

SmartGrid

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AgMonitor | Thomas Kuo, Olivier Jerphagnon



UC SANTA BARBARA

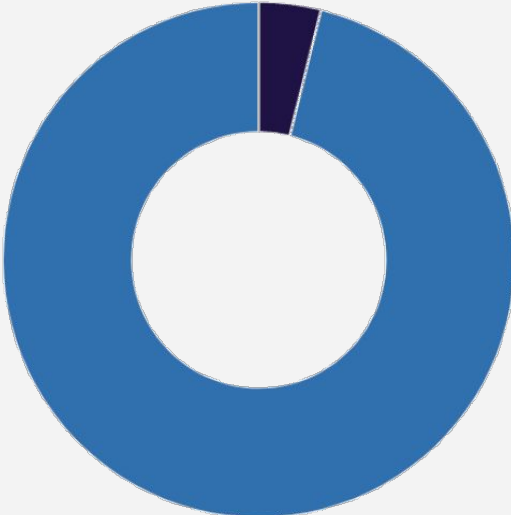
PG&E Begins Power Shut-Off to 179,000 California Customers



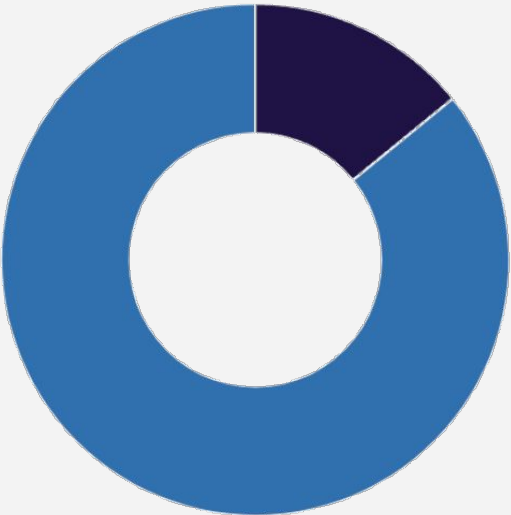
Percentage of Distributed Solar Systems Paired with Energy Storage

