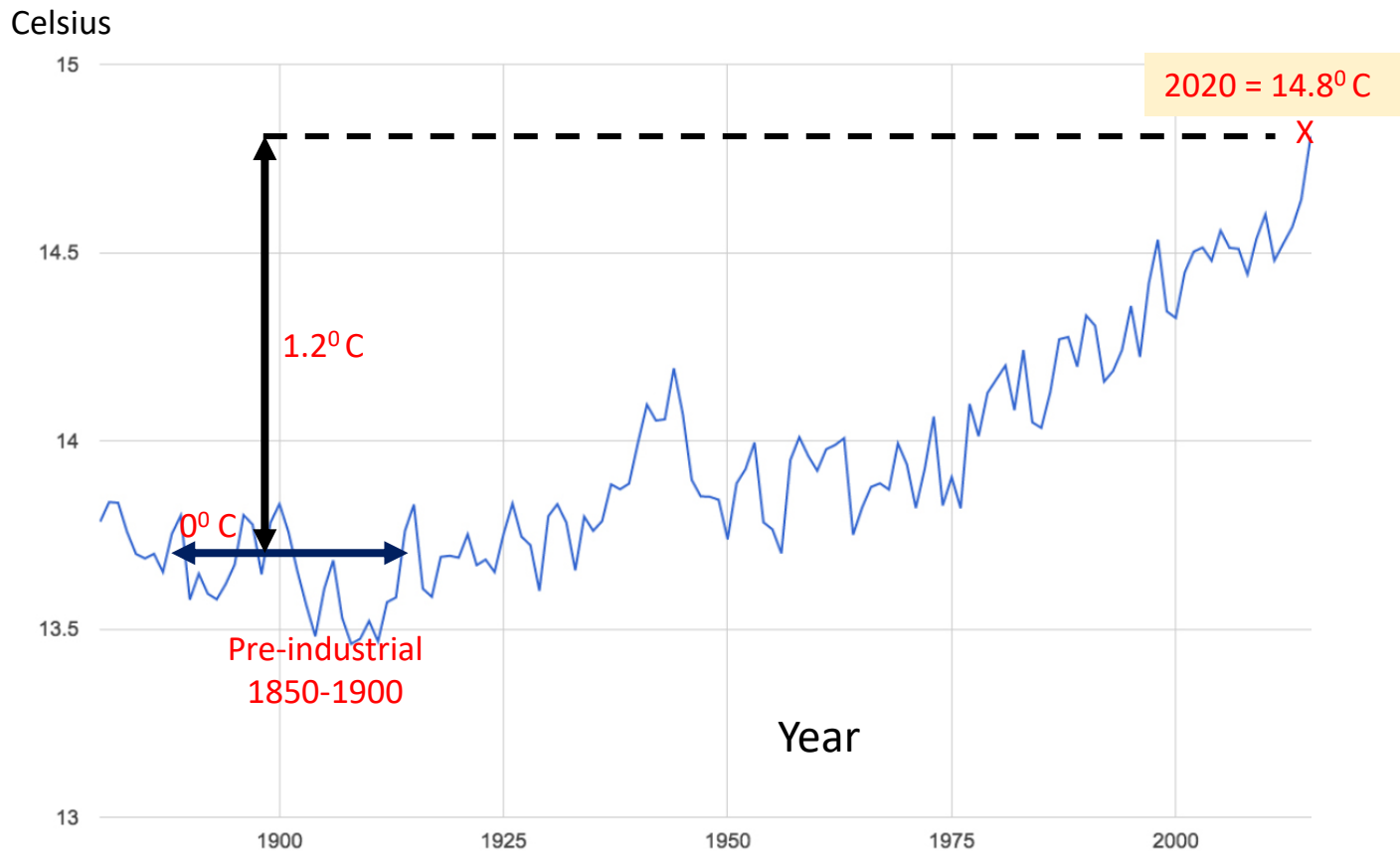
