Conservation Council *of* New Brunswick
Conseil de conservation *du* Nouveau-Brunswick
www.conservationcouncil.ca

UPDATING NEW BRUNSWICK'S CLIMATE ACTION PLAN: A STRATEGIC OPPORTUNITY

DR. LOUISE COMEAU

DIRECTOR OF CLIMATE CHANGE AND ENERGY SOLUTIONS

CONSERVATION COUNCIL OF NEW BRUNSWICK

JANUARY 18, 2022

OVERVIEW

- KEY MESSAGES:
  - NB: MAKING PROGRESS
  - PACE: CLIMATE ACTION QUICKENING
  - FEDERAL DRIVERS: STRENGTHENING; GLOBAL PRESSURE IS INTENSIFYING
  - STRATEGIC OPPORTUNITY:
    1. ACCOUNTABILITY AND GOVERNANCE
    2. REDUCE HAZARDS AND INCREASE PREPAREDNESS
    3. CREATE ELECTRIFICATION STRATEGY
  - LISTEN: TO AND ENGAGE CITIZENS
- SUMMARY
- DISCUSSION

NB IS MAKING PROGRESS

SELECT COMMITTEE ON CLIMATE CHANGE; *NEW BRUNSWICKERS' RESPONSE TO CLIMATE CHANGE*

- EXCELLENT REPORT, COMPREHENSIVE; 85 RECOMMENDATIONS BASED ON EXPERT AND PUBLIC INPUT
- MANY RECOMMENDATIONS INCORPORATED INTO GOVERNMENT PLAN, INCLUDING A *CLIMATE CHANGE ACT*, CLIMATE FUND
- RECOMMENDATIONS SOFTENED OR IGNORED NEED REVISITING NOW, ESPECIALLY RELATING TO ELECTRICITY

TRANSITIONING TO A LOW-CARBON ECONOMY

- 118 COMMITMENTS: A COMPREHENSIVE, FOUNDATIONAL PLAN
- **PROGRESS BUT IMPLEMENTATION TOO INFLUENCED BY HAVING MET FEDERAL GREENHOUSE GAS REDUCTIONS TARGET. THIS HAS WEAKENED MOTIVATION FOR AGGRESSIVE IMPLEMENTATION AND PROACTIVE, STRATEGIC LONGER-TERM PLANNING; PER CAPITA EMISSIONS ARE HIGH**

Pace of climate action is quickening

BECAUSE THERE IS A GROWING UNDERSTANDING OF THE GLOBAL CARBON BUDGET

GLOBAL CARBON BUDGET SHRINKING; EVERY TONNE MATTERS, INCLUDING NEW BRUNSWICK'S

UNEP EMISSIONS GAP REPORT 2021

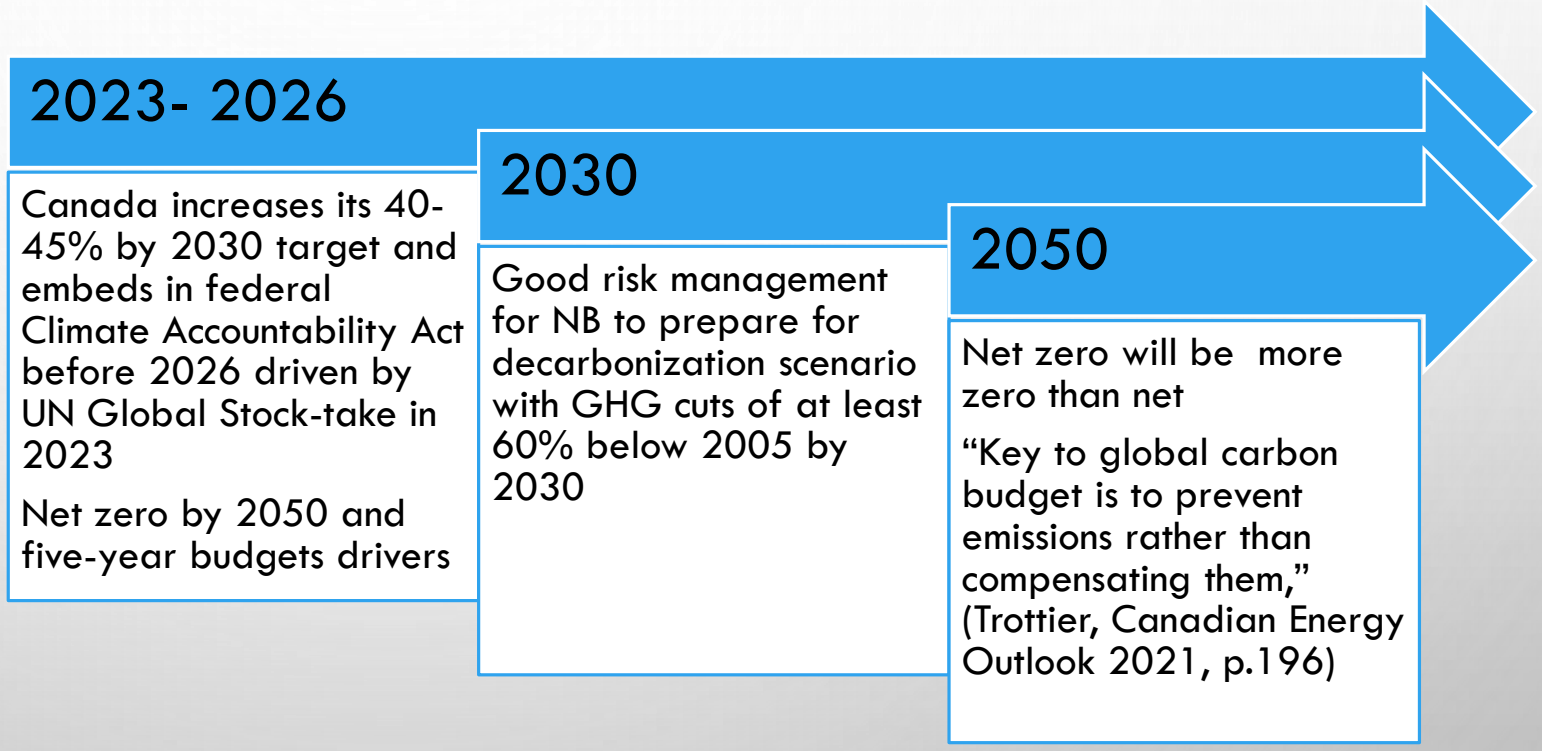
DEEPER, FASTER CUTS ARE INEVITABLE

- GOVERNMENT COMMITMENTS (CALLED NATIONALLY DETERMINED CONTRIBUTIONS, NDCS)…ONLY …**TAKE 7.5% OFF PREDICTED 2030 GREENHOUSE GAS EMISSIONS**, COMPARED TO THE 2015 PARIS AGREEMENT COMMITMENTS.
- NEED **55 PER CENT GLOBAL REDUCTIONS IN GREENHOUSE GAS EMISSIONS TO AVOID 1.5°C** GLOBAL AVERAGE WARMING

