

**DOCKETED**

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**RealEnergy CleanPeak Power To Gas - Grids Working Together  
Affordably**

*Additional submitted attachment is included below.*



June 20, 2019

The Honorable David Hochschild, Chair  
The Honorable Andrew McAllister, Commissioner  
California Energy Commission  
1516 Ninth Street  
Sacramento, California 95814

RE: Docket No. 19-MISC-03  
Natural Gas Distribution Infrastructure and Decarbonization Targets

Dear Chair Hochschild and Commissioner McAllister:

On behalf of RealEnergy, I appreciate the opportunity to provide the following comments. RealEnergy was formed in 2000 as an energy development company and designs, builds, owns and operates more clean onsite gas to electricity plants than any other independent power producer in the US. We have three CleanPeak Power to Gas plants in development in California utilizing technology supported by the DOE and others.

As California develops plans to reach aggressive GHG emission reduction targets, there should be no uncertainty about the role of massive curtailed renewable electricity and recycled biogenic CO<sub>2</sub> being methanized and stored as renewable natural gas in our existing pipelines until needed hours, days or months later in an existing carbon free thermal peaking plant.

Curtailed renewable electricity is expensive, wasteful and risky. Non-dispatchable electricity developments have already been stalled or aborted and we are curtailing less than 10% of our precious non-dispatchable renewable electricity at a 17% portfolio content. Germany curtails 30% at a 30% portfolio content. Getting to 100% would otherwise cost 100%+ overbuilding.

How do we plan to reach 50% renewable electricity by 2030 to serve existing loads plus planned electrification loads when electricity storage development risk is no more certain now than was reported by E3 several years ago?

The only proven and affordable seasonal storage option to utilize this enormous quantity of wasted electricity (~10TWH over the next 5 years) are the Power to Gas technologies operating today in Europe and being permitted today in California. With 20 hour per day operation and utilization of the waste heat for beneficial reuse, California Power to Gas plants are achieving investment proforma return requirements to fund a statewide fleet of approximately 100 plants drawing 20MW each.

The only way the renewable asset developer will develop is if we are paid for the renewable electricity vs today's situation where the developer (through the CAISO) pays neighboring states to take this worthless renewable electricity. This is not affordable, nor will we reach our goals by not acknowledging the state of storage technologies and the real need for long term sustainable renewable electricity storage. The suggested 10GW of storage is not nearly enough.

Power to Gas can:

- Enable profitable renewable electricity development
- Manage curtailment risk
- Fulfill agency mandates affordably

A robust renewable gas grid will be required to achieve aggressive GHG emission reduction targets across all sectors and for supply shifting to maintain reliability and zero GHG:

- Power to Gas to CleanPeak Power
- Power to Gas to Vehicle Fuel
- Power to Gas to Core Customers

The California gas grid is twice the size of the electric grid (600TWH vs 300TWH) and the electric grid cannot store electricity. Vehicle electrification will exacerbate the 'neck of the duck' peak. California already has the largest battery in the world; its gas grid, sharing space with renewable gas just as our electricity grid is hosting both renewable and non-renewable electricity through the transition.

Several (most) published pathways ignore how power produced in the spring or morning is curtailed and power used in the summer or afternoon must rely on natural gas and GHG emissions. California SB 338 requires utilities to identify carbon free alternatives to natural gas generation for meeting peak demand. What are they to (affordably) do to achieve storage without a renewable gas grid?

CAISO – “During oversupply times, wholesale prices can be very low and even go negative... oversupply is a manageable condition, but it is not a sustainable condition over time”.

The suggested levels of storage do not nearly satisfy the 10TWH that will be curtailed over the next 5 years. This curtailed power represents 4MMTCO<sub>2</sub> if not utilized. The gas grid can store 100TWH, 33 times more than should be needed five years from now.

We read this twice, but the logic doesn't seem to follow:

- Electrifying buildings will require more electricity – 30-40TWH/Y
- It will require less gas – 44TWH, or 7% of gas flow
- Therefore, we must seek policy intervention for an accelerated depreciation tax on gas ratepayers for targeted retirement of the gas distribution pipelines
- Electricity rates would be \$0.55/kWh in 2050 to compete with mixed fuel customers, this would reduce the economic advantages of electrification, so we must move to all-electric now and shut down the gas distribution system
- And, lets impose a \$26 billion tax to pay to reduce optionality

## **RealEnergy Clean Peak**

As an active participant in our energy transition, our utility and technology partners offer innovative energy solutions including energy storage. Storing energy is vital for mitigating intermittency of renewable electricity in the context of a low carbon and affordable energy mix. Hydrogen produced from renewable electricity can be immediately blended with recycled biogenic CO<sub>2</sub>, doubling the resource flows (landfills, digesters, cement and ethanol plants or from the air) and injected into the public gas grid (Power to Gas) for later use. No more Duck Curve or GHG problem due to imbalance.

By considering all sectors of carbon free electricity, gas and transportation the problem gets a little smaller, each sector gets more reliability, flexibility and resiliency in times of natural disaster or terrorist attack.

And, reaching our GHG reduction targets affordably become more believable.

Sincerely,

A handwritten signature in blue ink, appearing to read "Kevin D. Best".

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