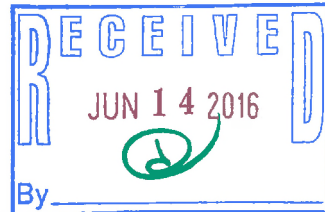


#10-1191

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NoonanLADWP06142016

06/14/2016 Item (16) 10-1191

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1.0 Introduction

Los Angeles City Council, 06/14/2016 Item (16) 10-1191

Ms. Christina Noonan LADWP Board appointment.

Far-left groups are constantly trying to change California electricity source.

Publicly-owned LADWP is particularly affected. Results are a warning to Ms. Noonan.

We need Ms. Noonan. She is apparently the most experienced LADWP board member.

*W E S 06/14/16*

William Ernest Schenewerk, PhD, P.E

2.0 Background: [http://clkrep.lacity.org/onlinedocs/2016/16-0243\\_mot\\_03-02-2016.pdf](http://clkrep.lacity.org/onlinedocs/2016/16-0243_mot_03-02-2016.pdf)

16-0243, 05/04/2016, continued 06/03/2016: LADWP to be 100% renewable energy

3.0 Results - LADWP All Renewable Energy

Total cost to make LADWP all renewable energy is 0.3375 trillion USD, ~85,000 USD per Los Angeles resident. Ammonia-water energy storage was used because it is the cheapest storage method presently available. 20% utilization and 50% storage loss requires wind/solar nameplate to be 10 times average busbar output. Presumably energy storage means peak demand can be supplied as long as average demand does not exceed the design 0.00625 TW (6.25 GW). If the 0.3375 trillion USD is spent between now and 2050, annual cost is 10 billion USD per year, roughly 2.5 times present LADWP budget. I have watched the Section 8 home across the street have power/water cut off 3 times already. Power cost estimated 0.0011 USD/watt-hour (1.1 USD/kWh).

4.0 Design Input

4.1 2014 Power, LADWP = 27.63 TWh, 27.63 TWh/8766 h/a = 0.00315 TW LADWP power

4.2 Wind/Solar nameplate cost = 3 USD/W: Discount tool store 45 W solar kit

4.3 Solar/wind utilization = 1/5 nameplate: Spain/Italy wind/solar data.

4.4 Energy Storage: Appendix 1, 4 of which are required.

NH3-H2O ammonia requirement: 0.006 kg-NH3/Wh based on free energy.

5.0 Assumptions

5.1 LADWP 2050 average power = 5 TW, 1.5%/a from 2015, Busbar Average = 0.00625 TW

5.2 Line, DC-AC conversion, storage and piping loss: half of wind/solar generation.

5.3 Wind/solar can not exceed 1/6 of generation absent storage [6.02].

Storage: 10 W/busbar W \* 3 d \* 8 h/d = 240 Wh-storage/busbar-W

2015 Reference 6.01 data: CA wind and solar combined ~7% total CA GWh.

5.4 Ammonia cost: 0.01 kg-NH3/Wh \* 1 USD/kg-NH3 = 0.01 USD-NH3 cost/Wh

5.5 Total storage cost 10 times ammonia cost: 0.1 USD/Wh

240 Wh-Storage/busbar-W \* 0.1 USD/Wh = 24 USD-storage/busbar-W

5.6 OEM annual cost 18% capital investment.

6.0 References

6.1 California Energy Commission

6.2 <https://cityclerk.lacity.org/lacityclerkconnect/index.cfm?fa=ccfi.viewrecord&cfnumber=13-1061>, 13-1061\_pc\_1\_9-9-13.pdf, (September 9, 2013).

7.0 Calculations-100% LADWP renewable energy capital cost

0.00625 TW \* (10 nameplate-W/busbar-W \* 3 USD/nameplate W + 24 USD-storage/busbar-W) = 0.3375 Trillion USD

Electricity cost = 0.3375 TUSD \* 0.18 return/0.00625 TW \* 8766 h/a = 0.0011 USD/Wh