PACE OF CLIMATE ACTION IS QUICKENING

PREPARE FOR BUSINESS UNUSUAL

CANADA'S CURRENT TARGET OF 40% TO 45% WILL LIKELY STRENGTHEN BETWEEN 2023 AND 2026: GET READY FOR 60% OR MORE BY 2030-2035; NET ZERO BY 2050, WITH EMISSIONS BEING NEAR-ZERO



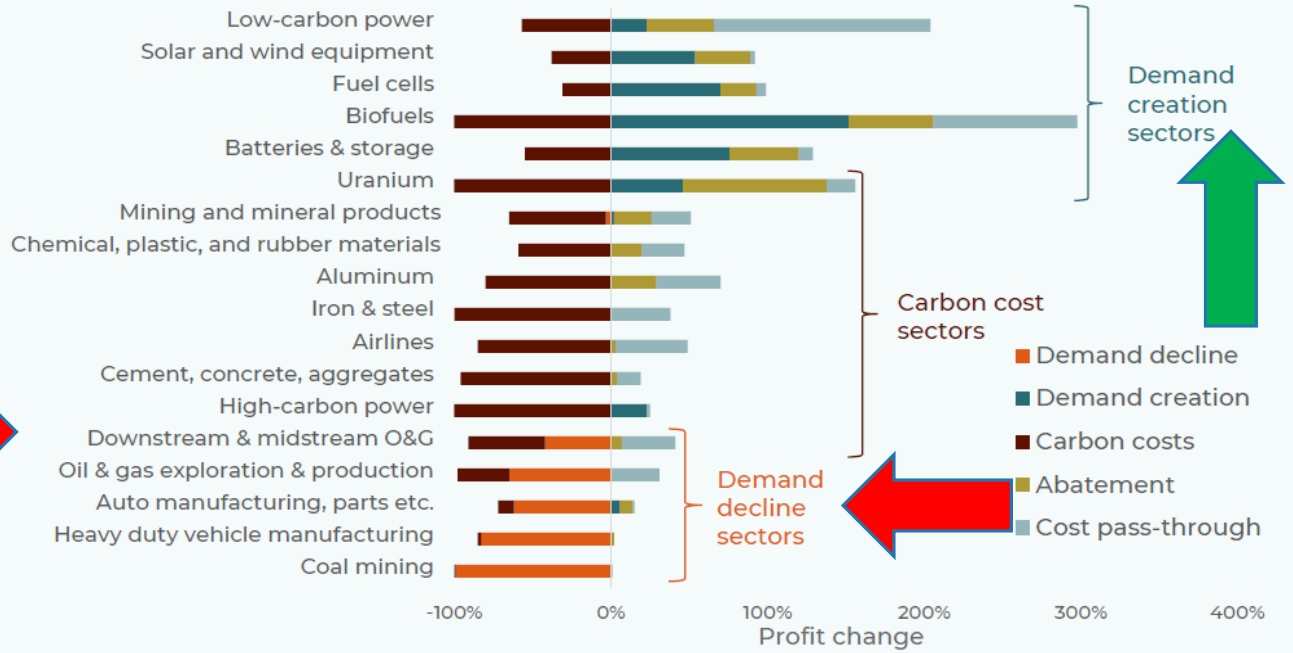
CANADIAN INSTITUTE FOR CLIMATE CHOICES (CCIC) *SINK OR SWIM* REPORT: RISK AND OPPORTUNITY

"…ACCOUNT FOR THE FUTURE COMPETITIVE BENEFITS OF NEAR-TERM CLIMATE ACTION, INCLUDING IMPROVED TRANSITION READINESS AND INCREASED DEMAND FOR CLEAN ENERGY AND TECHNOLOGIES," (P. 87).

SOME SECTORS FACE HIGH CARBON COSTS; OTHERS DECLINING DEMAND; OTHERS GROW

Figure 9

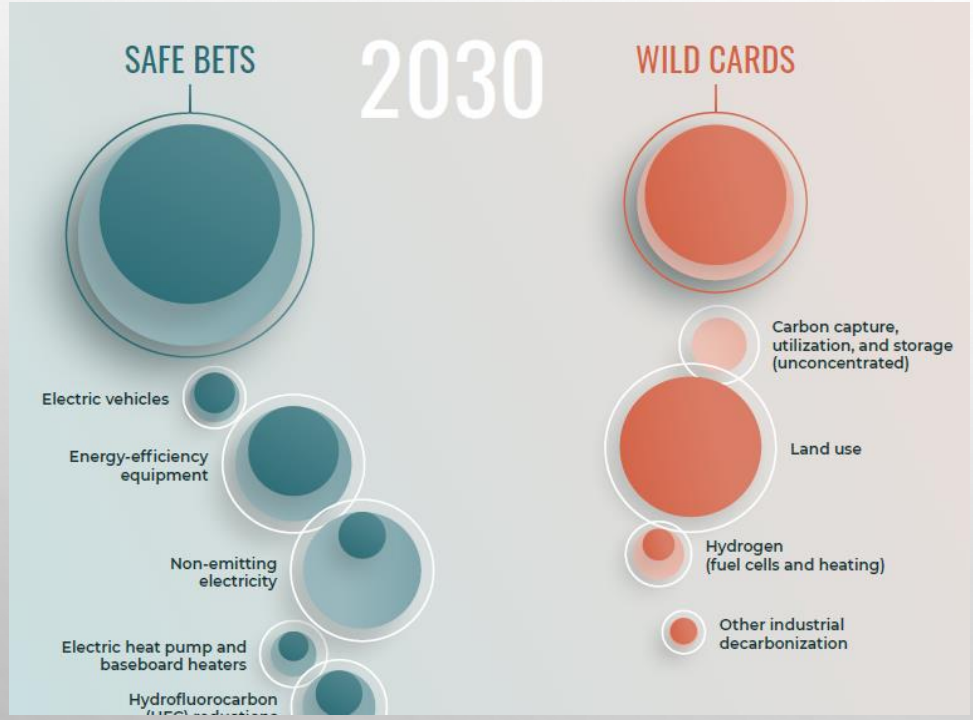
Each sector faces different drivers of profit change. For some sectors, changes in market demand are more important than emissions



