Preliminary Feasibility and Cost Analysis of the HB 153 Renewable Portfolio Standard

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Independent analysis
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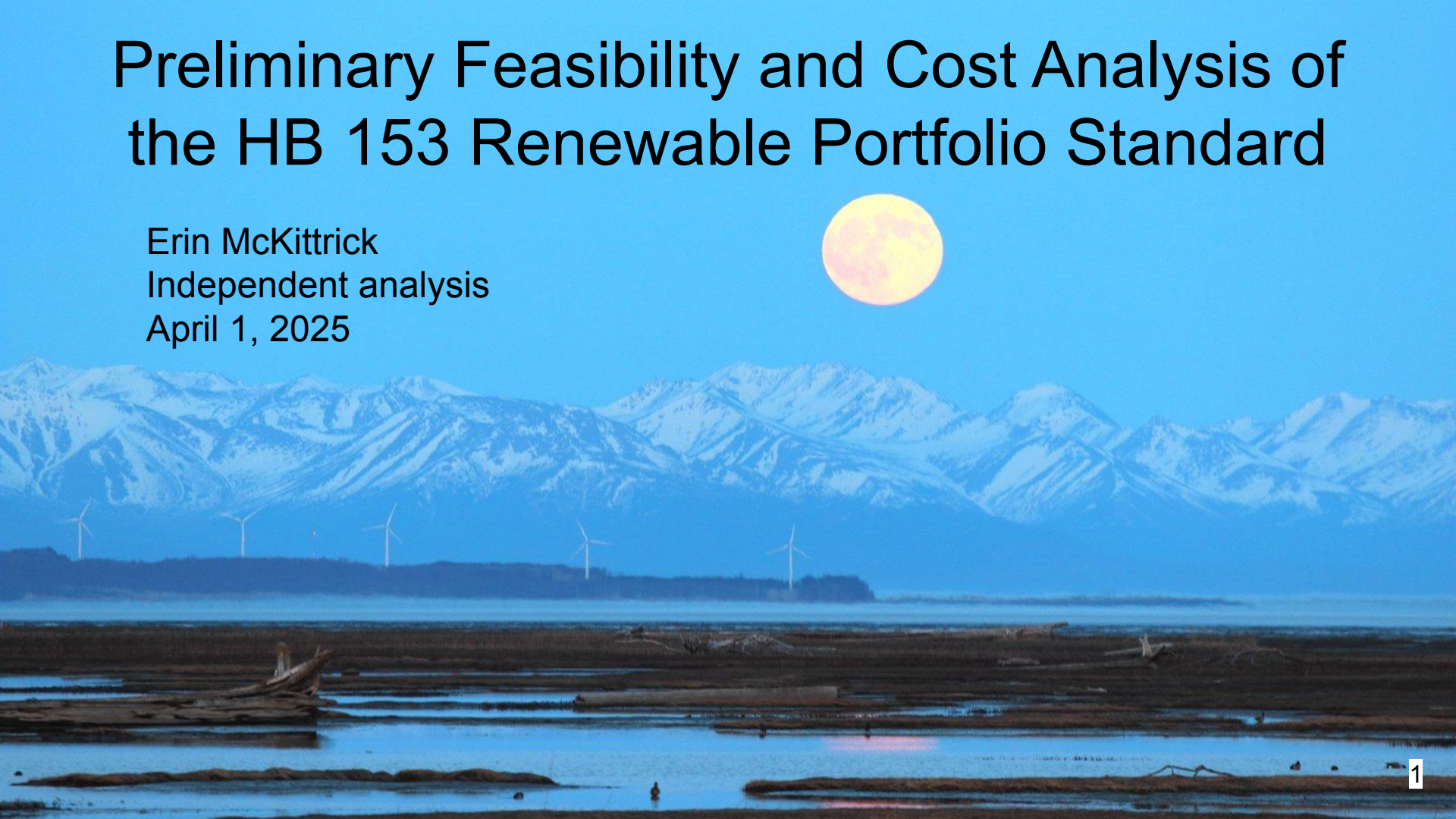
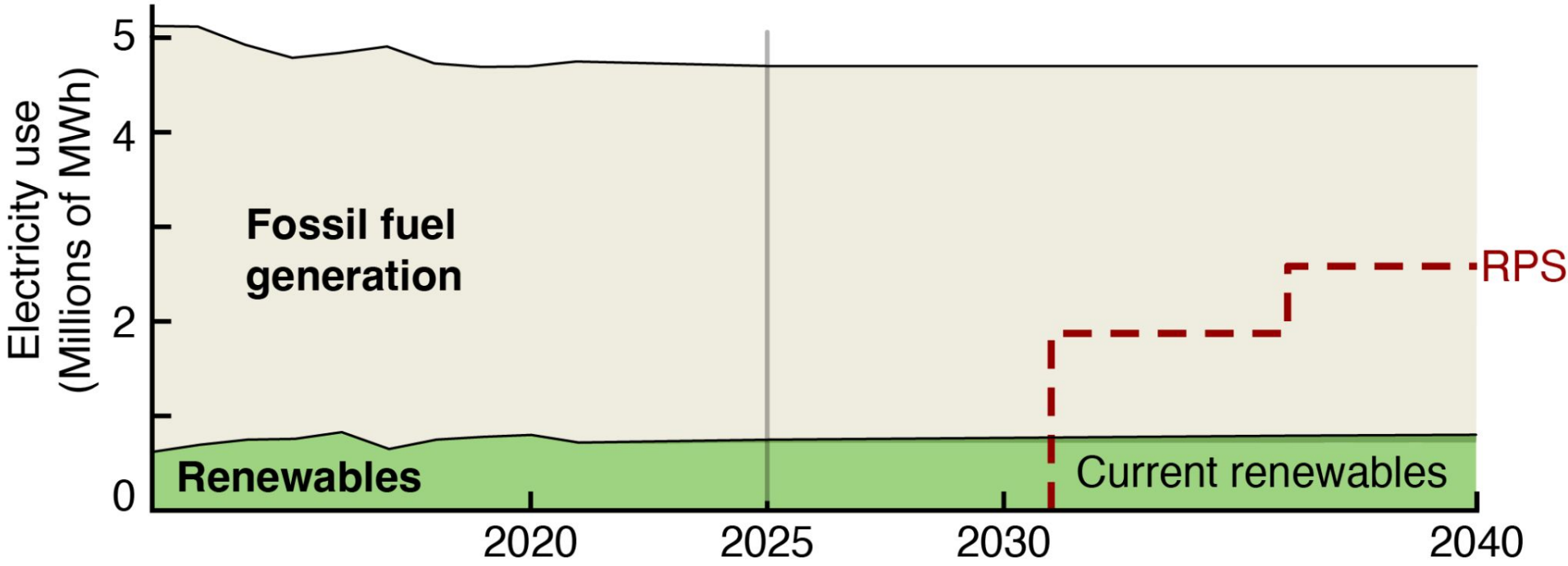