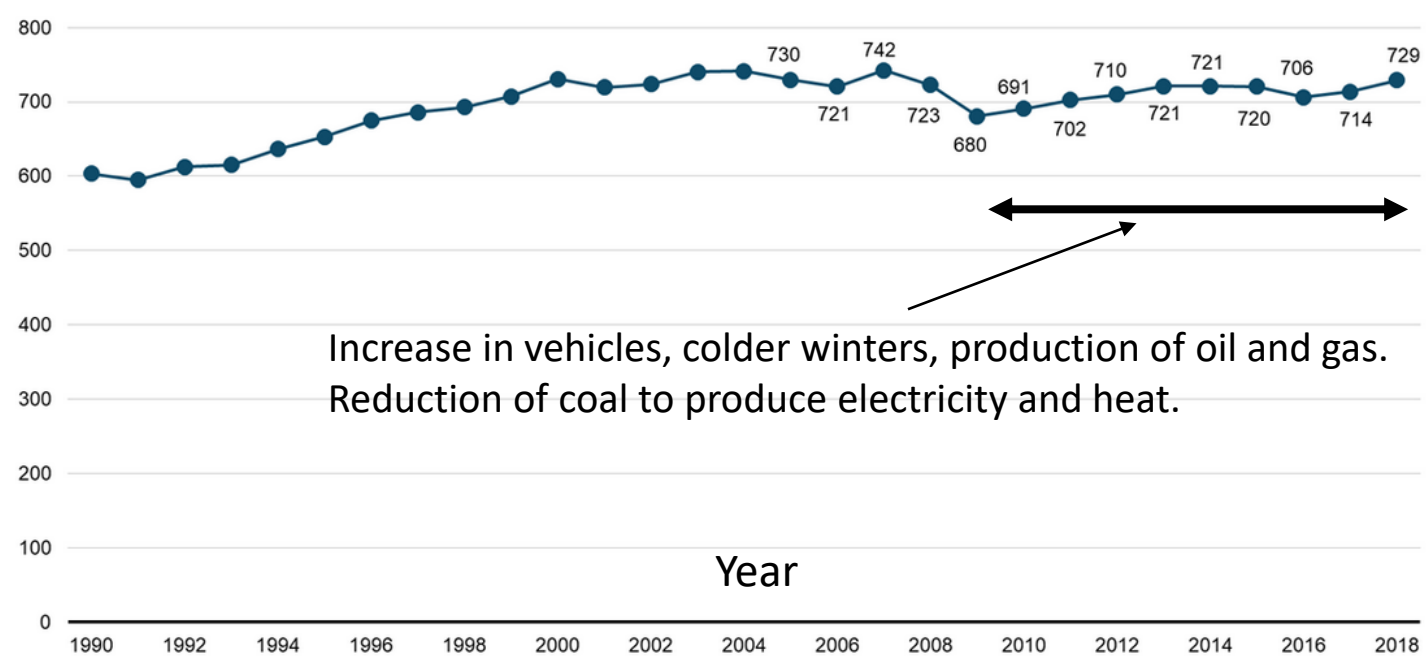