Source: Canadian Institute for Climate Choices (2021c), based on modelling and analysis commissioned from Planetrics. Notes: This figure breaks down the three major impact drivers and two company-level responses that determine the future profitability of companies under different low-carbon scenarios. It shows all equities operating in the Canadian market under the 1.5 degree scenario in 2050. Demand decline is the most significant factor for coal mining, heavy duty vehicle manufacturing, oil and gas, and automobiles. Carbon costs are a more important factor for biofuels, mining, chemicals, aluminum, airlines, and heavy building materials. Many of the biofuel companies included in the analysis are biofuel refiners. Biofuel refining is currently an emissions-intensive process, which results in high carbon costs. However, costs are offset by increased demand for biofuels, abatement of emissions, and cost pass-through to consumers.

NEAR TERM: DEEPER REDUCTIONS BY 2030

CANADIAN INSTITUTE FOR CLIMATE CHOICES (CCIC) 2021



REDUCTIONS IN 2030 WOULD LIKELY COME FROM SAFE BET SOLUTIONS (P. 79)

SAFE BETS INCLUDE:

IMPROVING ENERGY EFFICIENCY; SHIFTING TO NON EMITTING ELECTRICITY; ADOPTING HEAT PUMPS AND ELECTRIC VEHICLES; …REDUCING THE USE OF HFCS [HYDROFLUOROCARBONS]; AND ADOPTING CARBON CAPTURE UTILIZATION AND STORAGE (CCUS) FOR CONCENTRATED GAS STREAMS

WILD CARDS INCLUDE: SMALL MODULAR NUCLEAR REACTORS AND CARBON CAPTURE

Federal drivers are strengthening

THE PAST IS NOT THE FUTURE

FEDERAL DRIVERS STRENGTHENING

- EXPECT TO COMPLY WITH STRONGER FEDERAL REGULATIONS
- FOR EXAMPLE:
  - FEDERAL DECISION ON BELLEDUNE EQUIVALENCY AGREEMENT; COAL PHASE-OUT BY 2030
  - 2022 FEDERAL REVIEW OF PROVINCIAL CARBON-PRICING INITIATIVES (CONSUMERS AND INDUSTRY RISING TO $15/YEAR TO $170T IN 2030). FEDERAL BACKSTOP COULD APPLY IF NB DOES NOT INCREASE STRINGENCY OF ITS OWN SYSTEM
  - CLEAN FUEL STANDARD DECEMBER 2022
- **REGULATIONS APPLY REGARDLESS OF WHERE NB IS ON GREENHOUSE GAS TARGET**

1. STRATEGIC OPPORTUNITY

ACCOUNTABILITY AND GOVERNANCE

PROVINCIAL POLICY, LEGISLATION/REGULATION AND MANAGEMENT

ACCOUNTABILITY AND GOVERNANCE

- ACCOUNTABILITY: STRONGER TARGETS:
  - PLAN FOR 60% GREENHOUSE GAS TARGET BY 2030 DECLINING EVERY FIVE YEARS TO NEAR ZERO BY 2050
  - DEFINE "NET ZERO" AS 90% REDUCTIONS/10% OFFSETS

- GOVERNANCE:
  - SET PERFORMANCE METRICS (GHG PER COMMITMENT, COST/TONNE, ANNUAL WORK PLAN PERFORMANCE METRICS TO REPORT IN PROGRESS REPORTS)
  - APPLY A CLIMATE LENS (CONSIDERING IMPACTS AND EMISSIONS) TO MORE GOVERNMENT SPENDING AND PROCUREMENT)
  - QUICKLY RELEASE STATEMENT OF PUBLIC INTEREST ON CLIMATE CHANGE

Accountability and governance

- CLIMATE FUND:
  - DIRECT NEW REVENUE FROM GROWING CARBON PRICE TO:
    - EXPAND INVESTMENT IN MITIGATION AND ADAPTION PROGRAMS TO SECURE DEEP RETROFITS, TRANSFORMATION OF PUBLIC TRANSIT/TRANSPORTATION
    - CREATE AN APPLICATION STREAM

Accountability and governance

- BE MORE TRANSPARENT IN PLANNING, ANALYSIS AND DECISIONS
- MAKE PUBLIC:
  - CLIMATE ACTION PLAN STUDIES:
    - FOR EXAMPLE: CARBON-NEUTRAL GOVERNMENT, OFFSETS POTENTIAL, FORESTS AND SOIL SINKS, WATERSHED/LAND USE/PEAK WATER FLOW, HEALTH EFFECTS OF EXTREME WEATHER
    - FUTURE STUDIES DONE BY CONSULTANTS FOR GOVERNMENT, BY GOVERNMENT AGENCIES (E.G., OPPORTUNITIES NB), AND PROVINCIALLY FUNDED STUDIES DONE AT UNIVERSITIES (E.G., USING ENVIRONMENTAL TRUST FUND (ETF) OR CARBON LEVY FUNDING)

Accountability and governance

- INCREASE PUBLIC ENGAGEMENT:
  - NO STAKEHOLDER ADVISORY COMMITTEE?
    - CREATE AN ADVISORY COUNCIL AS OTHER PROVINCES AND THE FEDERAL GOVERNMENT ARE DOING
  - NO GOVERNMENT SPONSORED CLIMATE AWARENESS PROGRAMMING, EXCEPT THROUGH ENVIRONMENTAL TRUST FUND
  - NO MULTI-YEAR FUNDING

    ALL RECOMMENDATIONS OF THE SELECT COMMITTEE AND IN THE PROVINCIAL PLAN

2. STRATEGIC OPPORTUNITY

REDUCE HAZARDS AND INCREASE PREPAREDNESS

Reduce hazards and increase preparedness

- DEVELOP A PROVINCIAL AND REGIONAL INTEGRATED RISK ASSESSMENT TO IDENTIFY CLIMATE CHANGE HAZARDS AND PRIORITIZE INVESTMENTS: PEI IS AN EXAMPLE
- PRIORITIZE NATURAL INFRASTRUCTURE AND CONSERVATION TO LOWER RISKS AND HELP HOLD CARBON (E.G., 30% BY 2030)
  - CCNB DOES NOT SUPPORT USING NATURE AS A COMMODITY TO OFFSET POLLUTER EMISSIONS
- BUILD ON EXISTING COASTAL AND CITY VULNERABILITY ASSESSMENTS TO CREATE THE RISK ASSESSMENT
- COMPLETE A PROVINCIAL ADAPTATION PLAN IN LINE WITH THE FEDERAL CLIMATE CHANGE ADAPTATION PLAN DUE IN 2022

