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# The Value of the Grid

Business and Financial Conference  
September 19, 2018

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# Grid Defection – Will it Happen?

- DERs/DG growth will continue
- Sales are already declining
- This puts pressure on utilities thanks to current rate design
- Potential “death cycle” impacts with attempts to change rate design
- BUT . . . Complete defection impractical for most

# Technical Limitations



# The Cleveland Effect



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- 5.5 kW solar panel: \$10,000 - \$12,000
- 7 kW Tesla Powerwall: \$5,000-\$8,000
- May need 2x of the above to achieve current levels of reliability
- May need to invest upwards of \$30,000
- Average monthly electric bill: \$114
- 20-30 year payback

# Electrification



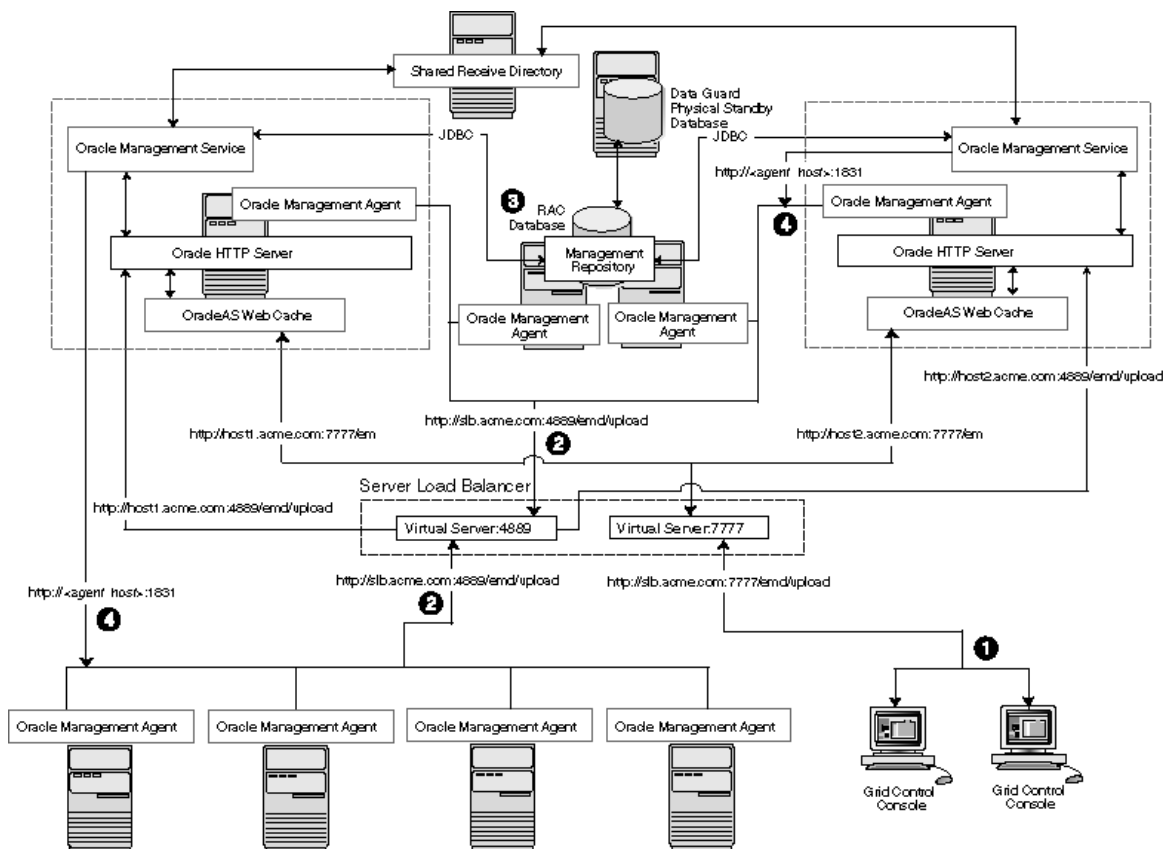


# It's not just cars

- Electric water heating
- EWH potentially 3x more efficient
- EWH also a potential storage source enabling load control
- Electric building heating
- Also 2-4x more efficient than current forms of heating
- All told: Projected 1.2 – 2.7% annual sales growth



# Welcome to the Future



# Debate about the role of the utility



- Some think the utility should have a diminished role – little more than a platform or a traffic cop
- DSO model: in some scenarios, operated by a third party – not the utility
- Concerns about utility ownership of charging infrastructure



# The value of the utility

- Utilities have obligation to serve – third parties may underserve certain customers
- Utility brand name value may mitigate customer concerns about new tech
- Integration of DERs can best be done by the incumbent utility
- No matter what, partnerships will be key



# Opportunities for new business models

- Enhanced communication system and two-way flows
- Public power advantage: size, nonprofit character, relationship to community
- Understand what the customer wants



# What about rates?

- TOU, demand charges, dynamic pricing
- Performance-based rates (and other forms of decoupling)
- No matter what you choose it should complement your ideal business model

# Questions and opportunity for more discussion



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