

**Energy - Docket Optical System**

**From:** Dave Cook [dave@energyconversions.com]  
**Sent:** Sunday, December 09, 2012 10:50 PM  
**To:** Energy - Docket Optical System  
**Cc:** Andrew Burnette; Smith, Charles@Energy  
**Subject:** docket number 12-ALT-02 ; 2013-2014 Investment Plan Update

**Categories:** Ready to Docket

I would like to submit a comment for the category of Market and Program Development category.

We would propose a valuable study that there isn't a sub category for. I would suggest a heavy duty off road 'Near Zero' technology feasibility and application study sub category.

We are proposing a 'Near Zero' CNG/hybrid commuter locomotive program for Metrolink and the other commuter agencies. This would likely be preceded by a CNG/Hybrid Switcher locomotive program at the ports, which would be preceded by test cell demonstrations of the hybrid systems and traction motors, and another test cell demonstration of the near zero natural gas locomotive engines.

It consists of a locomotive tender pair with extra traction motors in the tender car. The tender car is needed for the extra space needed to store the ultra capacitor banks.

The performance specifications for the Commuter locomotive are quite impressive

- Twice the acceleration rate due to the extra traction motors and very high power output of the ultra capacitors banks
- 35% energy and GHG reduction from recovery of the braking energy
- 65% reduction in fuel cost CNG vs Diesel
- Combined fuel operating savings of 78% (35% + 65%)
- Better service because the trains can stop more often with out a fuel penalty.
- As the unit is a rebuild of Metrolink existing locomotives and the addition of a simple to construct tender car with CNG tanks and ultra capacitor racks, this

The proposed study would be less about the technology, and more about the benefits to the commuter agencies. The study authors would have to look at the viability, maturity and scalability of our technology first. Then it would look into the issues of how the performance improvements could increase rail usage, drive up the utility of the commuter trains which drives up the revenues and allows more trains in a virtuous circle.

Also in this study could be a cost comparison, because these units would cost not much more than new Tier 4 diesel locomotives, we predict this upgrade would cost 1/6 the cost of electrifying the 512 route miles of Metrolink. It would be better to have the independent authors verify that cost.

Also worth looking into is how these natural gas fueled locomotives would fit into the railroads refueling operations as they refuel different parts of the fleet at different times and locations.

Please confirm that someone from the right dept at CEC recieved this. If you have any other questions, please call me.

Thank You

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