3. STRATEGIC OPPORTUNITY

CREATE ELECTRIFICATION STRATEGY

Create Electrification strategy

- DEMAND FOR ELECTRICITY IS GOING TO GROW FROM ELECTRIFICATION OF TRANSPORTATION, INDUSTRIAL PROCESSES AND ECONOMIC ACTIVITIES LIKE BITCOIN

- LEAST-COST ANALYSIS CONSISTENTLY SHOWS NUCLEAR, INCLUDING SMALL MODULAR NUCLEAR REACTORS, AND FOSSIL FUELS LESS COMPETITIVE WITH RENEWABLE ENERGY, EFFICIENCY, INTERCONNECTIONS (E.G., ATLANTIC LOOP), AND INCREASINGLY STORAGE TECHNOLOGIES

- EXPLORE OPTIONS FOR REGIONAL INTEGRATED RESOURCE PLANNING, REGIONAL ELECTRICITY SYSTEM OPERATOR TO COORDINATE SUPPLY, CREATE ATLANTIC LOOP

AFFORDABILITY

INTERNATIONAL ENERGY AGENCY: WORLD ENERGY OUTLOOK, 2021

- …**30% less costly to households in the** net zero emissions scenario, compared with current policies. “Reaching this point will require policies that assist households with the additional upfront costs of efficiency improvements and low emissions equipment such as electric vehicles and heat pumps.,” (p. 20).

Small Modular Nuclear Reactors

- IMPORTANT TO LISTEN TO MANY PERSPECTIVES; THERE ARE LEGITIMATE QUESTIONS
  - RESEARCH STAGE; EARLY STAGE DEVELOPMENT
  - MAY NOT WORK OR BE AFFORDABLE; (LEPREAU HALF NB POWER'S DEBT)
    - From SMR roadmap.: Low: $68/MWh, Medium: $90/MWh From SMR roadmap; High: $118/MWh
    - Wind: $60/MWh; New England prices even lower, closer to between $30-$40/MWh
    - CANADIAN NUCLEAR SAFETY APPROVAL TIMES LONG; LIQUID NUCLEAR WASTE: WE ARE NOT PREPARED; OLDER NUCLEAR GENERATES SOLID NUCLEAR WASTE
- PUBLIC OPINION FAVOURS RENEWABLE ENERGY: STRONG ANTI-NUCLEAR SENTIMENT AMONG FRANCOPHONES
- HEDGE YOUR BETS; IF IT HAPPENS, IT WILL ALMOST CERTAINLY OPERATE AFTER 2035

Create Electrification strategy

- UPDATE PROVINCIAL ENERGY POLICY/ELECTRICITY ACT TO:
  - FOCUS ON LOW BILLS RATHER THAN LOW RATES (WE CAN HAVE HIGHER RATES BUT LOWER BILLS BECAUSE OF ENERGY EFFICIENCY)
  - CONSIDER ENVIRONMENTAL AND SOCIAL COSTS, NOT JUST ECONOMIC COSTS
  - ALLOW FOR MIX OF PUBLIC, PRIVATE AND COMMUNITY OWNED POWER GENERATION OPTIONS TO MEET GROWING DEMAND FOR ELECTRICITY

Create Electrification strategy

- AMEND POLICY AND LEGISLATIVE FRAMEWORK TO:
  - SET NEW TARGETS FOR ENERGY EFFICIENCY:
    - **ENERGY-EFFICIENCY:** IMPLEMENT CURRENT CLIMATE PLAN COMMITMENT OF 1.75%/YEAR; PREPARE FOR NET ZERO BUILDINGS; ADOPT BUILDING CODE IN THE YEAR IT IS RELEASED; EXPAND ELIGIBILITY OF LOW-INCOME RETROFIT PROGRAMMING TO INCLUDE GRANTS TO MODERATE INCOME HOUSEHOLDS; PURSUE DEEP RETROFITS TO DECARBONIZE BUILDINGS

Create Electrification strategy

- AMEND POLICY AND LEGISLATIVE FRAMEWORK TO:
  - SET NEW TARGETS FOR RENEWABLES:
    - **RENEWABLE ENERGY:** PREPARE FOR FEDERAL CLEAN ELECTRICITY STANDARD AND NET-ZERO GRID BY 2035 WHICH WILL PHASE OUT FOSSIL FUEL POWER. SET 80% BY 2030 RENEWABLE TARGET (E.G., WIND, SOLAR, HYDRO AND IN LINE WITH NOVA SCOTIA); IMPROVE NET METERING PROGRAM TO BE MORE FAIR TO PROVIDERS; DELIVER THE PROMISED RENEWABLES UNDER THE LOCALLY OWNED RENEWABLE ENERGY PROJECTS (LORESS) PROGRAM; BRING ON MORE EMBEDDED GENERATION; MORE SMART COMMUNITY PROJECTS (LIKE IN SHEDIAC)

BELLEDUNE

RESPOND THROUGH ELECTRIFICATION STRATEGY

BELLEDUNE: RESPOND THROUGH ELECTRIFICATION STRATEGY

- LOTS OF DISCUSSION ABOUT CONVERTING TO BIOMASS/WOOD PELLETS; MANY STUDIES DISPUTE THE GREENHOUSE GAS BENEFITS
- OTHER OPTIONS AVAILABLE AND SHOULD BE CONSIDERED LIKE WIND, WHICH IS LOWER COST, AND CAN BE A RELIABLE CONTRIBUTION TO SUPPLY IF LOCATED IN THE BAY OF FUNDY, NORTHERN NB (E.G., BURCHILL PROJECT)
- COMPARE COSTS, CONSIDER LIFECYCLE EFFECTS AND CONTRIBUTIONS TO LONG-TERM STRATEGIC ELECTRIFICATION GOALS
- JOB CREATION, JOB SECURITY, ECONOMIC DEVELOPMENT WITH ECOLOGICAL PROTECTION IS IMPORTANT