■ Solar + Storage ■ Solar Only

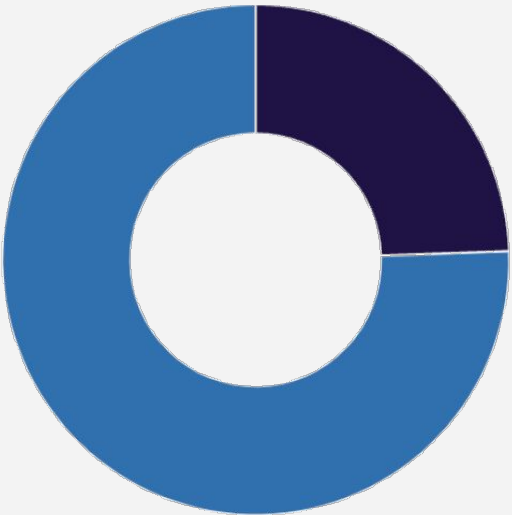
2019



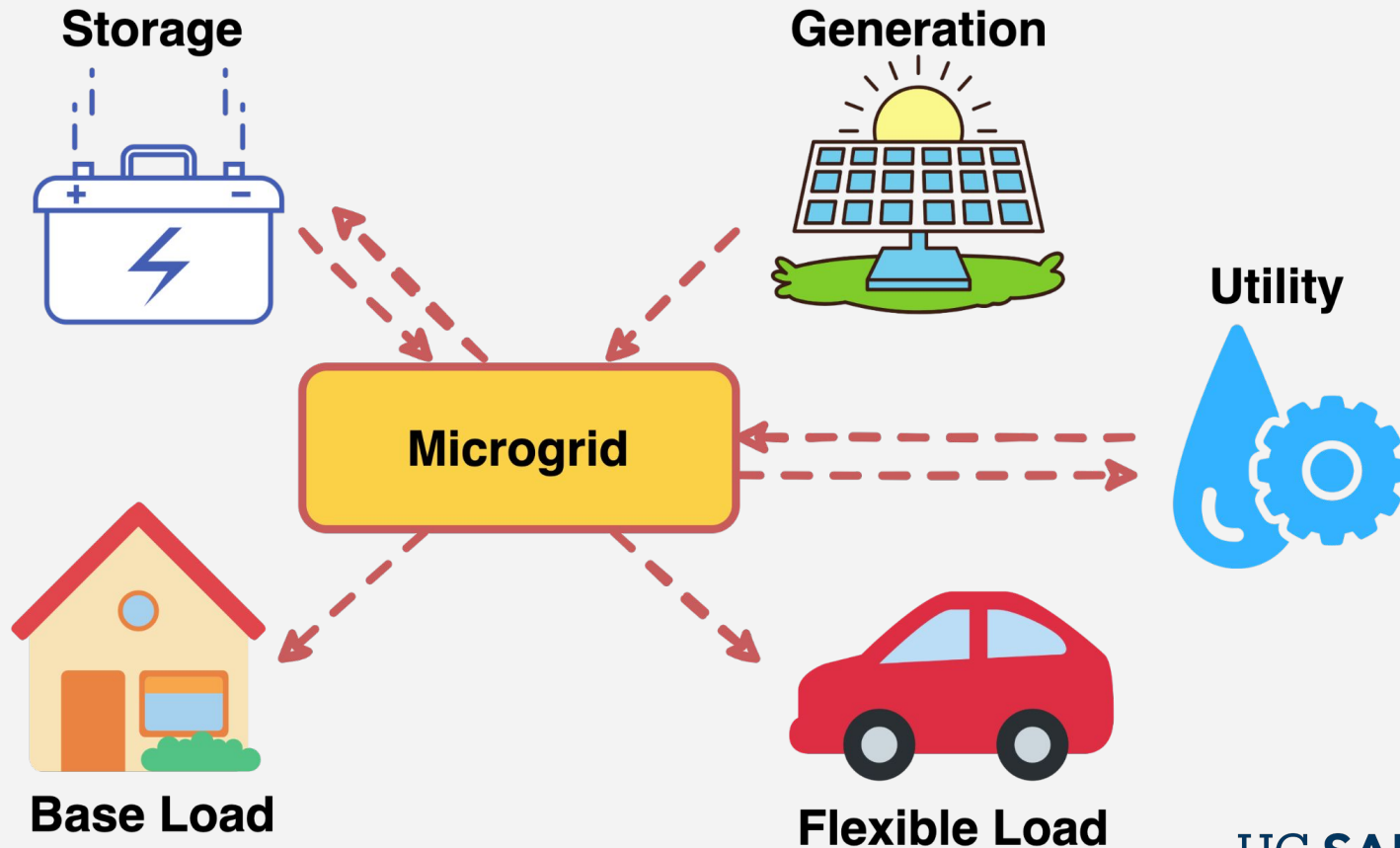
2022E



2025E



SOLAR + BATTERY = YOU ARE A MICROGRID OWNER!



CRUX OF THE PROBLEM

- How should you **set the battery threshold**?
- How should you **schedule your flexible loads**?

Considerations:



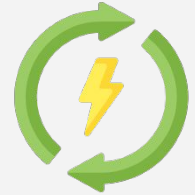
Future
weather



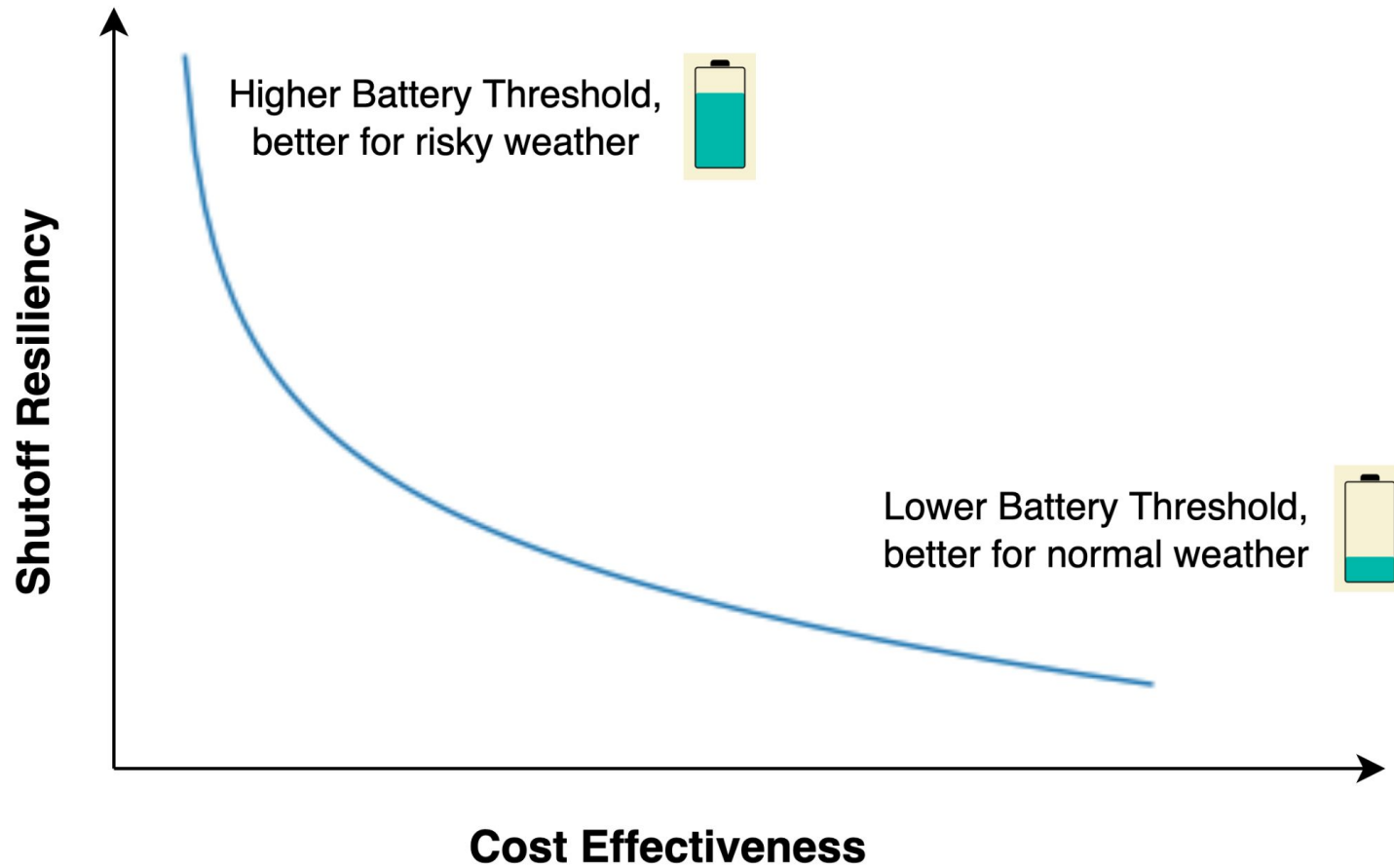
Risk tolerance



Cost-saving

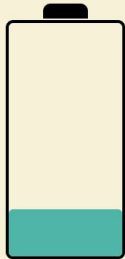


Renewable-energy
integration

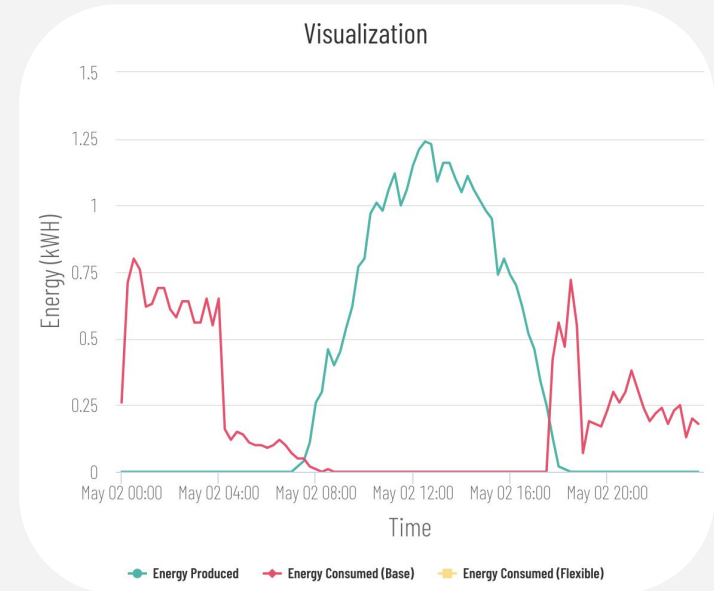


OUR SOLUTION

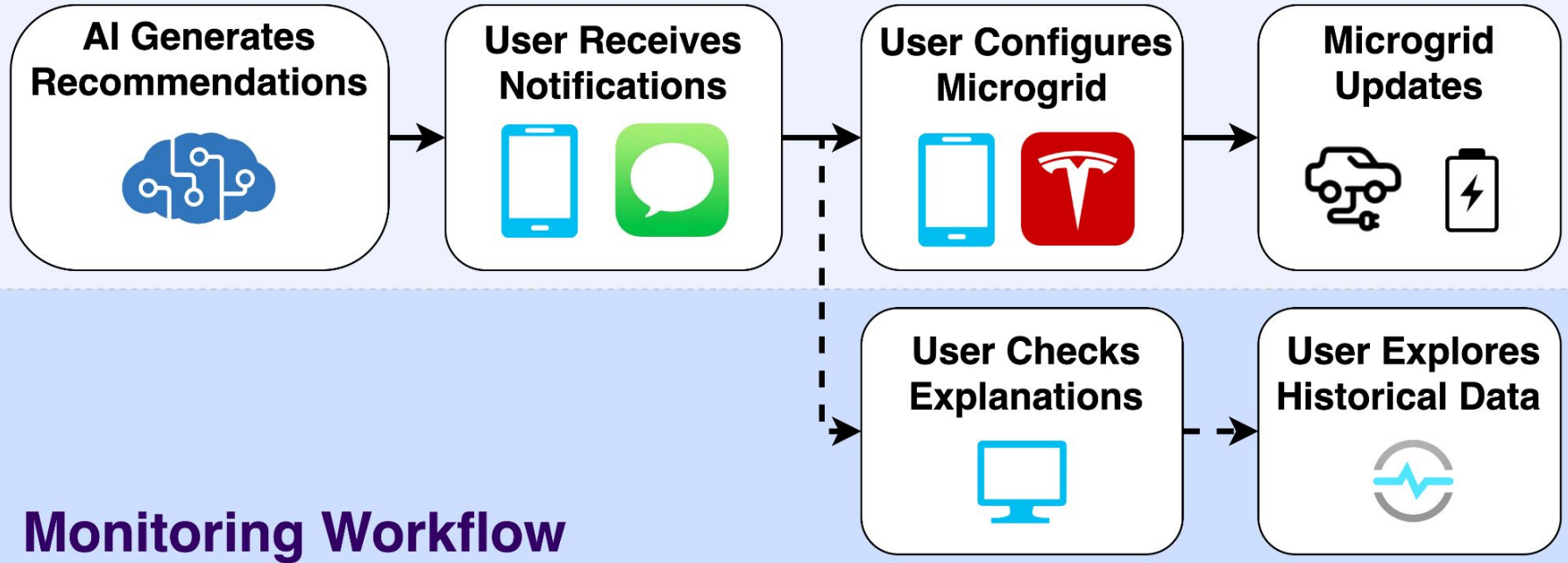
- AI-optimized personal energy management recommendations
- Historical microgrid usage visualization



TODAY, YOU SHOULD SET YOUR 1 KWH
BATTERY THRESHOLD TO 20% (0.2 KWH).

