

Exhibit to Agenda Item #1

Brief the Board on SMUD's Strategy for Fleet Asset Transition to Zero Emissions.

Board Strategic Development Committee and Special SMUD Board of Directors Meeting

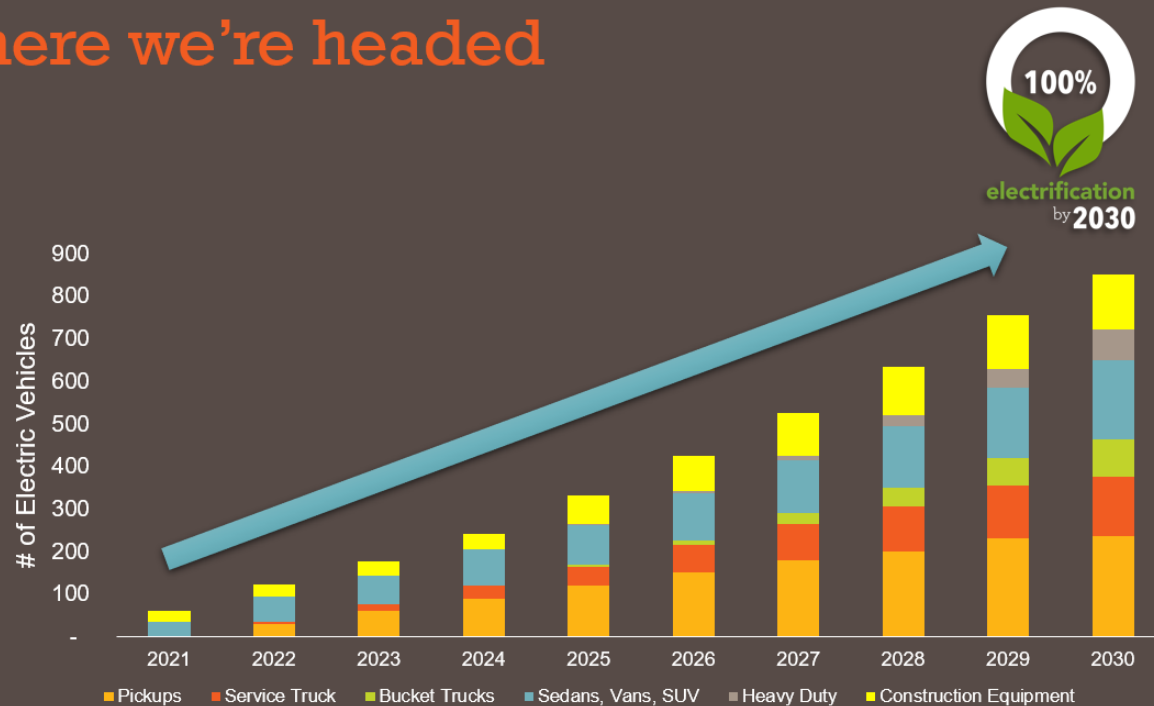
Tuesday, May 10, 2022, scheduled to begin at 5:30 p.m.

Virtual Meeting (online)

Fleet electrification strategy

From November 30, 2021, Strategic Development Committee Presentation:

Where we're headed



November 30, 2021 7

Board Strategic Development Committee and Special SMUD Board of Directors Meeting