# 1. What is happening to global temperatures?

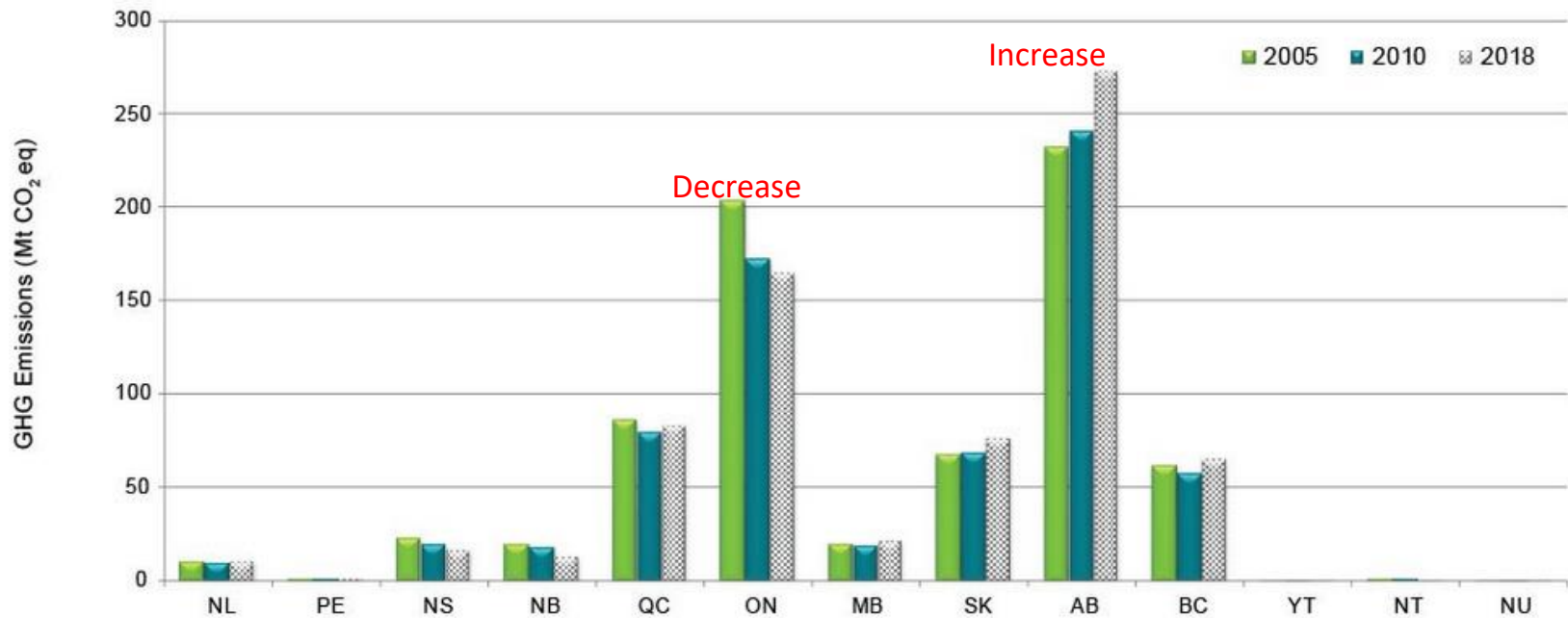


## 2. Annual Canadian Green House Gas emissions, 1990-2018

CO<sub>2</sub> equivalent, million tones

