Expanding the Clean Energy Economy with Competition

Setting the Climate Agenda for the Next President

Reed Hundt, CEO, Coalition for Green Capital

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Competition & finance policy should be guided by core principles to minimize cost, maximize clean

Separate stages of value chain, maximize competition.

Competition in generation (advantage to clean power)

Competitive access to distribution grid

Open access to T&D network

Competition behind meter (DG, EE, EV) – compete on service, quality, price, not finance.
Use litigation and regulation together to define competitive markets and shared monopoly

1. **Generation and T&D** should be separated in all remaining states that are vertically integrated. Parallel DOJ lawsuit and federal legislation.

2. **Renewable sources** should have low cost access to T&D networks. EPA regulation or DOJ lawsuit to force this.

3. Behind the meter firms should compete on service and installation quality, not on Finance. This should be a commodity (Green Bank).

4. T&D network should receive huge low-cost finance to build smart grid without harming consumers. This is a natural monopoly and it should be funded a la broadband network.

5. **T&D network** should charge carbon price, allow consumers to select clean energy from single suppliers or from suppliers that offer choices including time of day pricing and other variables. Any form of competition is permissible. Tax revenue money should be aggregated into a national fund to subsidize low income and high cost users.
Transition to new energy platform must be same as transition to new telecom platform

Same speed & Investment → $1 trillion in 10 years

All platform services must be faster, better & cheaper

- Faster = Real-time load & consumption management
  - Better = Cleaner
  - Cheaper = Cheaper
Make clean energy platform abundant, cheap and equitable

- Clean energy should bring *lower* energy costs for every resident and business in America

- Like a progressive income tax, those with least income should have the lowest energy burden

- Governments should use cheap capital and long investment horizon to increase upfront benefits for clean energy adopters
Retail rate net-metering is a regressive subsidy, increases perception of clean energy elitism

- 49.1 million households earn less than $40,000
  - 40% of US households
  - Less than 4% of solar adoption

- Utility pays wealthy homes retail rate for excess solar

- Sells that power to low-income homes at a price greater than power purchased from any other source

- Retail rate net-metering pushes cost onto low-income

With lower cost of capital, solar can still be economically viable with lower net-metering rate

- Long-term, low rate financing (from a Green Bank) makes rooftop solar work, even in Nevada, at very low NEM rates

### ANNUAL SAVINGS FROM ROOFTOP SOLAR IN NEVADA

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<th>Net Metering Rate</th>
<th>Interest Rate (Assuming 20 year Loan)</th>
<th>0%</th>
<th>1%</th>
<th>2%</th>
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Thank You & Appendix

Comments and Questions:
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Key move in telecom was make access network either shared monopoly or competitive structure

- 1st – Wired Telephone → Shared Monopoly
- 2nd – Wireless Network → Competitive Structure
- 3rd – Cable Network → Shared Monopoly

- As Policy Goal, every Energy Market must be one or other
  - Generation → Competitive Structure
  - Transmission & Distribution → Shared Monopoly
  - Behind the Meter → Competitive Structure
  - EV Charging Station Network → Shared Monopoly
  - EVs → Competitive Structure
Use litigation and regulation to achieve these policy goals, same as in telecom

• US v. AT&T separated telephone access network from long-distance, made long distance competitive
  – Analogy in energy is to force separation of generation from T&D

• 1996 Telecom Act said local telephone access network had to be shared with competitors
  – Clean energy gets low-cost regulated use of distribution utility

• In mobile, now have 4 national wireless firms
  – For example, policy goal should be 4 SolarCity’s, not 1
  – Similarly, want at least 4 major EV sellers
Subset of necessary solutions to reach competitive policy goals

1. Cleaner & Cheaper Electricity Markets
   a) Moving Beyond Net-Metering
   b) Cheaper T&D Access for Clean Electricity
   c) Plentiful Financing for New “Clean” Transmission

2. Building an Electric Vehicle Platform
   a) Auction Mechanisms for an Efficient Charging Grid
1a) Rather than wait for NEM to be attacked in all states, lets move past it and offer avoided cost

- Distributed solar should be value at avoided cost, not retail rate of electricity
  i. Avoids the indefensible position of wealth redistribution in the wrong direction
  ii. Can still pencil out to produce economically viable solar
  iii. “Aggregation” of utility net-metering payments through Green Bank produces better economics for customers and utilities.
Green Bank can be a market maker and deliver more cash upfront to solar owners

Excess Electricity Sold

Upfront Cash Payment

Stream of NEM Payments Over Time
1b) Fossil fuels should be charged more, upstream, to access transmission system
1c) Federal Government should cheaply finance renewable-only transmission in target zones

- Cheap capital to construct new clean energy lines
- Encourage development in designated zones
- More expensive access or inaccessible to dirty power
2) EV charging, like telecom, has network effects that hurt early adoption of EVs

- Must build out network infrastructure *prior to or in tandem up with* entry of network participants
- First person to buy a cell phone must bear the cost of the entire network infrastructure
- Marginal cost of adoption declines as network users grow
- Same is true with EVs!
- Early EV adopters could not possibly bear cost of entire EV charging network
- Leads to underinvestment in charging infrastructure
2a) Governments should license and auction right to build charging network at minimum cost at best sites

- Municipality holds reverse auction to license exclusive rights to build charging network
- Winner is one that requires least cash payment from gov’t (and possible that winner would pay government)
- Government offers long-term, low-cost financing
- Stations built in optimal locations for max efficiency
2a) *IF* vehicle subsidies needed, they should incentive EV vehicle miles traveled, not EV adoption

- NOT a chicken and egg problem
- EV and charging stations are complementary goods
  - Need both left shoe and right shoe to be useful
  - Same true for EVs and charging network – need both at same time!

- Therefore government may need to support EV usage and network infrastructure simultaneously
- If objective is to reduce GHG, vehicle-side subsidies should aim to maximize EV miles driven, *not just vehicle purchase*
2a) Smart policy would target vehicle subsidies to drivers and vehicles that drive the most.