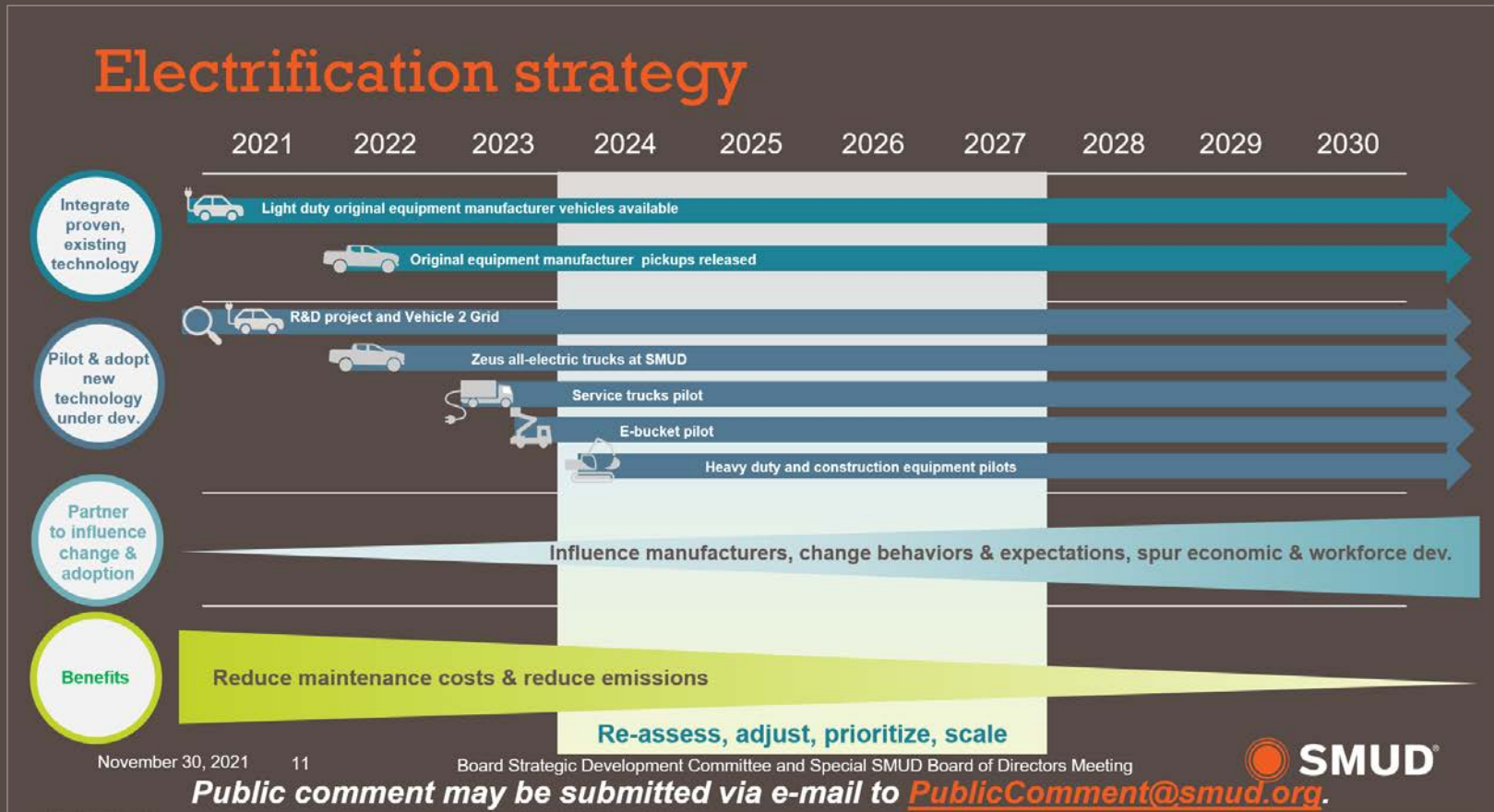


Public comment may be submitted via e-mail to PublicComment@smud.org.



Fleet electrification strategy

From November 30, 2021, Strategic Development Committee Presentation:



Phased strategy & implementation

Utility Fleet Electrification Benchmark Information

Utility	2030 goal
PG&E	<ul style="list-style-type: none"> • 100% of light-duty fleet • 10% of medium-duty fleet • 5% of heavy-duty fleet
San Diego General Electric	<ul style="list-style-type: none"> • Electrify 100% of the Light Duty Fleet • 30% of overall fleet Zero-Emission Vehicles (ZEV)
SoCal Edison	<ul style="list-style-type: none"> • 100% of light-duty vehicles • 30% of medium-duty vehicles • 8% of heavy-duty vehicles • 60% of forklifts
Portland General Electric	<ul style="list-style-type: none"> • 60% of all vehicles by 2030
Seattle City Light	<ul style="list-style-type: none"> • 50% GHG Reduction by 2025
SMUD	Zero emissions by 2030







Board Inquiry

The Board noted that if we accelerate 100% of fleet to zero emissions by 2030.

Important questions:

1. What will become of the replaced vehicles with useful life?
2. What factors do you consider in your decision making?
3. What are the trade-offs for early replacement?

