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The loonacy of Green Hydrogen

Considering during spring winter and fall, hundreds of gigawatt hours of carbon free generation are being curtailed and transferred to neighboring States. The enormous cost of curtailments and payment contribute to making electric service California one of the most expensive in the nation. There are thousands of boilers that burn natural gas to generate steam or hot water. Facilities with these "hard to decarbonize" boilers could inexpensively utilize green electricity to offset some if not all of green electricity as there is presently plenty of spare grid capacity during non-summer months. Furthermore, electrical resistance steam generation systems and retrofits are commercially available.

Electricity for electrolysis that produces hydrogen is 70% efficiency or less. Utilizing hydrogen in boilers is no more than 78% efficient in boilers and 20 to 30% efficient in either gas turbine or linear generation of electricity. Elect resistance generation of steam is nearly 100% efficient.

Instead of spending \$billions on green hydrogen and wait decades for the infrastructure needed to accommodate the generation, storage and transfer of hydrogen, California could reduce hundreds of thousands of mTonsCO₂ within a years if not year. In lieu of paying neighboring States upwards of 10c/kwhr to take over produced electricity, offer facilities zero cost electricity during periods of solar curtailment and export. Given the zero cost electricity, facilities would have an economic incentive to electrify a portion of their steam generation with electric resistance heating, for while electric elements provide only 3416btu/kw-hr, they can be staged with significant turndown capability, instantly fluctuating to provide grid support.

Reduce carbon now not later!