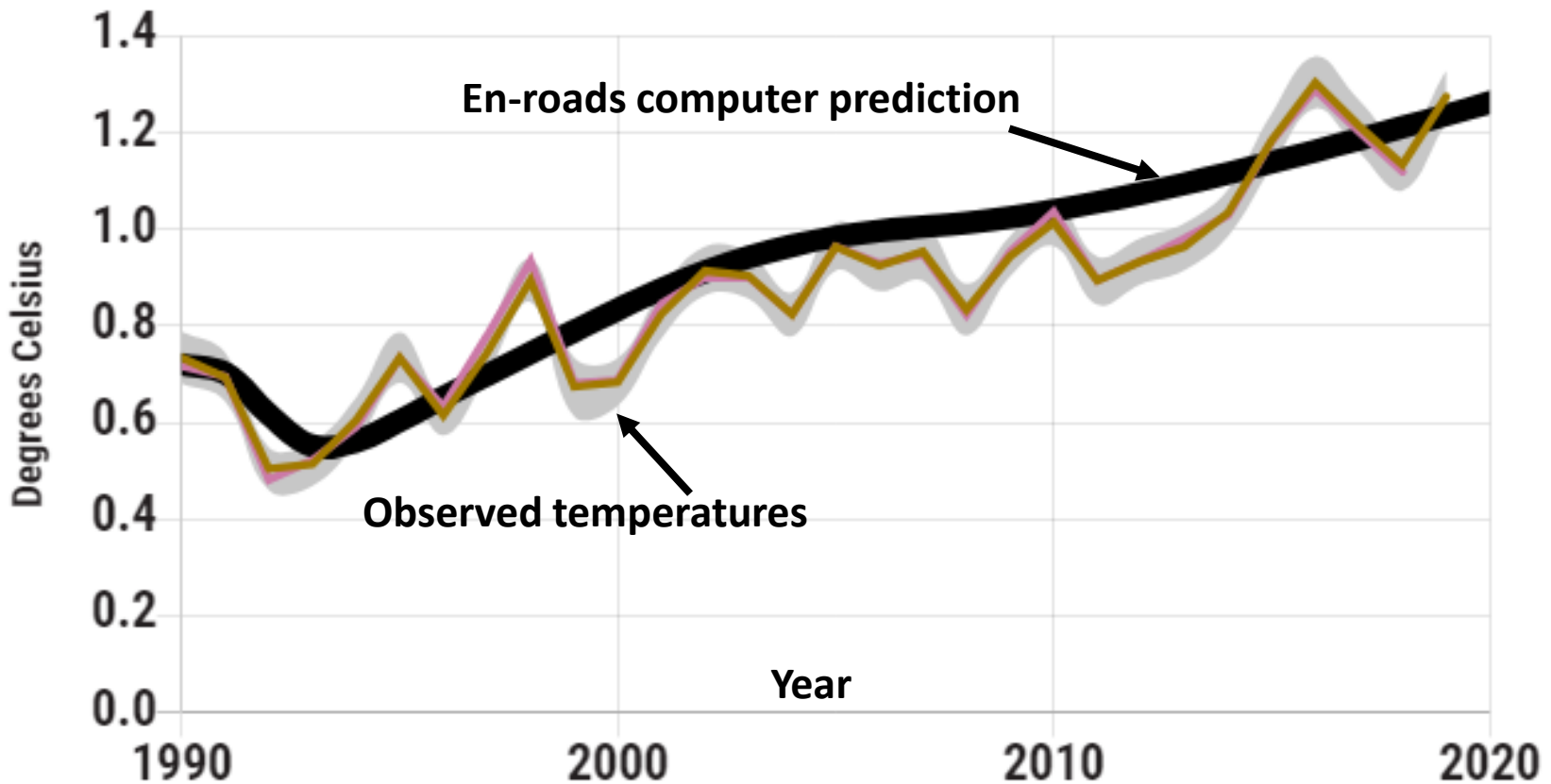


### 3. Emission trends by Province and Territory, 2005, 2010 and 2018



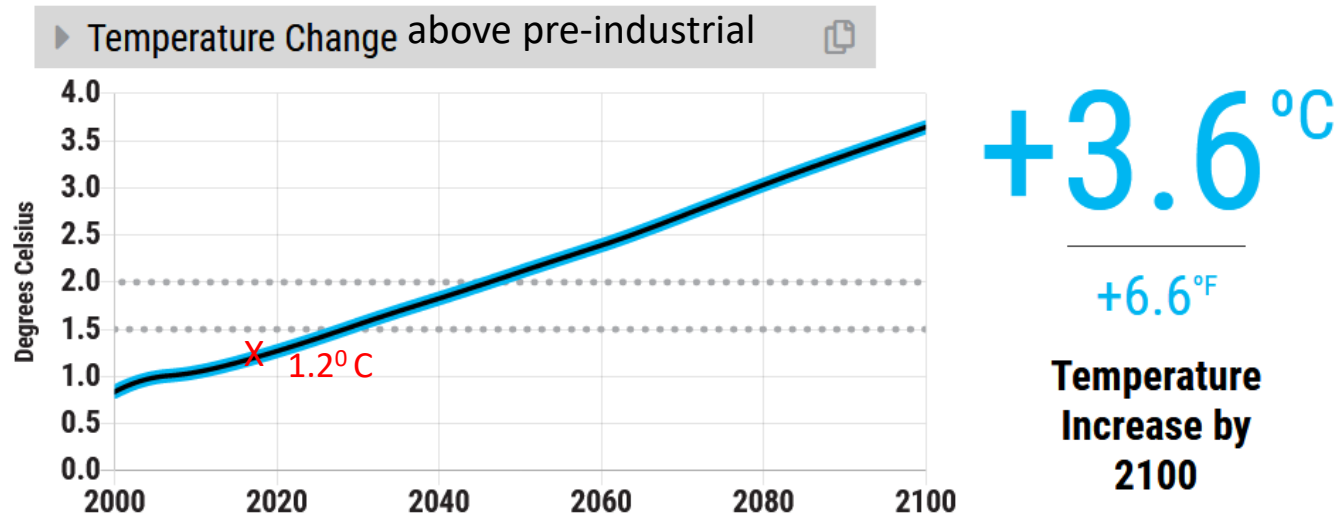
# 4. Compare En-roads climate model predictions and temperature observations

