Q. (page viii, report entitled Upgrade Transmission Line Corridor - Bay 'Espoir to Western Avalon) It is stated "the construction of parallel lines reduces the overall transmission corridor impedance and thereby "stiffens" the transmission network so that it is less susceptible to instability. As well, it increases the real power transfer limits and reduces losses". What is the system loss reduction in each of the first 10 years following commissioning of the upgrade of the Bay d-Espoir to Western Avalon transmission line corridor and what is the estimated value of the loss reduction savings in each of these years?

A. Referencing the *2012 PLF Infeed Forecast (2012-2068)* provided by the Marketing Analysis Division of Hydro's System Operations and Planning Division, Table 1 details the forecasted Hydro supplied generation from 2017-2027 and the associated reduction in losses for each year over peak with the third circuit in service.

Table 1: 2017-2027 Transmission System Loss Reduction

Year	Forecasted NLH Supplied Generation (MW)	System Load With TL267 In Service (MW)	System Load With TL267 Out of Service (MW)	System Loss Reduction with TL267 In Service (MW)
2017	1587	1587.2	1589.0	1.8
2018	1589	1589.3	1591.2	1.9
2019	1592	1592.1	1594.1	2.0
2020	1598	1598.0	1600.0	2.0
2021	1613	1613.1	1615.5	2.4
2022	1634	1633.9	1636.5	2.6
2023	1657	1656.9	1659.9	3.0

Year	Forecasted NLH Supplied Generation (MW)	System Load With TL267 In Service (MW)	System Load With TL267 Out of Service (MW)	System Loss Reduction with TL267 In Service (MW)
2024	1675	1675.0	1678.3	3.3
2025	1695	1694.8	1698.6	3.8
2026	1714	1714.0	1718.2	4.2
2027	1728	1728.3	1732.8	4.5

Table 2 provides a representative estimate of the annual savings attributed to the reduction transmission system losses resulting from the addition of the new 230 kV transmission line between Bay d'Espoir and Western Avalon (TL267).

Table 2: 2017 – 2027 Valuation of Transmission System Loss Reduction

Year	System Loss Reduction[1] MW	Annual Energy Reduction[2] MWh	Marginal Energy Rate[3] $/MWh	Value of Energy Attributed to Loss Reduction $
2017	1.8	6244	49	305,471
2018	1.9	6591	54	355,377
2019	2.0	6938	59	412,360
2020	2.0	6983	66	454,637
2021	2.4	8326	69	571,793
2022	2.6	9019	72	649,248
2023	3.0	10407	75	785,210
2024	3.3	11448	79	905,363
2025	3.8	13182	83	1,092,833
2026	4.2	14570	86	1,249,772
2027	4.5	15610	89	1,385,550

Notes:

1. System loss reduction is the difference in peak load transmission losses without and with TL267 in service.
2. The annual energy is calculated based upon a system load factor of 60% and a resultant loss factor of approximately 40%.
3. The Marginal Energy Rate: (To be updated in the near future to reflect current conditions)

    a. Modelled as Per NERA (2006).
    b. Post 2017 is regional market values calculated from PIRA NYISO Zone A.
    c. Prices beyond 2017 reflect opportunity cost as per NERA approach.
    d. Excludes transmission marginal costs.
    e. Marginal cost projection is at customer meter.
    f. Marginal energy and capacity cost by period post 2016 calculated using NERA Market Period Price Scalars.
    g. Neither Hydro nor Nalcor necessarily endorses NERA 2006 based time differentiation.
    h. Investment Evaluation and System Planning, Nalcor Energy January 18, 2013.