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# The Value of VGI is there. Let's Capture it



*VGI Roadmap Workshop, Sacramento, CA, Oct 2018*

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Pamela MacDougall, NRDC

# California Set Ambitious Goals

## Energy:

- 100% Clean Energy Goal by 2045
- 1.3 GW Storage by 2024
  - IRP potentially doubling this storage goal

## Transport:

- 5 million ZEVs on the roads by 2030
- 250,000 electric vehicle charging stations by 2025



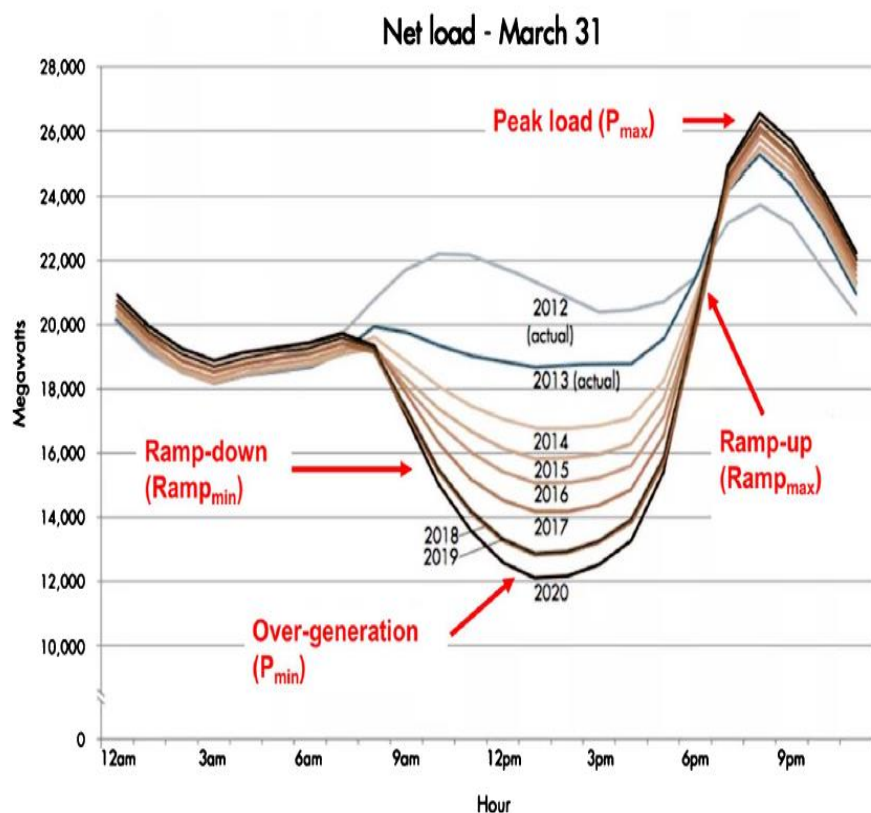
# Need to Create Business Opportunities



Get the Economics in Order:

- Storage Mandate: Allow V1G to participate
- Access to Wholesale Market Prices

# VGI as Storage is Cost Effective



## How Much Storage?

- V1G ~ 1 GW of storage
- V1G and V2G ~5 GW of storage.

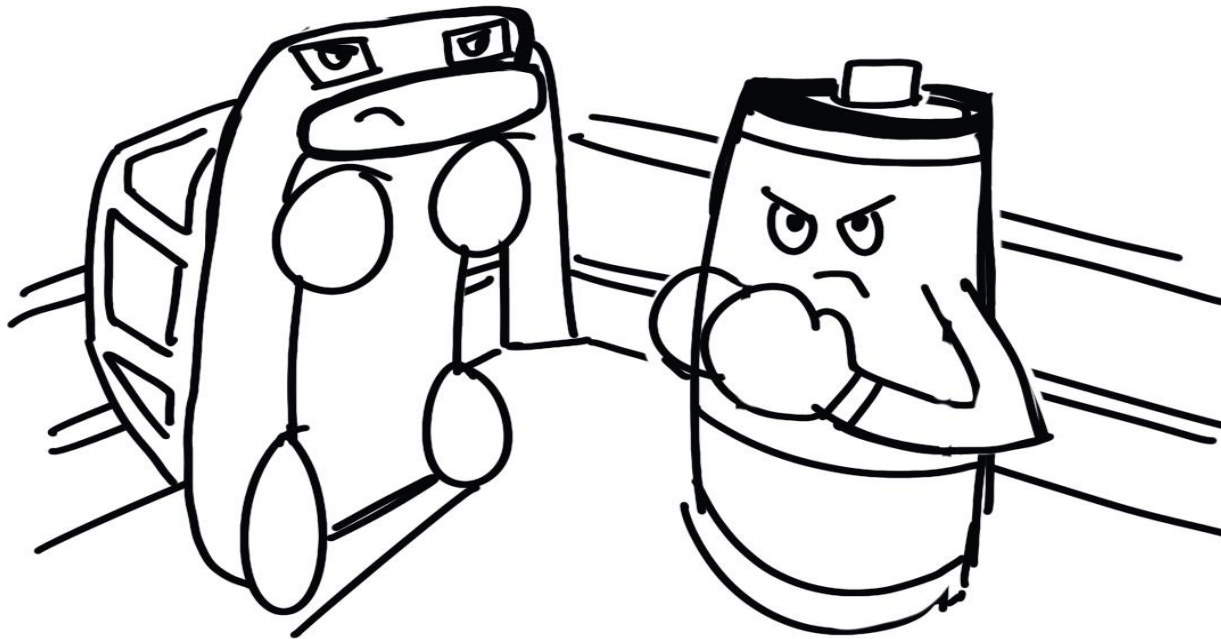
## How Much Savings?