## ► Temperature History



# 5. Base line conditions- Global temperatures

En-Roads model prediction, assuming no new climate controls.



*According to a new U.N. report, the global warming outlook based on recent model predictions is much worse than originally predicted. Which is pretty bad when they originally predicted it could destroy the planet.*

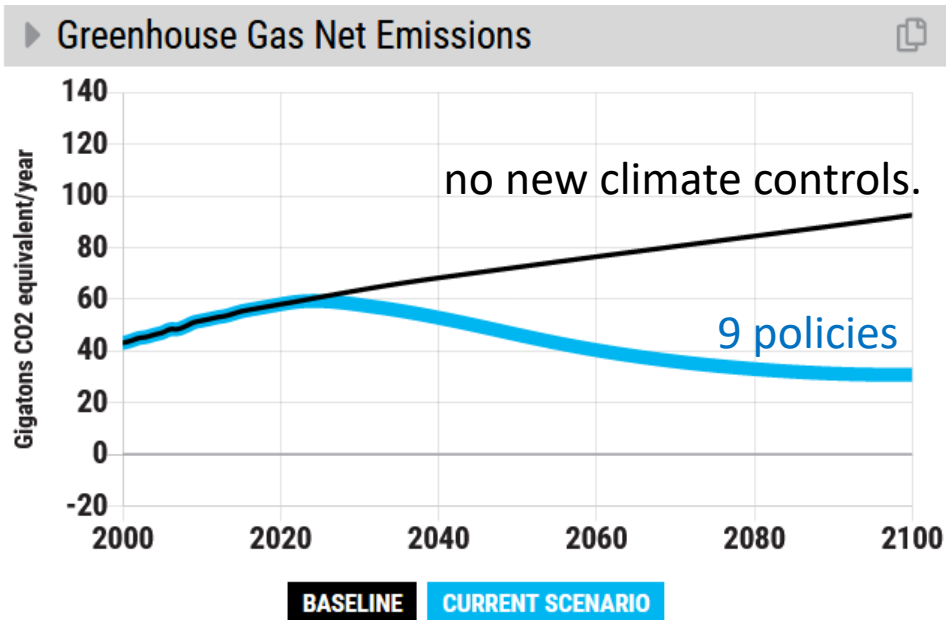
## 6. Test nine policies to meet Paris agreement with En-Roads model.

1. Coal tax = \$50/t. Discourage mining and burning coal
2. Oil tax = \$50/b. Discourage drilling, refining, and consuming oil
3. Increase energy efficiency 5% per year, use of bikes, mass transit
4. Increase electrification 5 % per year using electric cars, trucks
5. Increase building/industry efficiency in energy use for appliances, 5%/year
6. Increase building/industry electrification using low carbon energy, 5% per year
7. World population, a modest increase to 9.1 billion by 2100, smaller families
8. World GDP growth, assume modest 2% per year
9. Increase technological carbon removals, like carbon capture, 25% per year

# 7. Model prediction based on nine Policies

Greenhouse gas net emissions and 2100 year temperature

En-Roads simulator predictions, assuming policies adopted globally.