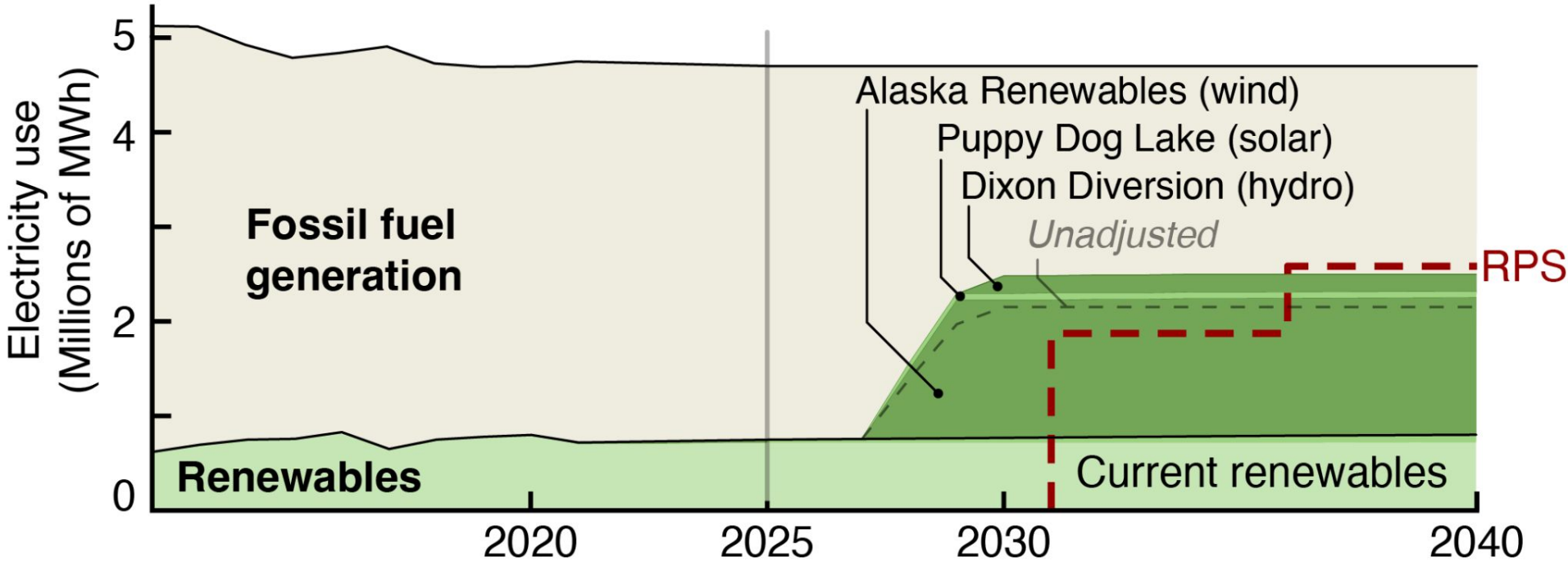
Primary questions

- Are the goals in HB 153 achievable?
- What are the potential savings or costs to customers?