- V1G system-wide investment of ~\$150 million, compared to \$1.45-\$1.75 billion for stationary (non-EV) storage would cost.
- V2G is worth \$12.8 to \$15.4 billion in equivalent stationary storage.

**LBNL Study shows without impacting driving V1G and V2G can provide storage....at a much lower cost.**

# It's not a knock-out competition

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# Need to align stakeholder and societal incentives

Utilities making large headway with:

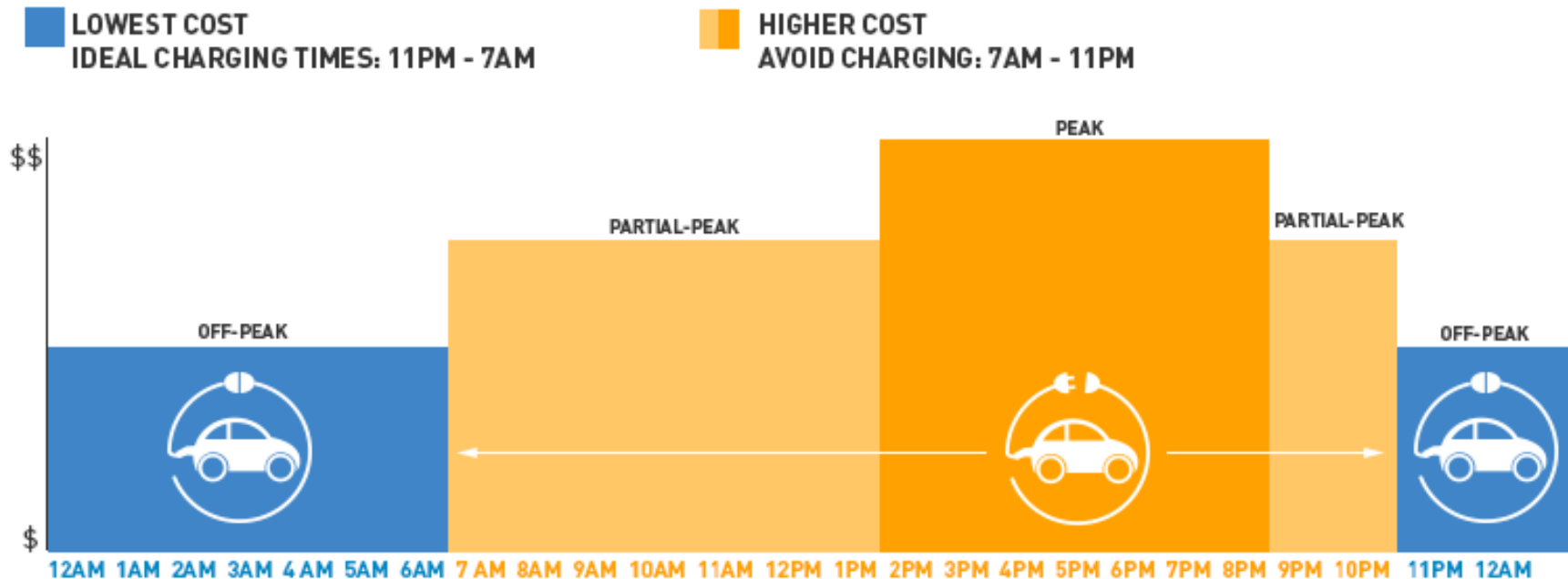
- TOU Rates
- Billions in Infrastructure Programs

Don't have comparable for VGI

**Utility Performance Incentive Mechanism** would ensure this.



# Get Customers on TOU Rates



## Automatic Subscription to TOU Rate



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# Let's not forget about the technical details...

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California has most Progressive EV TOU Rates in USA



**But utility metering is too expensive!**

# Many Low-Cost Metering Solutions

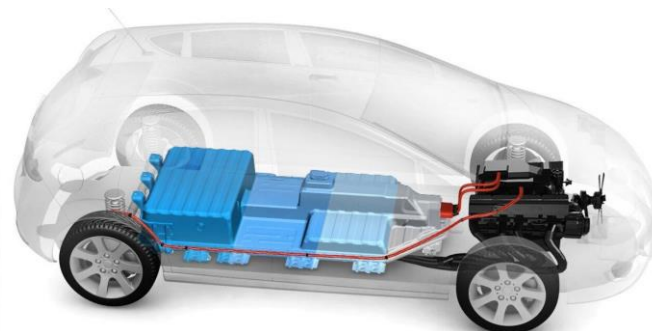
## Solutions:

- Offer rebates
- Sub-metering
- 3<sup>rd</sup> party metering

## Pilot Programs:

Electric Vehicle Sub-Metering Pilot

PG&E, SCE, & SDG&E



# EVs are not crashing the grid...yet

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Need to update Joint IOU report scope to include medium and heavy duty vehicles.



Avi Allison and Melissa Whited, Synapse & NRDC, "EVs are not crashing the grid", 2017.

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# Thank you