BELLEDUNE: RESPOND THROUGH ELECTRIFICATION STRATEGY

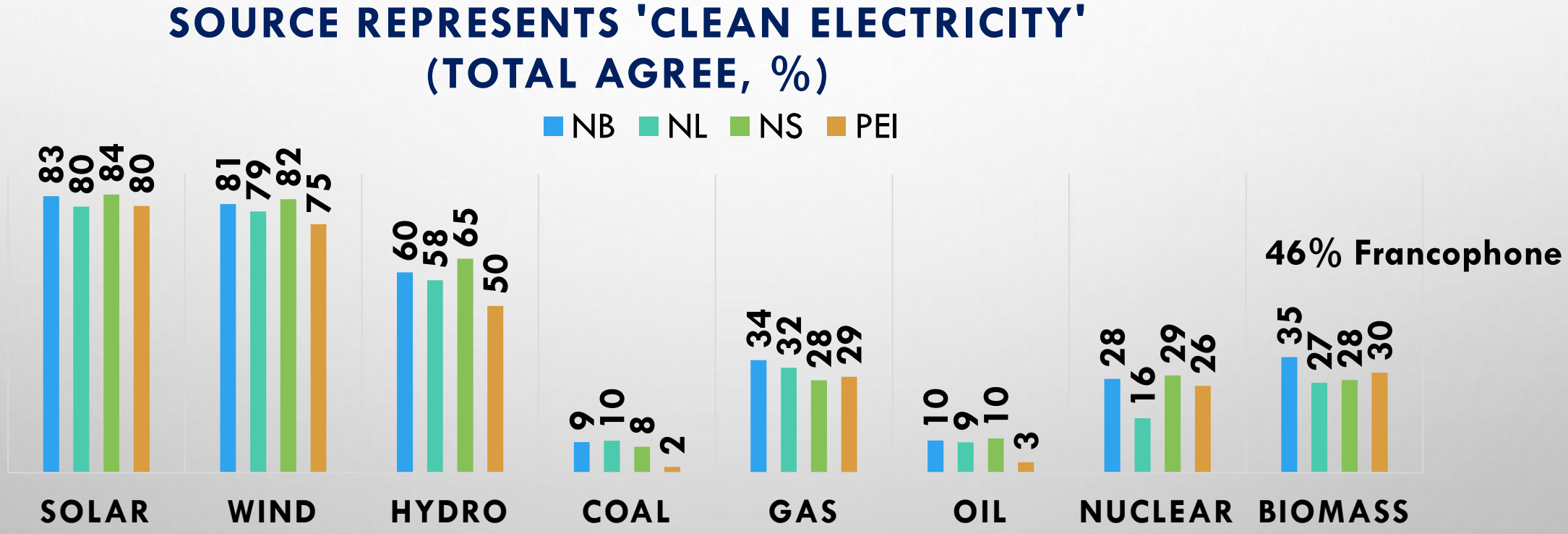
- WOOD PELLETS: SOME CONSIDERATIONS:
  - BURNING WOOD PELLETS TO GENERATE ELECTRICITY IS INEFFICIENT:
    - ENERGY DENSITY OF WOOD PELLETS IS LOWER THAN COAL, BURN MORE, INCREASE EMISSIONS
    - CAN TAKE 40 TO 100 YEARS FOR CARBON DEBT FROM CUTTING TO BE RECOVERED
    - WILL LIKELY REQUIRE CARBON CAPTURE AND STORAGE IN FUTURE
    - FOREST CONVERSION TO PLANTATIONS REDUCES CARBON UPTAKE (SHERMAN 2017)
    - WHEN USED TO HEAT BUILDINGS, COMBINED HEAT AND POWER, OR IN DISTRICT ENERGY = 85% TO 90% EFFICIENT
      - TO GENERATE ELECTRICITY = ABOUT 35% EFFICIENT (CLOSER TO 30% IF COUNTING LINE LOSSES)
      - IF BELLEDUNE USED FOR WINTER PEAKING (EG., ASSUMING 1,000 GWH NET GENERATION) NEEDS 660,000 T/YEAR OF WOOD PELLETS; FULL CAPACITY, 1.5 TO 2.2 MILLION T/YEAR)

