on the public right-of-way (sidewalks)

- Compliance with EV charger construction regulation
  - Approved electrical and foundation plans
  - Safety standards: meet regulations
  - Construction and integration with power grid


UTILITY GRID
METER
PROCESSOR
SOLAR PANEL
CHARGER
INVERTER
CHARGING STATION

LA County Shared MD Company Cost to Charge Devices

Total: $114,700/day

Amount of Scooters in each city multiplied by minimum payout to charge each device by company.

Energy Savings Calculations

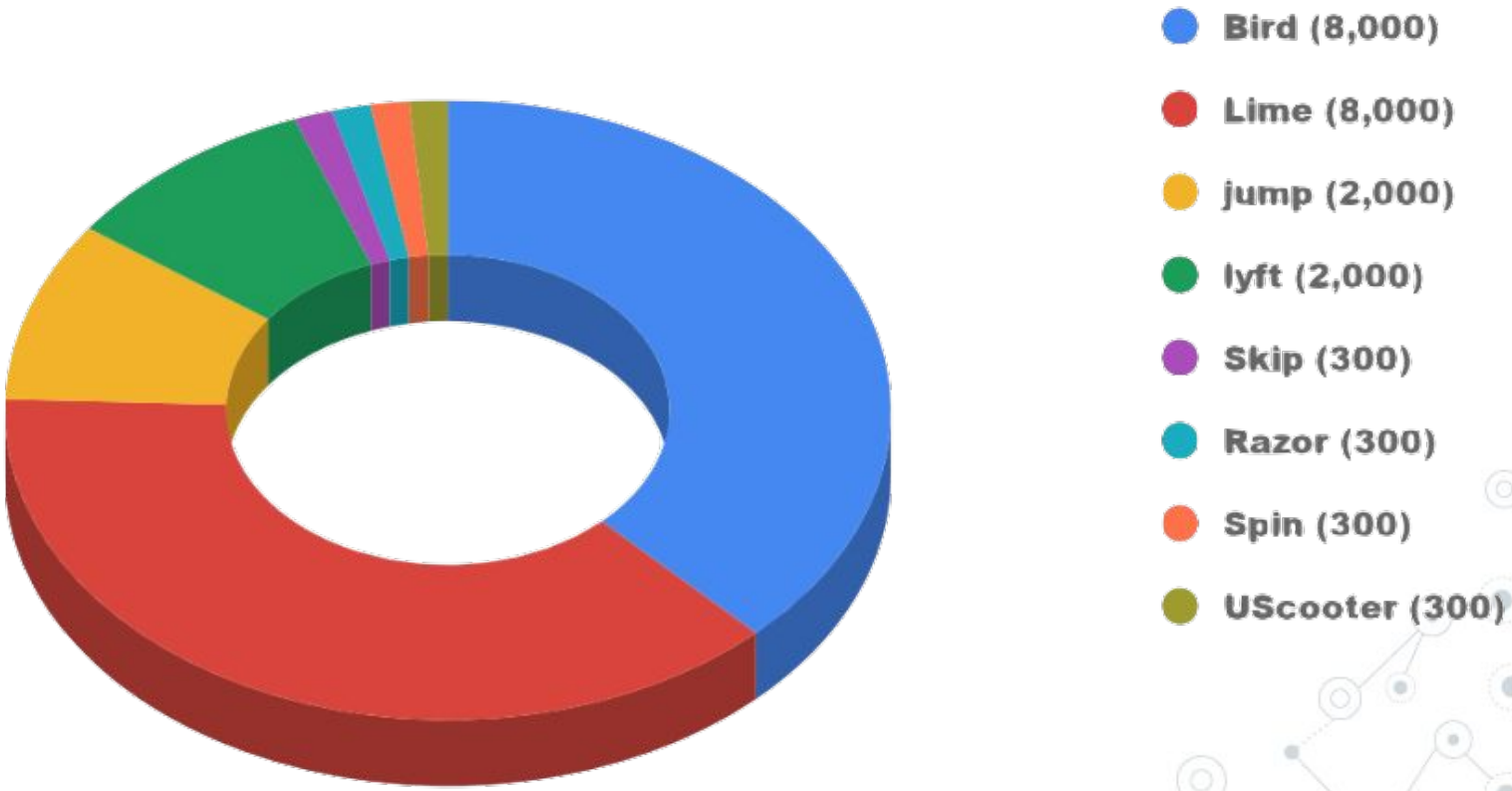
- Assuming a 325w solar panel* at 70% efficiency and 5 hours of sunlight per day
- E-scooters (assume a 0.187kWh battery): fully charge 6 e-scooters per day
- E-bikes (assume a 0.220kWh battery): fully charge 4 e-bikes per day
- Total energy saved: 1.14kWh per day or 415 kWh per year per charging station

*Calculations done assuming an average solar panel. With higher efficiency panels obtained through partnerships, greater energy savings can easily be achieved.

Current energy use calculation:

- Assume 80% of shared MDs are charged every day (21,150*0.8=16,920 devices)
- Assume a 0.187kWh battery for all devices (0.187kWh*16,920= 3,164kWh/day)
- Assume 71% of grid energy is non-renewable (3,164kWh*0.71=2,246kWh/day) or 67,394kWh/month

L.A. Shared Mobility Market Split By Device:



Permits granted by cities: LA City, Santa Monica Pilot, Long Beach Pilot, and Culver City.