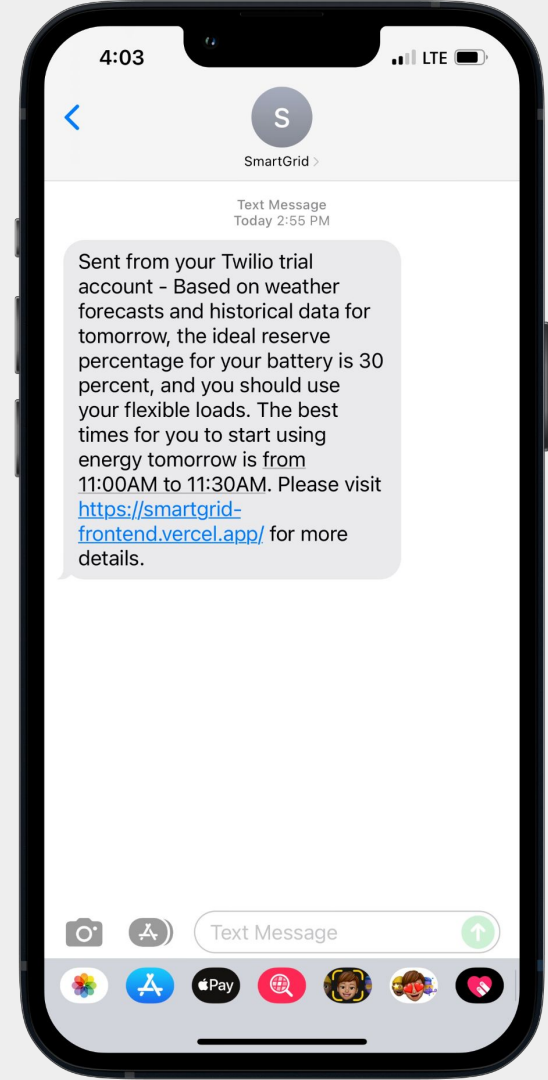


Action Workflow (Mobile Friendly!)



Live Demo*

*barring any technical difficulties

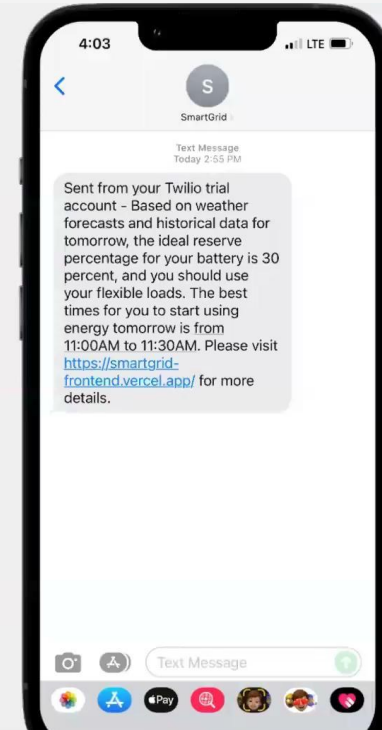
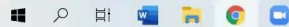