RPS requires more renewables after 2030 and 2035



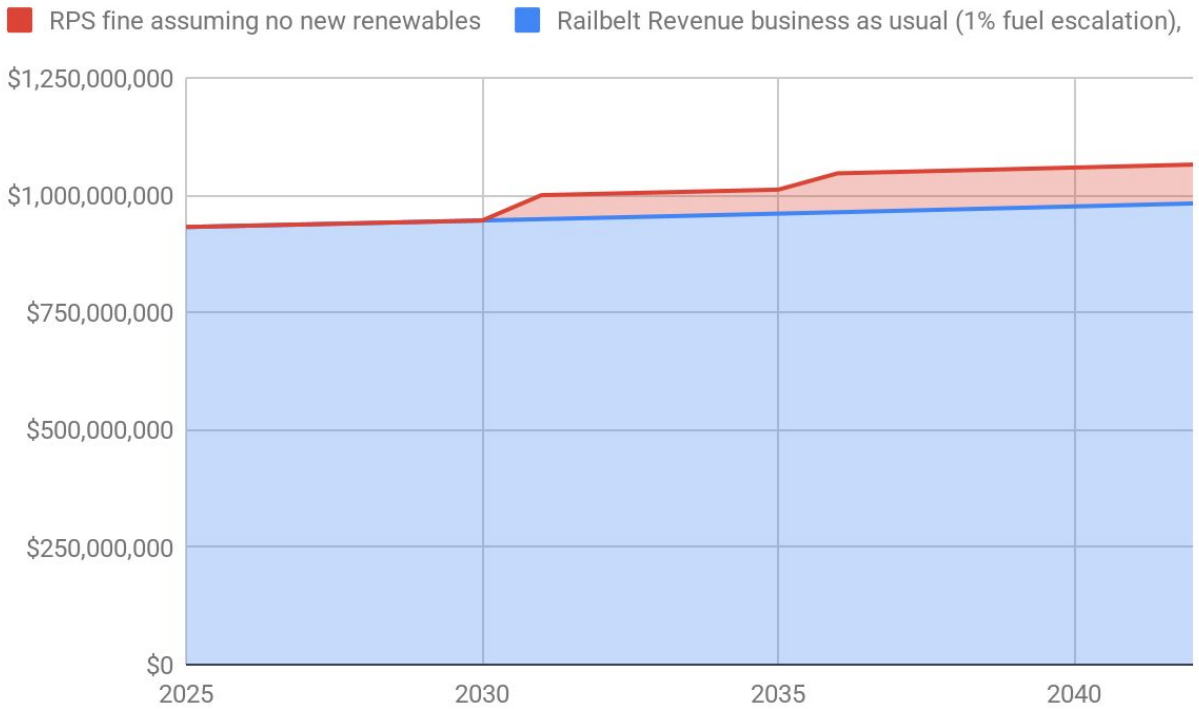
Projects in the pipeline could meet the first goal, and nearly the second



