

Joseph A. Harrington, Ph.D.  
1155 Barkston Ln  
Aurora, IL 60502

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Subject: CNRR Purchase of EJ&E Railroad, Impact on Regional Transportation Fuel Usage

To: Members of Surface Transportation Board

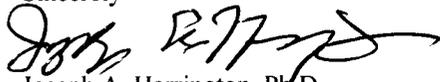
Dear STB Representative,

As a resident of Illinois who will be affected by any changes (increases) in rail traffic on rails currently owned and operated by the EJ & E Railroad, I submit the a statement on how the sale of the EJ&E RR to CNRR might impact local transportation fuel usage. We as citizens of the United States are all concerned about energy usage and in particular, energy waste. I submit that the sale of the EJ&E RR to CNRR will lead to significant increases in the amount of fuel wasted by residents and truckers in our region. A lot of issues have already been raised regarding negative effects on safety, effects on emergency response capability, noise, property values, lost time commuting, etc.

I submit that there also will be a large negative effect on energy utilization due to forced vehicle idling at grade level railroad crossings. I have attached a set of calculations in which I provide minimum estimates of fuel wasted at railroad crossings. The base calculation relates to fuel consumed while vehicles wait for a typical EJ&E freight train to pass at a two lane grade level crossing that I use daily. For this calculation I have chosen to use a 6 cylinder vehicle as the reference vehicle and have chosen to use a five minute gate down time (a bit on the low side) to determine how long vehicles must wait at idle (unless everyone shuts down their engines). I have chosen the number of waiting vehicles as 15 (also below reality). With such reference conditions I have calculated the amount of fuel consumed while idling at a railroad crossing to be 0.031 gallons per vehicle per minute. For a two-lane grade level crossing with 15 vehicles waiting for five minutes, the amount of fuel "wasted" is 4.7 gallons. If we now consider that this event will occur at each grade level crossing along the EJ&E RR (approximately 120 crossings), the total exceeds 560 gallons per train. With fuel costing more than \$3.75 per gallon, fuel cost per passing train exceeds \$2100.00. Multiply this "fuel cost" by the number of trains per day and you arrive at a fairly large number of gallons and dollars. Consider the fact that the above numbers represent the current situation with the EJ&E RR for which the numbers and lengths of trains are small. When one now considers that with the CNRR, there will be many more trains, each of which will be much longer, the cost becomes extremely high in terms of fuel consumed unnecessarily. I ask that you consider this along with concerns expressed by others in your decision regarding the sale of the EJ&E RR.

I should mention that I have a strong technical background with BSE, MSE and PH.D. degrees in Engineering and Physics and that I have some 30 years experience in industries relating to energy utilization and pollution control as it relates to combustion systems for transportation. I would welcome some serious technical discussions on the impact of the CNRR takeover of the EJ&E RR. I thank you for your attention.

Sincerely



Joseph A. Harrington, Ph.D.

## ESTIMATE OF FUEL WASTED AT GRADE LEVEL RAILROAD CROSSINGS

BELOW ARE CALCULATIONS WHICH SHOW HOW MUCH FUEL (gasoline, diesel, etc) THAT GETS WASTED WHEN TRAFFIC FLOW IS DISRUPTED BY PASSING TRAINS.

The values shown below represent a lower limit on the amount of fuel wasted.

The basic calculation gives the amount of fuel wasted per vehicle per minute when a vehicle is forced to wait for passing railroad traffic at a grade level crossing

### Vehicle information

|  |      |
|--|------|
| average engine (no cylinders)                      | 6    |
| average displacement (liters)                      | 3.5  |
| average idle speed (rev/minute)                    | 800  |
| total swept volume per minute at idle (liters/min) | 2800 |

### Air Flow through idling engine

|   |         |
|---|---------|
| volume flow (liters/min)                    | 2800    |
| air weight (grams/gram-mole)                | 28.900  |
| mass (grams per liter)                      | 1.295   |
| average manifold pressure (atmospheres)     | 0.330   |
| idle airflow (grams per minute per vehicle) | 1196.58 |

### Fuel Flow through idling engine

|   |         |
|---|---------|
| average fuel to air ratio (grams fuel per gram air) | 0.071   |
| fuel flow (grams per minute)                        | 85.470  |
| fuel weight (lb/gal)                                | 6.000   |
| fuel weight (grams/gal)                             | 2727.27 |

|   |       |
|---|-------|
| Net Idle Fuel Flow (gallons/minute/vehicle) | 0.031 |
|---|-------|

## SAMPLE CALCULATION OF FUEL WASTED

Current situation with EJ&E railroad at 2 lane grade level crossing

|  |     |
|--|-----|
| number of vehicles waiting each side of crossing | 15  |
| average wait time (gate down to gate up)         | 5   |
| number of lanes                                  | 2   |
| total vehicle minutes                            | 150 |

Gallons of fuel wasted per two  
lane grade level crossing per  
train with 5 minute gate down  
time 4.70

Gallons of Fuel wasted for 120  
two lane grade level crossings of  
one train making circuit 564.10

AMOUNT OF FUEL WASTED WILL INCREASE AS NUMBER AND LENGTH  
OF TRAINS IS INCREASED

WAIT TIME AND AMOUNT OF FUEL WASTED AT EACH GRADE LEVEL  
CROSSING WILL INCREASE WITH TRAIN LENGTH. HERE BOTH THE  
TIME AND NUMBER OF WAITING VEHICLES WILL INCREASE

WAIT TIME AND AMOUNT OF FUEL WASTED WILL ALSO INCREASE IN  
PROPORTION TO THE INCREASE IN FREQUENCY OF TRAINS

Prepared by  
Joseph A. Harrington, Ph.D  
email: [joe.harrington@sbcglobal.net](mailto:joe.harrington@sbcglobal.net)  
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