

I found the modeling of the different scenarios fascinating. I have the following comments:

1. The loss of nuclear power generation emphasizes the urgency on switching to renewable energy. We should not build new nuclear plants for several reasons. First, they take a long time to build and are expensive to build. Secondly, they are expensive enough to operate that they can't compete with oil or natural gas power plants without large government subsidies (see http://www.ucsusa.org/sites/default/files/legacy/assets/documents/nuclear_power/nuclear_subsidies_summary.pdf.) Thirdly, nuclear power plants require high volumes of cooling water that is expelled as warmer water into lakes and oceans. Fourth, Nuclear waste disposal is a problem that has not been solved. Fifth, at the end of their lives, nuclear power plants are much more expensive to decommission than to build since the plant is filled with low-level radioactive material.

2. Natural gas use should not be expanded. Natural gas (methane) is a greenhouse gas that absorbs 86 times more heat than carbon dioxide over a 20 year period. The leakages and venting of natural gas that the gas industry permits (about 5% of gas production) means that gas power plants and gas heating produces more greenhouse gas (GHG) emissions than coal or oil. The rapid reduction in natural gas use will decrease GHG emissions.

3. Increasing wind power is important. Off-shore wind was not mentioned but has the potential to produce much of the renewable energy that will be needed. According the National Renewable Energy Laboratory, average wind speeds of 18 mph are available close to shore while on-shore average wind speeds are about 13 mph. Scenario 3 with off-shore wind should be promoted.

4. While the increase of EVs is important, the shift to electrified mass transit is also important. However, bikeways should also be created, roads that only allow bicycles.

5. Scenario 4 seems to indicate that if the penetration of renewable energy was not slowed after 2030, we could exceed an 80% reduction in GHG emissions. If that is possible, we should pursue it.

Sincerely,
Gary Bent