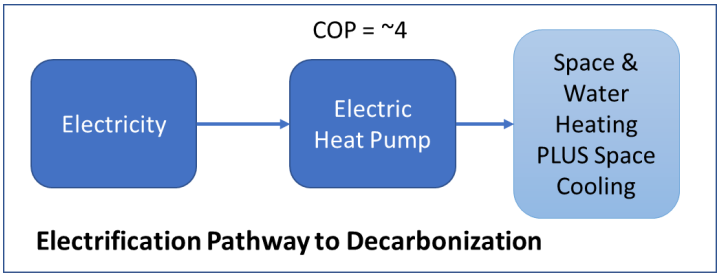
DecisionWare Group
Policy Analysis for
Energy, Economy and Environment

Comments to the REBuilding Task Force

Chairs Lieber and Marsh, and Members of the Task Force,

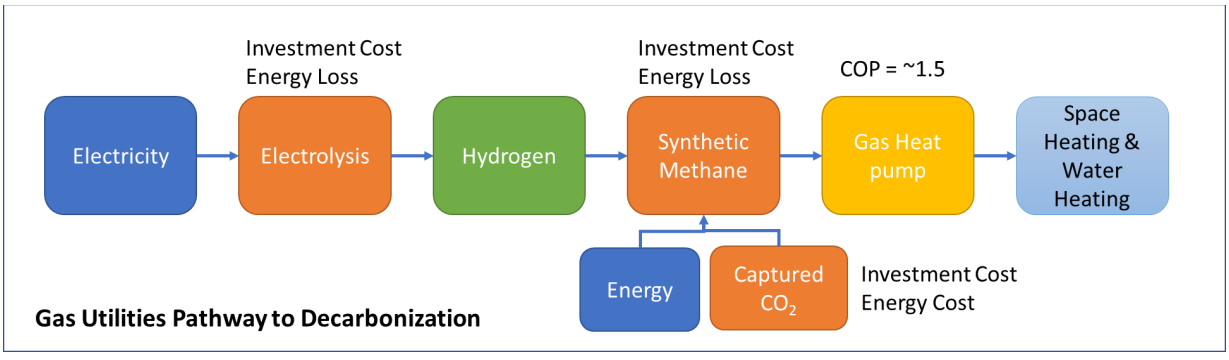
I am writing in response to comments made during the meeting that the gas utilities have plans to decarbonize their products, just like the electric utilities are now required to do, and therefore the gas utilities should be allowed to continue to grow their customer base. But these two options – using clean electricity or using clean gas to heat buildings – are not equal in either cost or risk!

Building electrification, as illustrated in this figure, is available and cost-competitive for most residential and commercial buildings. No investment in technology development is needed *and* high efficiency heat pumps provide not only space and water heating but space cooling as well - and at a coefficient of performance (COP) of about 4.0. This is why all the integrated energy systems analysis produce results saying that complete electrification of our building stock is a cornerstone of least-cost decarbonization pathways.



Electrification Pathway to Decarbonization

The gas decarbonization pathway, illustrated in the figure below, is unproven and requires that several new technologies be development *and* become cost-effective for low-temperature heat applications in building. There are significant investment costs and energy loss penalties associated with this gas decarbonization pathway. These costs and energy inputs occur at the electrolysis stage, the methanization stage, and at the CO_2 capture stage. Furthermore, this pathway uses a gas heat pump, which has a COP of only about 1.5. Therefore, it's extremely unlikely that decarbonized gas will be cost-competitive with electrification of our buildings.



Gas Utilities Pathway to Decarbonization

These facts need to become cornerstones of the Task Force's deliberations on policy. Electrifications of our buildings is not only the most cost-effective pathway, it's available now for rapid scale-up. On the other hand, the gas decarbonization pathway, while both technically plausible and likely needed, will be expensive and the products will likely be dedicated to hard to electrify application in long-distance transportation and high-temperature industries.

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The concerns raised regarding electric system reliability and the challenges of meeting seasonal peak demands are correct, but not near-term problems, and should not be used as reasons for not embarking on the most societally cost-effective pathway to decarbonize our buildings.

Sincerely,

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