CONTINGENCY

Live Demo*

*barring any technical difficulties

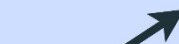
 AgMonitor



 AgMonitor

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Frontend



Backend



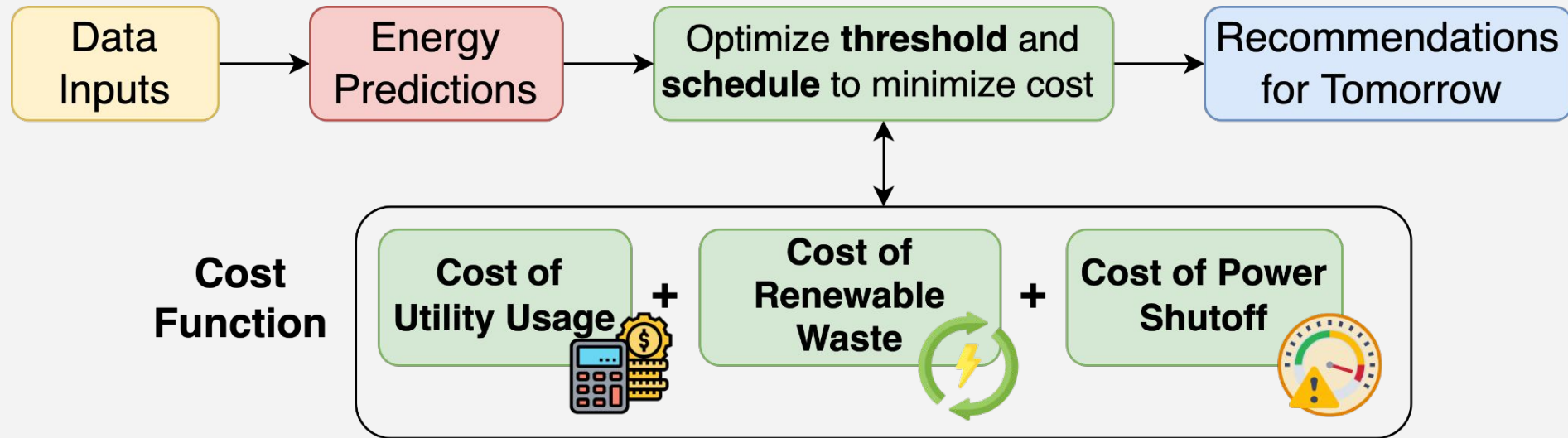
