CITY OF ALBANY
MEMORANDUM

DATE: March 1st, 2017

TO: Sustainability Committee

FROM: Fanny Yang, CivicSpark Climate Fellow

SUBJECT: City of Palo Alto Electrification Study

The following is intended to serve as a summary regarding City of Palo Alto's Electrification Study.

BACKGROUND

In 2013, the City of Palo Alto included a 100% carbon neutral electric supply portfolio, set the goal of meeting 4% of electricity needs from local solar generation by 2023, established building codes with energy efficiency requirements above state standards, and set goals of achieving zero waste by 2021. The City's electric supplies are now carbon-neutral but natural gas usage and transportation sectors still account for approximately 90% of the city's remaining carbon footprint.

Palo Alto is aiming to electrify the city through replacing natural gas appliances with electrical ones and by replacing gasoline powered vehicles with EVs. The city started their Electrification Study project in April 2016 and concluded the study with an Electrification Final Report published by TRC in last November. The Electrification Final Report assessed the electrification of heat pump space heating (HPSH) and heat pump water heating (HPWH) in buildings by analyzing existing and potential barriers and the cost effectiveness of switching to heat pump systems.

KEY FINDINGS OF ELECTRIFICATION STUDY

The Electrification Study identified three types of barriers that affected the feasibility of implementing HPWHs and HPSHs in residential and commercial buildings: code, technical, and operational.

- Code barriers were attributed mainly to Title 24 and its time dependent valuation (TDV) compliance metric. TDV favored gas equipment to electric equipment which makes it challenging to achieve cost-effective energy savings for all-electric measures.

- Technical barriers for heat pump appliances included limited knowledge of contractors on the installation of these systems and additional electrical upgrades as a necessary side component for heat pump equipment.

- Operational barriers discussed the readiness of the local building industry to implement and maintain heat pump measures. The discussion included potential space heating impacts from improper installment and frequent, technical, maintenance of HPWH filters.

Methods of calculating net societal benefits from fuel switching were consistent on identifying which measures were cost effective or not. HPWH as a standalone measure is not cost effective while HPSH in residential buildings is.