Projects included

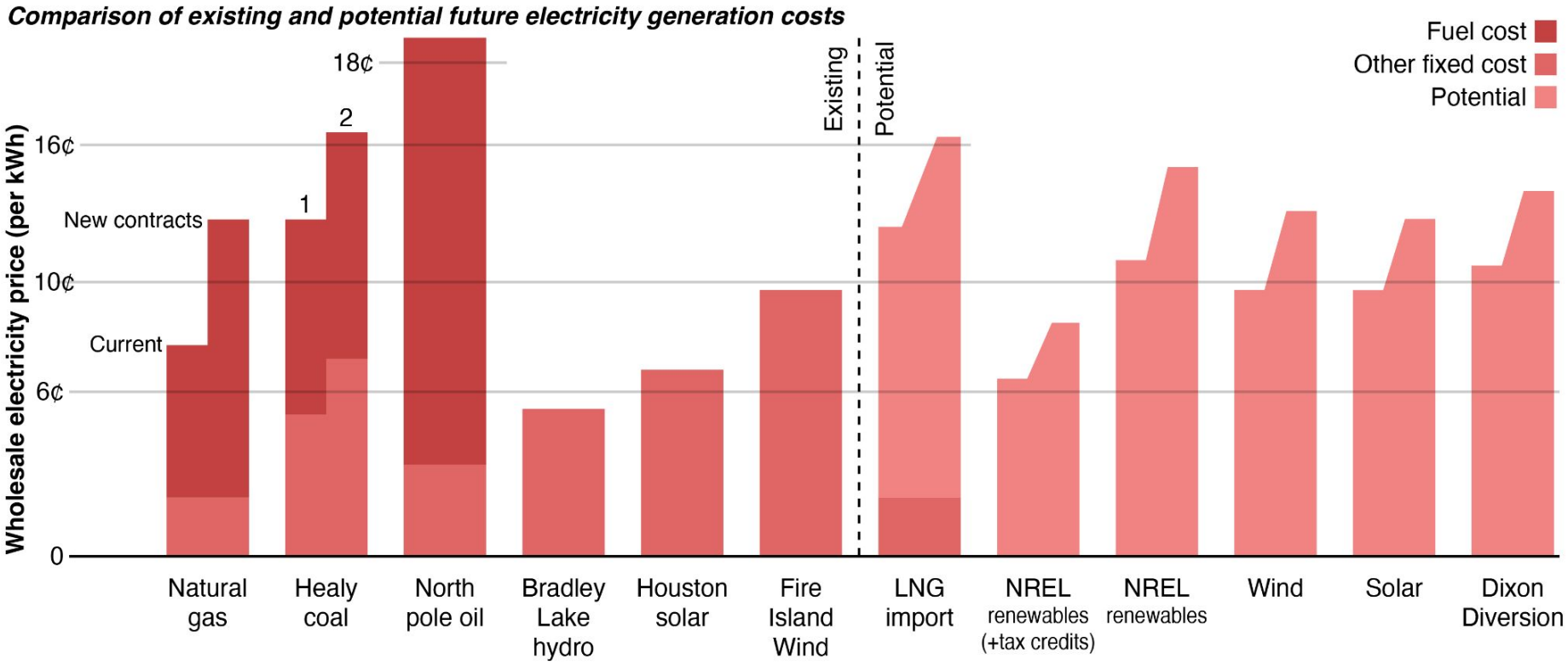
- 300MW wind at Little Mount Susitna and Shovel Creek
  - 1,165,000 MWh per year after curtailment
  - Available in 2028 and 2029
  - E3 study shows that this can be integrated on the existing system with economic dispatch, but ***without major new transmission***
  - Would qualify for 1.25x multiplier in HB153
- 45MW(input)/30MW(output) solar modeled on Puppy Dog Lake
  - Around 60,000 MWh/year
  - Available in 2028
- Dixon Diversion
  - 190,800 MWh per year
  - Available 2030
- Distributed solar
  - Additional 2.2MW installed per year, based on recent averages
  - Would qualify for 2x multiplier in HB153
- Wind would meet the 2030 target on its own
- All of these together would be only 2% short of the 2035 target
  - Only 80,000 MWh more would be needed

In the worst case, the Renewable Portfolio Standard could raise costs 5.5-8.5%



Fines set the worst-case scenario

- Maximum fines are a straw man scenario, which assumes
  - No renewable energy projects are developed
  - No contracts are signed for future projects
  - No utilities make good-faith efforts to comply with the standard
  - No waivers are issued for any reason
- Railbelt utilities collect over $930 million from their customers annually
  - Maximum fines would add $51 million annually for the first target
  - $83 million for the second
- Bill impacts would be 5.5% in 2031, or 8.5% in 2036
  - For the first target, this is equal to a 1.2 cent rate increase, or around $6 on an average residential bill
  - If the first target is met, potential fines from the second can be spent on renewable projects
- Those cost impacts don’t include any savings from fines paid towards customer efficiency or distributed generation


Comparison of existing and potential future electricity generation costs
Fuel cost
Other fixed cost
Potential
Wholesale electricity price (per kWh)
18¢
16¢
10¢
6¢
0
New contracts
Current
1
2
Existing
Potential
Natural gas
Healy coal
North pole oil
Bradley Lake hydro
Houston solar
Fire Island Wind
LNG import
NREL renewables (+tax credits)
NREL renewables
Wind
Solar
Dixon Diversion

Costs may range from similar to significantly cheaper

- Future gas generation costs are expected to be substantially higher than current costs.
  - New Cook Inlet gas contracts start at $12.30/Mcf
  - Imported gas cost projections range from $12-16/Mcf
- Other fossil generation costs are already quite high
- All current renewable energy is cheaper than future gas energy projections
- Future renewable energy projects with tax credits are probably substantially cheaper than imported gas energy.
- If tax credits end, the costs are more similar. There are likely small savings available, depending on project details and exact fuel prices.

- **Current plans will mostly satisfy the standard.**
- **Diversification may save money, and any potential fines would be modest.**

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