heroku



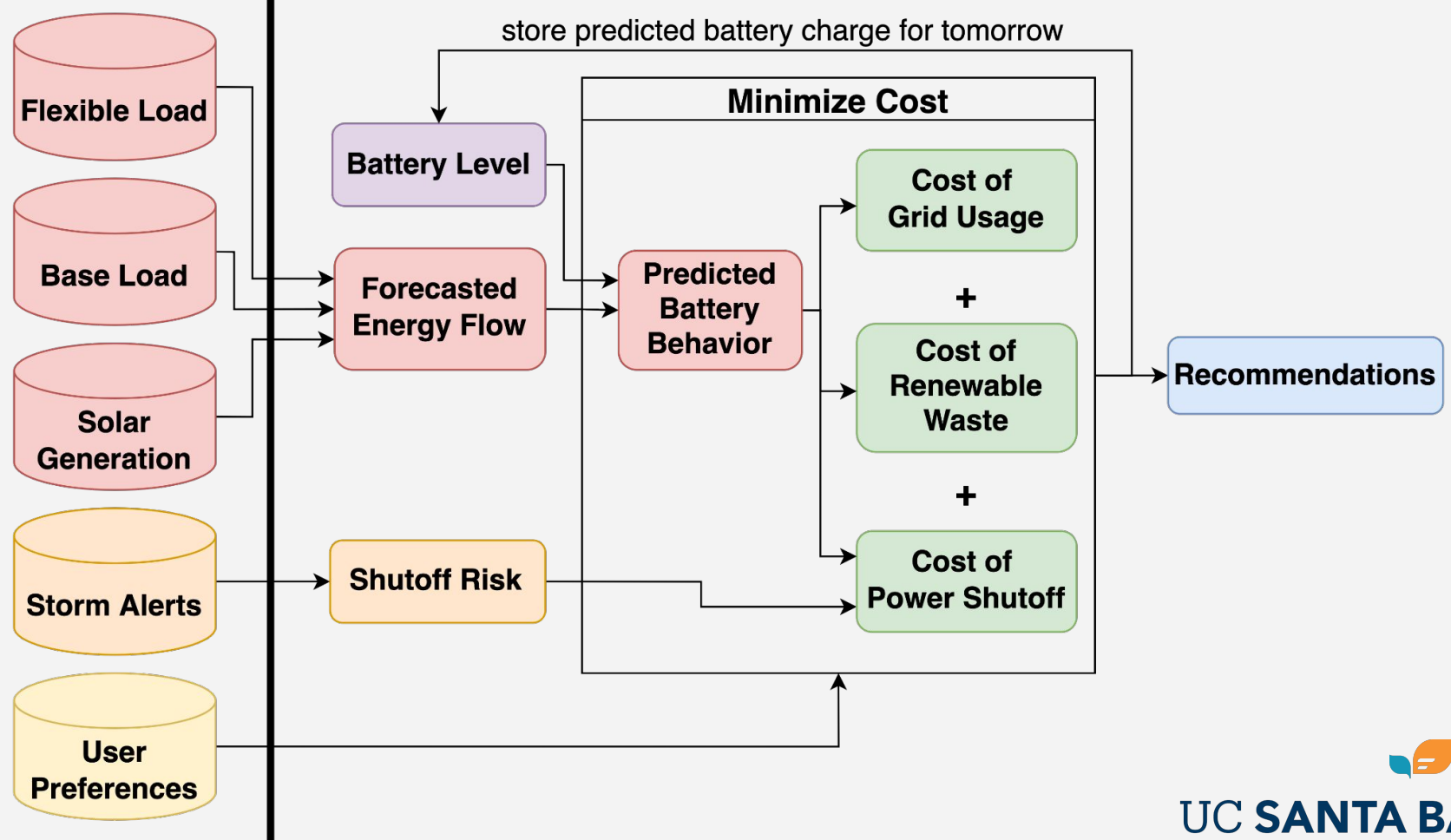
docker



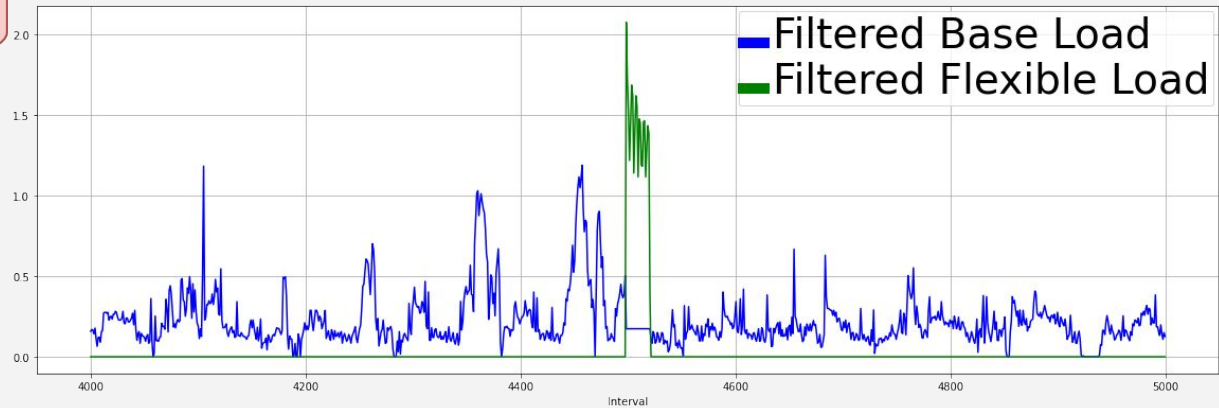
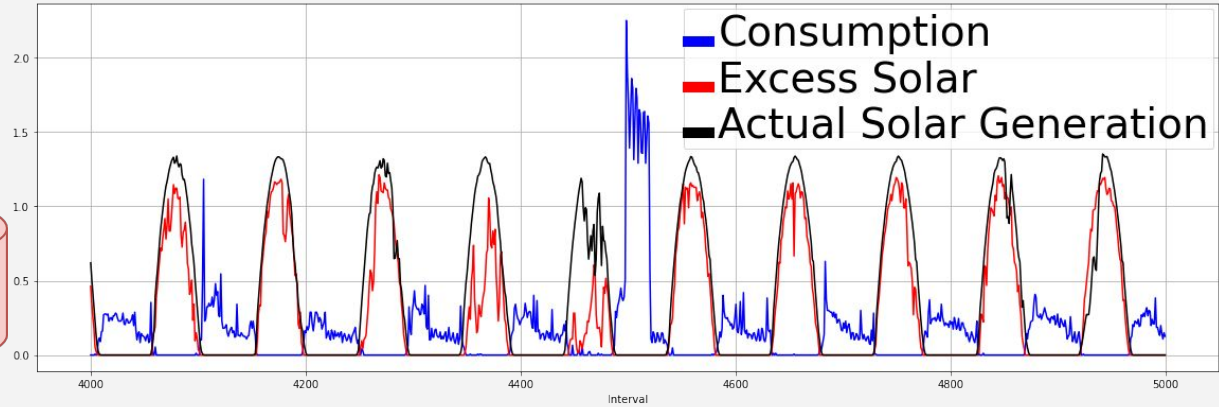
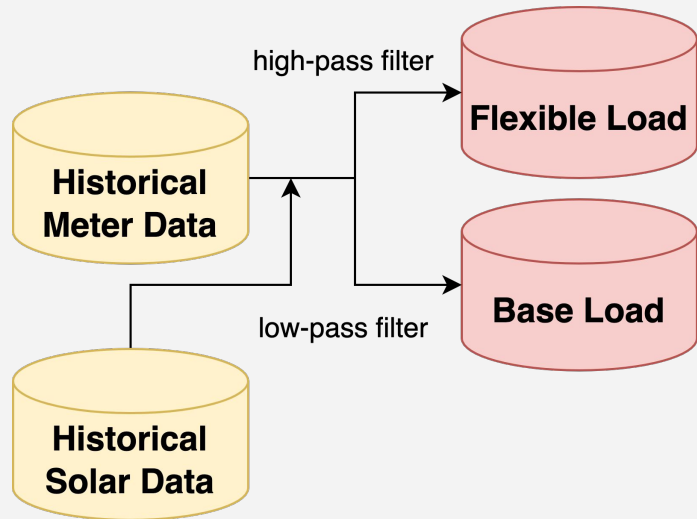
AI - DESIGN PHILOSOPHY