+2.6°C

+4.7°F

Temperature  
Increase by  
2100

## 8. Revised policies adding carbon tax, control of methane, nitrous oxide and f-gas


Target = +2.0<sup>0</sup> C by year 2100

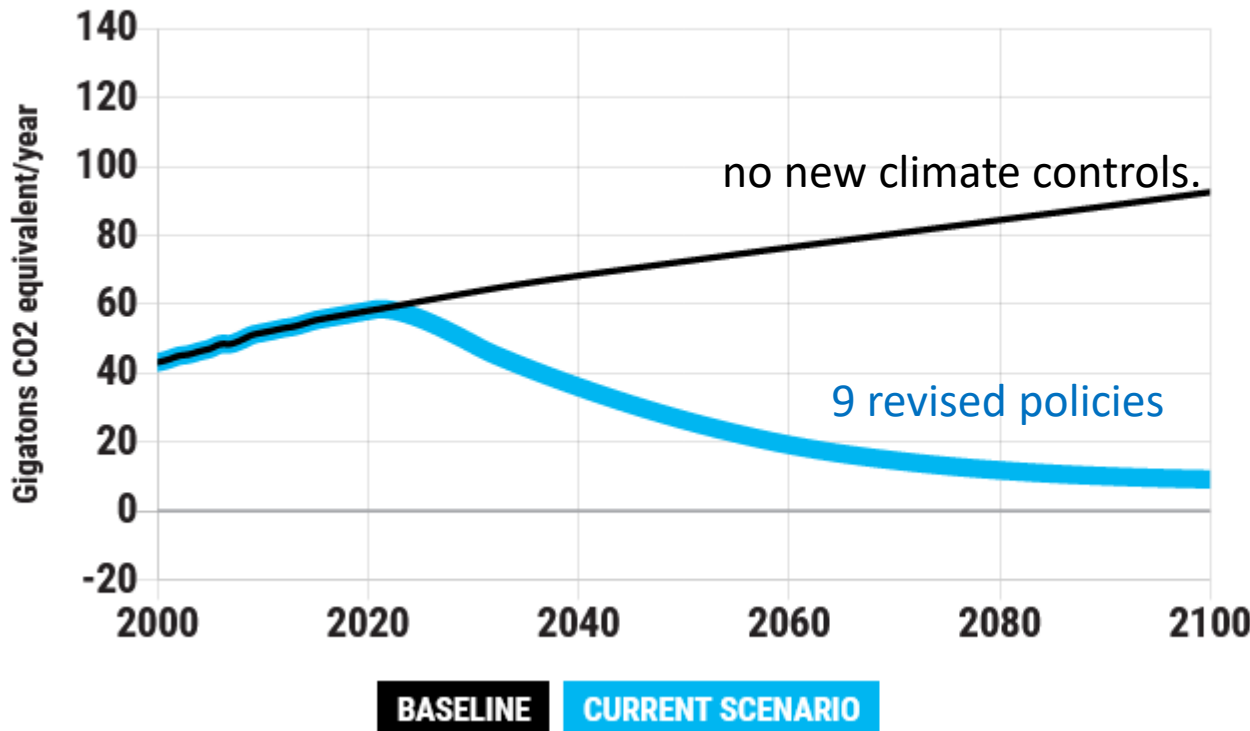
1. Transport energy efficiency increase 5% per year
2. Transport electrification increase 5 % per year
3. Building and industry energy efficiency increase 5% per year
4. Building and industry electrification increase 5% per year
5. World Population 9.1 billion
6. World GDP growth 2% per year
7. Technological carbon removal innovation 25% increase per year
8. *Carbon tax \$150/t CO<sub>2</sub>*
9. *Reduce methane, nitrous oxide, and the f-gas emissions 50%*



# 9. Revised policies adding carbon tax, control of methane, nitrous oxide, and f-gas

Greenhouse gas net emissions and 2100 year temperature  
En-Roads simulator predictions, assuming policies adopted globally.

▶ Greenhouse Gas Net Emissions 



+2.0°C

+3.5°F

**Temperature Increase by 2100**