PUBLIC UNDERSTANDING OF ATLANTIC ELECTRICITY ISSUES: A SURVEY

IN FIELD IN JUNE 2021

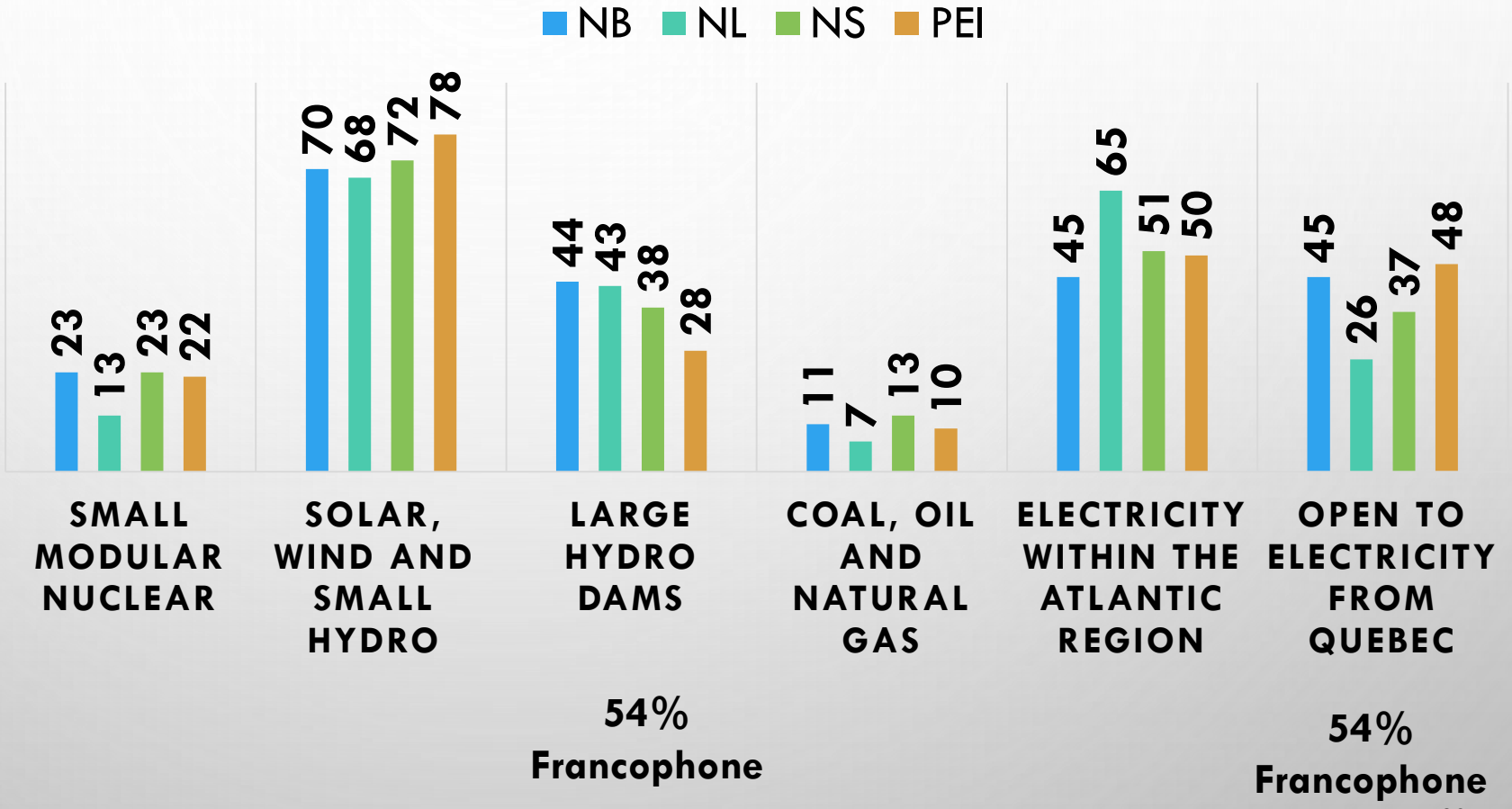
952 RESPONDENTS

CITIZENS DEFINITION OF CLEAN ELECTRICITY



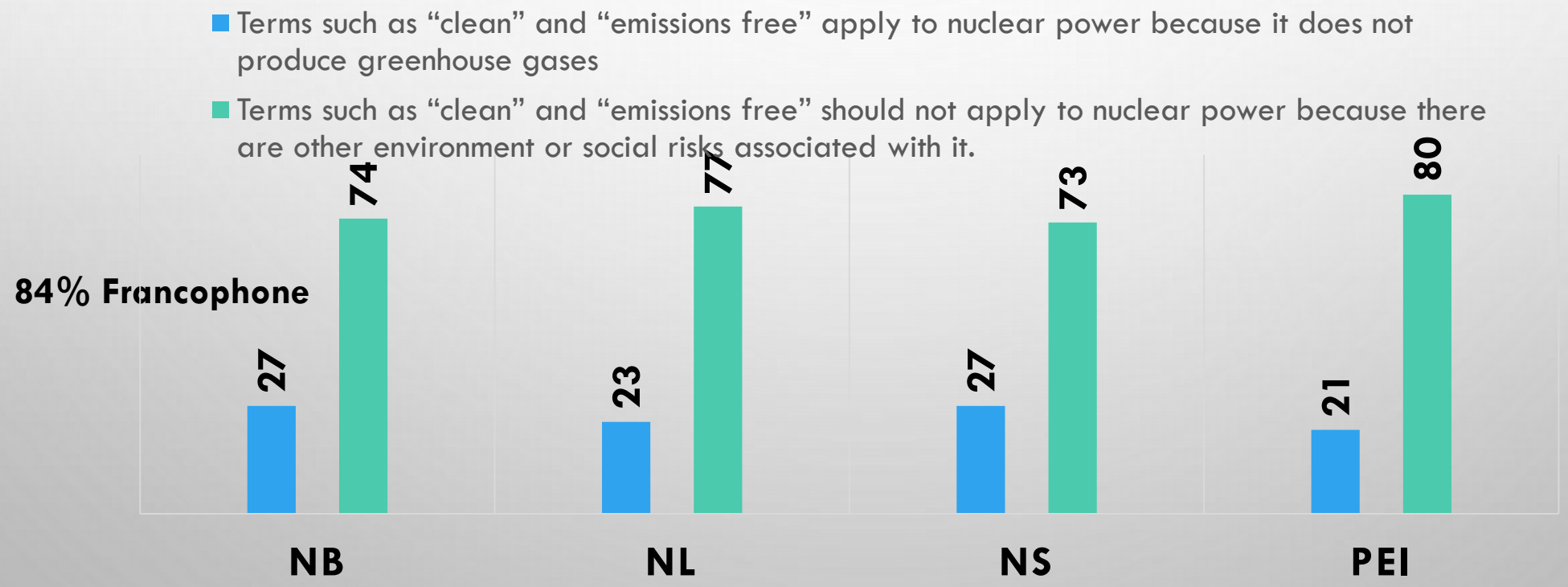
CITIZENS WANT HOME GROWN RENEWABLES, THEN REGIONAL CONNECTION TO HYDRO

I WANT POWERING MY ELECTRICITY OR OPEN TO (TOTAL AGREE, %)