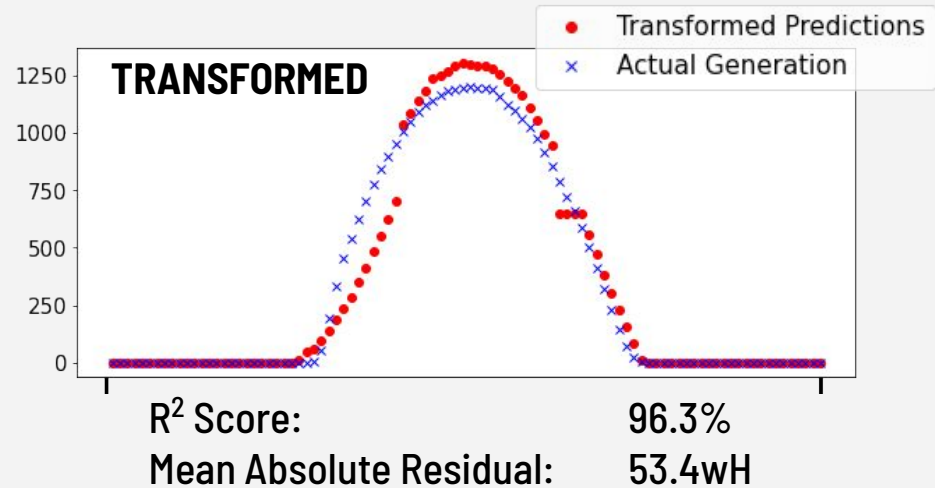
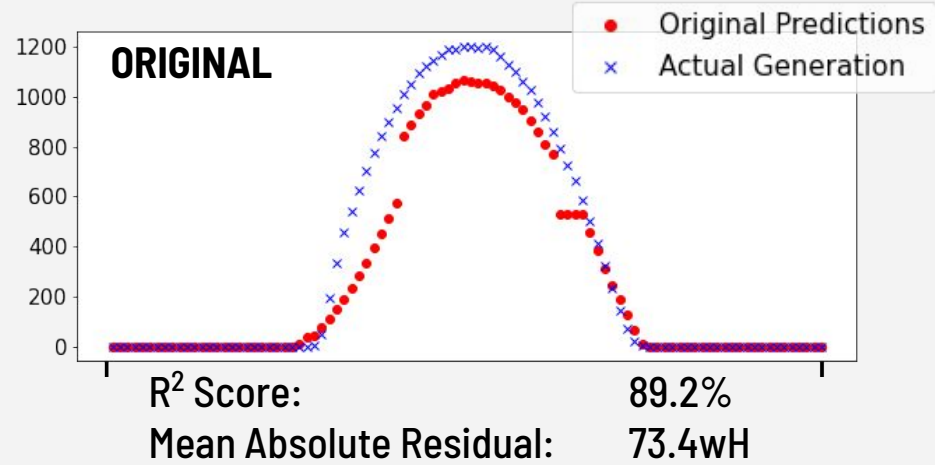
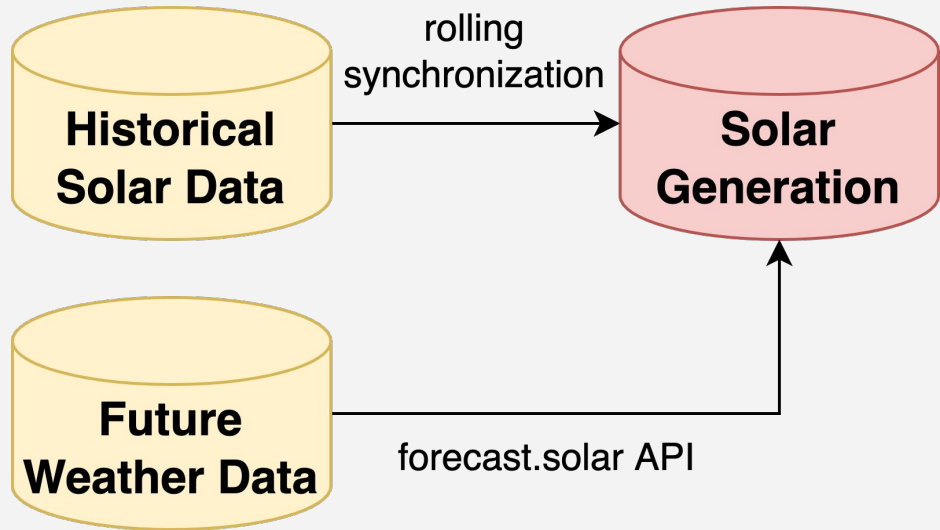
Data Inputs Optimization