Make-up of SMUD's fleet

Class	Availability	% of Fleet ZEVs	Count	Annual Miles	Average Age	Replacement
Pickups and vans		0%	294	2,438,750	10 years	3 to 6 years
Construction equipment		20%	225	9,907	10 years	10 to 15 years
Service trucks		4%	141	1,143,685	10 years	10 to 15 years
Light duty		100%	106	488,557	3.5 years	3 to 6 years
Bucket trucks		27%	93	993,097	5.5 years	10 to 15 years
Heavy duty		0%	68	327,711	12 years	10 to 15 years
Total:		13%	927	5,413,708	9.2 years	

 Partially electrified
  Fully electrified
  Not available

End of life

Various ways to measure

Life cycle	Definition	Example
Accounting	Asset value has depreciated to \$0	Purchased for \$100k, 10-year straight line depreciation, -\$10k per year, 10-years value is \$0
Financial	Asset costs more to repair than it would to replace	Vehicle accident damage, significant engine or other key component failure before end of life
Economic	The period during which it remains useful to its owner	Technology becomes obsolete or work practices change
Environmental	Vehicle engine emissions out of compliance	No longer permitted to run the piece of equipment, fines and other operational constraints
Physical	The asset no longer functions	Motor or other features fail beyond repair

Asset management

Two concepts; reactive maintenance vs. optimization

Factor	Reactive Maintenance	Optimization
Maintenance costs	Low to none	Higher
Capital costs	Low	High
Reliability	Low	High
Performance	Low	High
Emissions	Higher	Lower