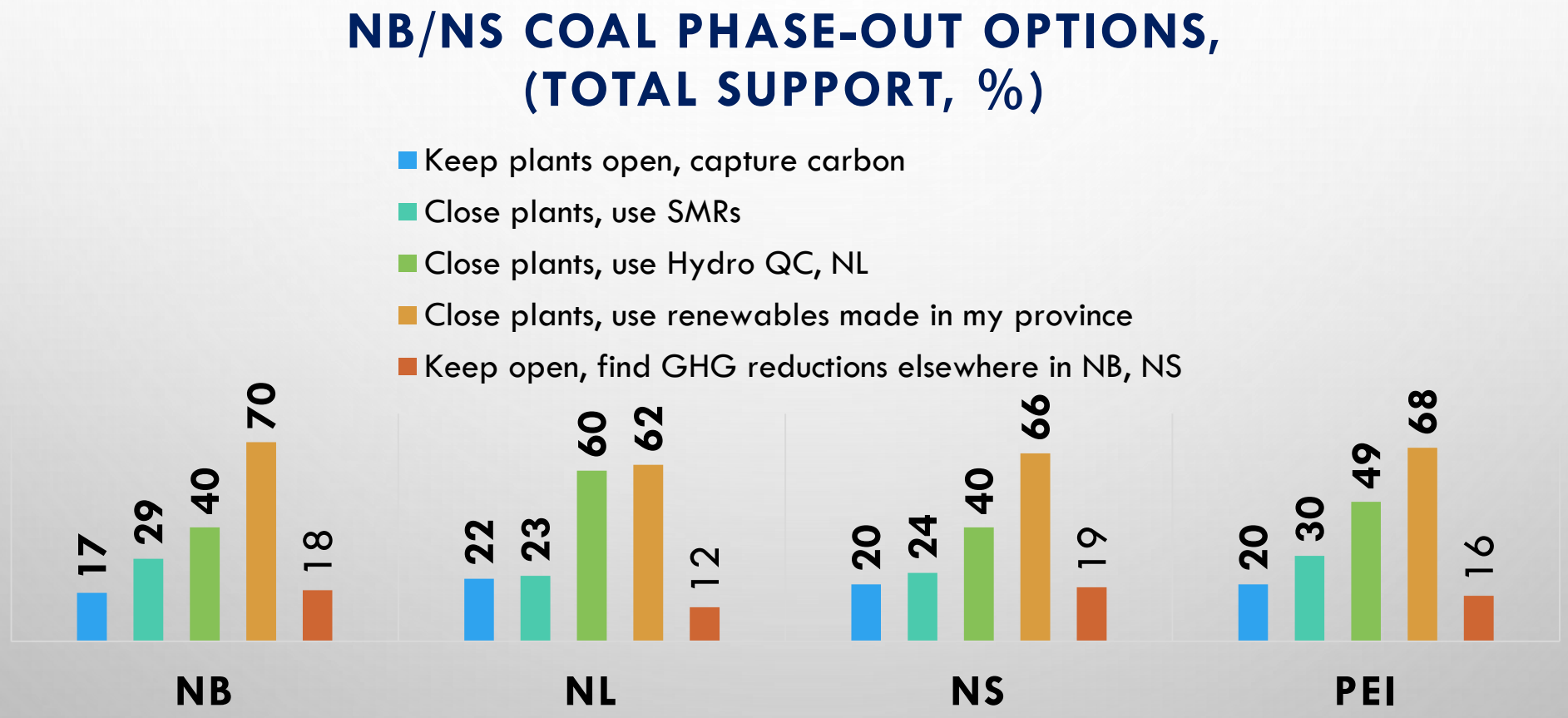


CITIZENS BELIEVE NUCLEAR IS NOT CLEAN OR EMISSIONS FREE BECAUSE OF OTHER ENVIRONMENTAL OR SOCIAL ISSUES ASSOCIATED WITH IT

WHICH STATEMENT COMES CLOSEST TO YOUR OWN POINT OF VIEW?



CITIZENS: COAL PHASE-OUT OPTIONS



Listen to and engage citizens

SOCIAL SCIENTISTS STUDYING THE SOCIAL DETERMINANTS OF SUCCESS CAN HELP

ELECTRIFICATION NOT ONLY ISSUE OF POLICY, TECHNOLOGY AND ENGINEERING

ENGAGE PUBLIC EARLY IN PROCESSES TO INFLUENCE OUTCOMES

RESEARCH SHOWS NEED FOR LESS PERFORMATIVE CONSULTATION, MORE PARTICIPATORY ENGAGEMENT WHERE STAKEHOLDERS AFFECT DECISIONS LIKE SITING (A FACTOR IN ANSE BLEU OPPOSITION TO WIND PROJECT)

- **INTERNATIONAL ENERGY AGENCY WORLD ENERGY OUTLOOK-2021:**
- "ENERGY TRANSITIONS DO NOT MEAN AN END TO LARGE INFRASTRUCTURE PROJECTS… **ALL WHICH CAN FACE OPPOSITION FROM LOCAL COMMUNITIES. WAYS NEED TO BE FOUND TO ENGAGE THOSE CONCERNED AND ASSUAGE THEIR CONCERNS. A CLEAR AND ENGAGED SOCIAL DEBATE ON THE CASE FOR CHANGE IS VITAL,"** (P.57) .

SUMMARY

- WINDS OF CHANGE: FROM CLIMATE CHANGE AND GLOBAL/NATIONAL PRESSURE DRIVING DEEPER EMISSIONS REDUCTIONS
- THINK ABOUT SYSTEMS CHANGE INSTEAD OF REACTING TO INDIVIDUAL FEDERAL REGULATIONS: E.G., BELLEDUNE
- BALANCE THE FOCUS ON SMALL MODULAR NUCLEAR WITH LESS COSTLY, NEAR-TERM OPTIONS TO MANAGE RISKS, TAKE ADVANTAGE OF SAFE BETS, LOWER HOUSEHOLD COSTS
- BRING CITIZENS INTO THE DISCUSSION, EDUCATE, ENGAGE AND LISTEN

- FOCUS CLIMATE ACTION PLAN UPDATE ON:
    1. CREATING AN ELECTRIFICATION STRATEGY; UPDATING ENERGY POLICY, AMENDING ELECTRICITY ACT TO ALLOW MIX OF PUBIC, PRIVATE AND COMMUNITY POWER
    2. REDUCING HAZARDS AND INCREASE PREPAREDNESS
    3. STRONGER ACCOUNTABILITY AND GOVERNANCE, ESPECIALLY OPERATION OF THE CLIMATE FUND USING NEW CARBON PRICING REVENUE

DISCUSSION

PLEASE GET IN TOUCH. WE ARE HAPPY TO TALK MORE ABOUT OUR RESEARCH AND OUR WORK. I HAVE MORE THAN 30 YEARS EXPERIENCE WORKING ON CLIMATE CHANGE AS AN EDUCATOR, RESEARCHER AND CAMPAIGNER