AI - HISTORICAL METER DATA

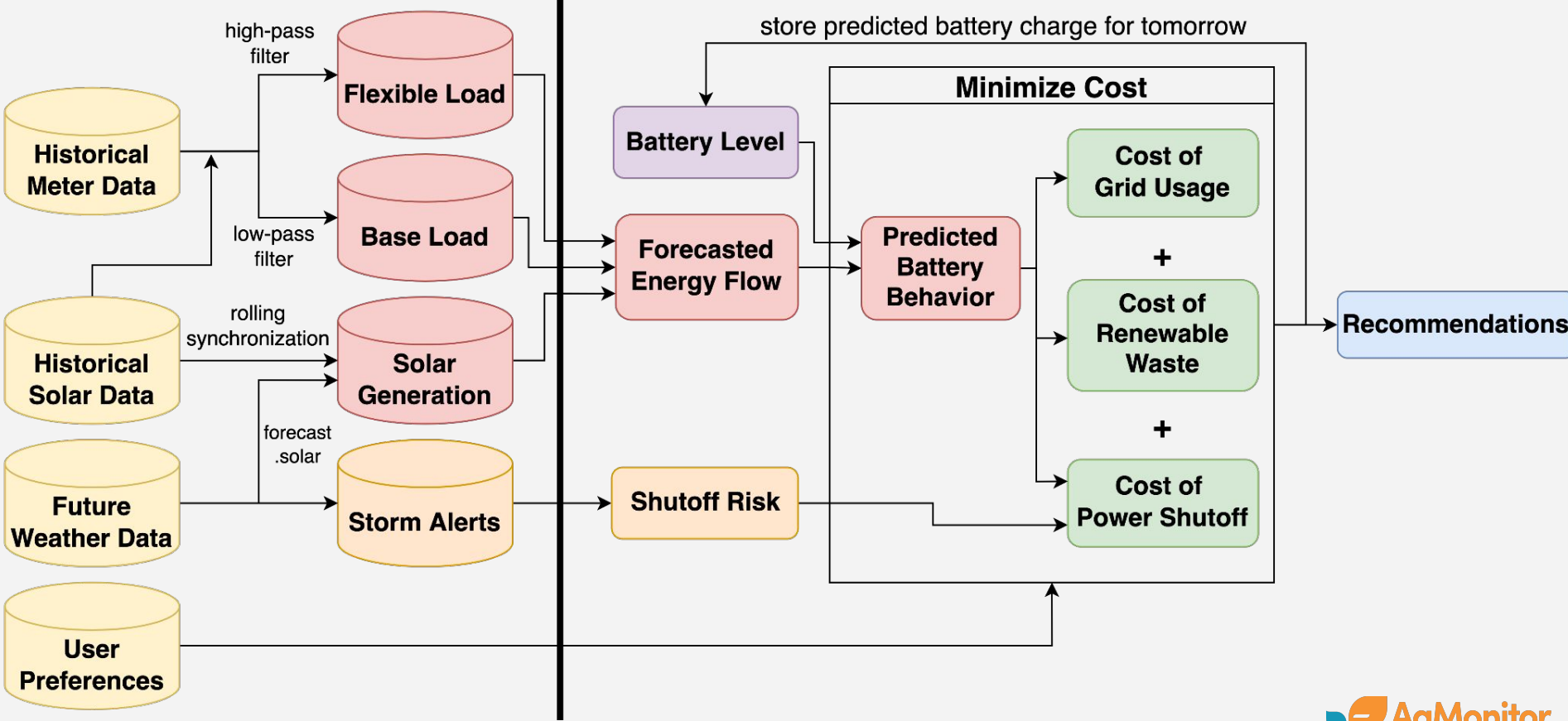


AI - SOLAR PREDICTIONS



Data Inputs

Optimization

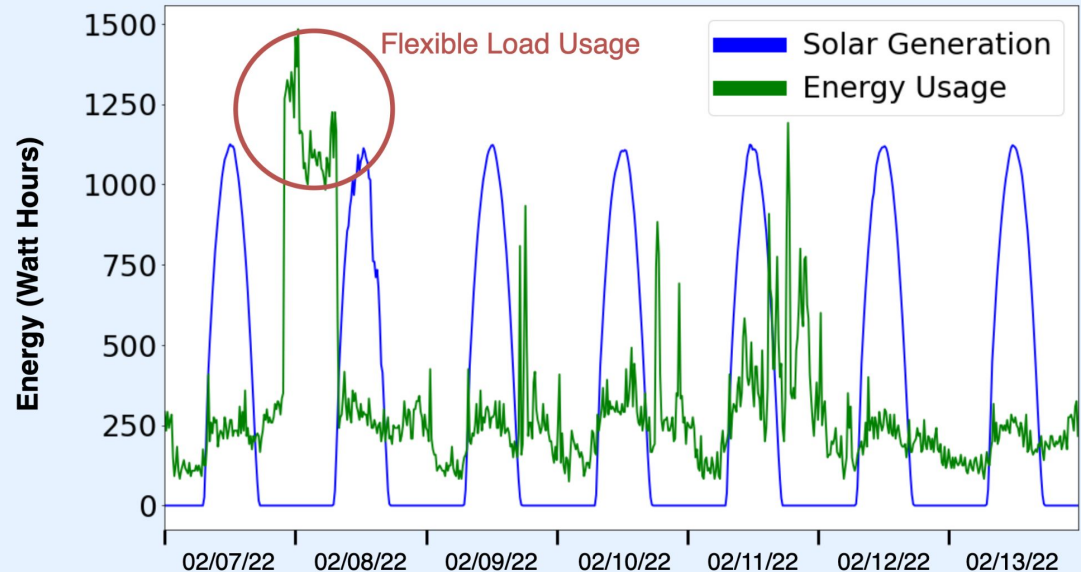


AI - RESULTS

	Self Sufficiency
Current Utilization	91.9%
Smart Grid	98.5%*
Theoretical Optimal	100.0%

*average expected performance over a week

Historical Test Case

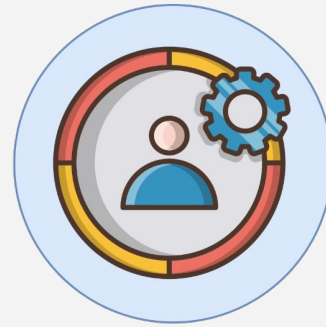


SmartGrid Recommendations

WORST TIME  BEST TIME



Customizability



Privacy



**Customer
Centric**



Interpretability



Simplicity

Save the planet.
And your wallet.



Special Thanks :)



Olivier Jerphagnon



Thomas Kuo

Questions ?



AI - BATTERY MODEL

Predicting the battery's behavior given

- actual starting battery level
- actual energy usage
- actual generation

R² Score: 97.41%

Mean Squared Error: 1.78