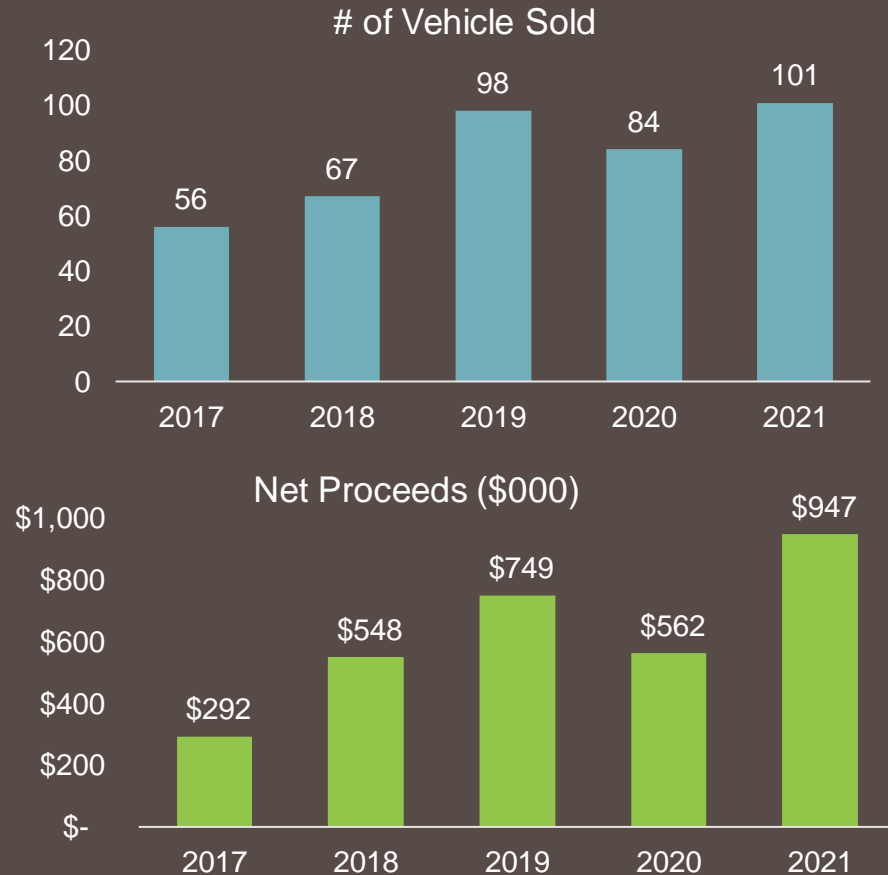
Current replacement strategy

Optimization replacement strategy

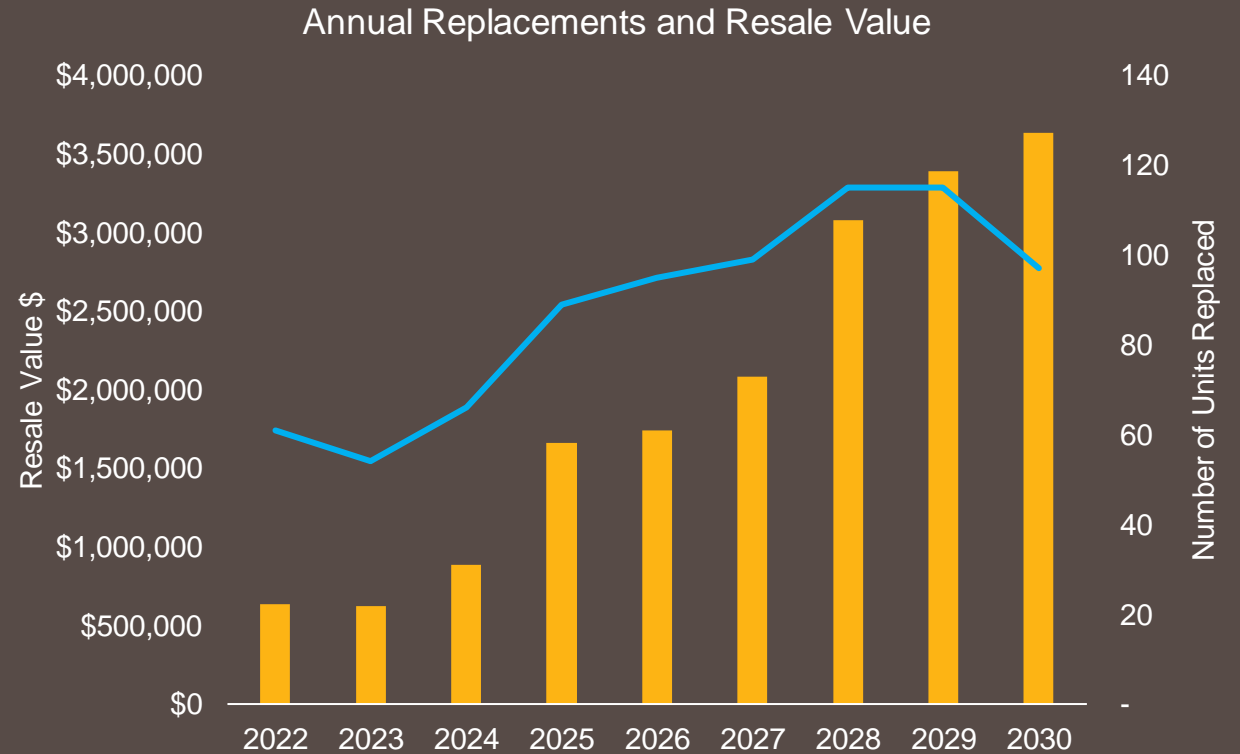
- Perform preventative maintenance
- Keep reliability and performance high
- Replace higher emitting vehicles ahead of compliance
- Light duty replaced on shorter economic life cycles (3 to 6 years)
- Medium/heavy duty longer economic life cycles (10 to 15 years)
- Send all replaced vehicles to auction for resale

Replaced vehicles resale value

Past...



Future...



\$17.7M value in aggregate through 2030

Alternatives and trade-offs

Alternatives	Pros	Cons
Disposal before end of life (take off road)	<ul style="list-style-type: none"> • Encourages electrification • Eliminates emissions 	<ul style="list-style-type: none"> • Not available to used car market • Creates waste • Increases energy requirements for new vehicle production • Loss of resale value
Sell vehicle into auction (remains on road, not at SMUD)	<ul style="list-style-type: none"> • Resale value from auction • Optimized asset management costs • Reduced maintenance • Higher reliability 	<ul style="list-style-type: none"> • May contribute to internal combustion engine (ICE) vehicle continuing to operate for unknown period • Lose opportunity to influence emissions • Lose opportunity for future decision making for that vehicle
Wait for zero emission options to replace (extend life of vehicles at SMUD)	<ul style="list-style-type: none"> • Will have more direct control over replacement and emissions at SMUD 	<ul style="list-style-type: none"> • May reduce reliability of vehicles • Increases maintenance costs

Recommendations

- Highest emission vehicles will be eliminated and replaced first
- Extend life of vehicles to match when zero emission options become available in the market
- Adjust asset management approach
 - Additional fleet in ready reserve as back-up to ensure reliability
 - Lower capital near term, increases later
 - Increased maintenance costs
 - Foregone resale value
- Continue grants and pilot projects
- Develop and forge new partnerships

Class	Current	Future
Pickups and vans	3 to 6 years	3 to 6 years
Construction equipment	10 to 15 years	12 to 18 years
Service trucks	10 to 15 years	12 to 18 years
Light duty	3 to 6 years	3 to 6 years
Bucket trucks	10 to 15 years	12 to 18 years
Heavy duty	10 to 15 years	12 to 18 years