LOUISE.COMEAU@CONSERVATIONCOUNCIL.CA

APPENDIX

RESOURCES ON ELECTRICITY OPTIONS

- VALUE OF INNOVATION SANDBOX PROJECTS (E.G., LIKE THE PORT'S GREEN ENERGY HUB PROPOSAL): HTTPS://WWW.POLLUTIONPROBE.ORG/ENERGY/INNOVATION-SANDBOXES-PROJECT/; SHEDIAC SMART ENERGY COMMUNITY: HTTPS://WWW.NBPOWER.COM/EN/GRID-MODERNIZATION/SMART-GRID-ATLANTIC/SHEDIAC-SMART-ENERGY-COMMUNITY-PROJECT/ HTTPS://WWW.NBPOWER.COM/EN/GRID-MODERNIZATION/SMART-GRID-ATLANTIC/SHEDIAC-SMART-ENERGY-COMMUNITY-PROJECT/
- CANADIAN INSTITUTE FOR CLIMATE CHOICES (CCIC): ELECTRICITY: HTTPS://CLIMATECHOICES.CA/PUBLICATIONS/ELECTRICITY-SYSTEM-INNOVATION/ AND HERE: HTTPS://CLIMATECHOICES.CA/REPORTS/ELECTRICITY/
- CCIC CASE STUDY ON GERMANY (HTTPS://CLIMATECHOICES.CA/PUBLICATIONS/ELECTRICITY-SYSTEM-INNOVATION/)
- US GOVERNMENT WORK BY ITS NATIONAL RENEWABLE ENERGY LAB ON ELECTRICITY FUTURES: HTTPS://WWW.NREL.GOV/ANALYSIS/RE-FUTURES.HTML
- CCNB'S PUBLIC UNDERSTANDING OF ATLANTIC ELECTRICITY ISSUES SURVEY: HTTPS://WWW.CONSERVATIONCOUNCIL.CA/WP-CONTENT/UPLOADS/2021/07/ATLANTICELECTRICITYSTUDYPUBLICRELEASEAUG2021.PDF
- PEMBINA INSTITUTE. OPTIONS FOR REPLACING BELLEDUNE WITH A RENEWABLE ENERGY PORTFOLIO WEBINAR: HTTPS://WWW.CONSERVATIONCOUNCIL.CA/RECORDED-WEBINAR-MOVING-TOWARDS-A-DECARBONIZED-ELECTRICITY-GRID/
- CCNB ELECTRICITY VISION WEB PORTAL: HTTPS://WWW.CONSERVATIONCOUNCIL.CA/ABOUT-THE-ATLANTIC-ELECTRICITY-VISION/
- CLEAN ELECTRICITY STANDARD: HTTPS://DAVIDSUZUKI.ORG/SCIENCE-LEARNING-CENTRE-ARTICLE/A-ZERO-EMISSION-CANADIAN-ELECTRICITY-SYSTEM-BY-2035/
- POWERING PAST COAL ALLIANCE CONFERENCE: HTTPS://WWW.POWERINGPASTCOAL.ORG/SUMMIT-2021/ELECTRICITY-GRID-TRANSITION-FROM-COAL-TO-CLEAN-ENERGY
- RELIABILITY OF RENEWABLE ENERGY: HTTPS://E360.YALE.EDU/FEATURES/THREE-MYTHS-ABOUT-RENEWABLE-ENERGY-AND-THE-GRID-DEBUNKEDL BURCHILL: HTTPS://POWERINGOURFUTURE.CA/BLOG/BURCHILL-WIND-TO-POWER-RELIABLE-CLEAN-ENERGY-SUPPLY-IN-REGION-STUDY-SHOWS
- NORTHEAST POWER COORDINATING COUNCIL STUDY ON DISTRIBUTED ENERGY SOURCES AND RELIABILITY: HTTPS://WWW.NPCC.ORG/CONTENT/DOCS/PUBLIC/PROGRAM-AREAS/STANDARDS-AND-CRITERIA/DER-FORUM/2021/DER-GUIDANCE-DOCUMENT-V3-CLEAN-WITH-ANNOUCEMENT-LETTER-12-14-21.PDF
- BIOMASS BURNING: HTTPS://IOPSCIENCE.IOP.ORG/ARTICLE/10.1088/1748-9326/AAA512/PDF

RESOURCES ON GLOBAL TRENDS

- UNEP PRODUCTION GAP REPORT: HTTPS://PRODUCTIONGAP.ORG/2021REPORT/
- UNEP EMISSIONS GAP REPORT: HTTPS://WWW.UNEP.ORG/RESOURCES/EMISSIONS-GAP-REPORT-2021
- HOT OR COOL INSTITUTE REPORT: HTTPS://HOTORCOOL.ORG/1-5-DEGREE-LIFESTYLES-REPORT/
- CCIC NET ZERO REPORT: HTTPS://CLIMATECHOICES.CA/WP-CONTENT/UPLOADS/2021/02/CANADAS-NET-ZERO-FUTURE_FINAL-2.PDF
- CCIC SINK OR SWIM REPORT: HTTPS://CLIMATECHOICES.CA/WP-CONTENT/UPLOADS/2021/10/CICC-SINK-OR-SWIM-ENGLISH-FINAL-HIGH-RES.PDF
- RBC REPORT: HTTPS://ROYAL-BANK-OF-CANADA-2124.DOCS.CONTENTLY.COM/V/THE-2-TRILLION-TRANSITION-CANADAS-ROAD-TO-NET-ZERO-PDF
- IEA WEO-2021 REPORT: HTTPS://WWW.IEA.ORG/REPORTS/WORLD-ENERGY-OUTLOOK-2021
- TROTTIER ENERGY OUTLOOK REPORT: HTTPS://IET.POLYMTL.CA/WP-CONTENT/UPLOADS/DELIGHTFUL-DOWNLOADS/CANADIAN-ENERGY-OUTLOOK-2021-ENGLISH-PRESENTATION.PDF
- CONSERVATION COUNCIL OF NB PUBLIC SURVEY: HTTPS://WWW.CONSERVATIONCOUNCIL.CA/WP-CONTENT/UPLOADS/2021/07/ATLANTICELECTRICITYSTUDYPUBLICRELEASEAUG2021.PDF
- FEDERAL CARBON PRICING RULES: HTTPS://WWW.CANADA.CA/EN/ENVIRONMENT-CLIMATE-CHANGE/SERVICES/CLIMATE-CHANGE/PRICING-POLLUTION-HOW-IT-WILL-WORK/CARBON-POLLUTION-PRICING-FEDERAL-BENCHMARK-INFORMATION/FEDERAL-BENCHMARK-2023-2030.HTML; HTTPS://WWW.CANADA.CA/EN/ENVIRONMENT-CLIMATE-CHANGE/SERVICES/CLIMATE-CHANGE/PRICING-POLLUTION-HOW-IT-WILL-WORK/OUTPUT-BASED-PRICING-SYSTEM/2022-REVIEW-CONSULTATION.HTML
- NUCLEAR ENERGY RISKS: HTTPS://WWW.NUCLEARCONSULT.COM/; HTTP://WWW.CCNR.ORG/NUCLEAR_CLIMATE_CHANGE_2022.PDF

FEDERAL DRIVERS STRENGTHENING

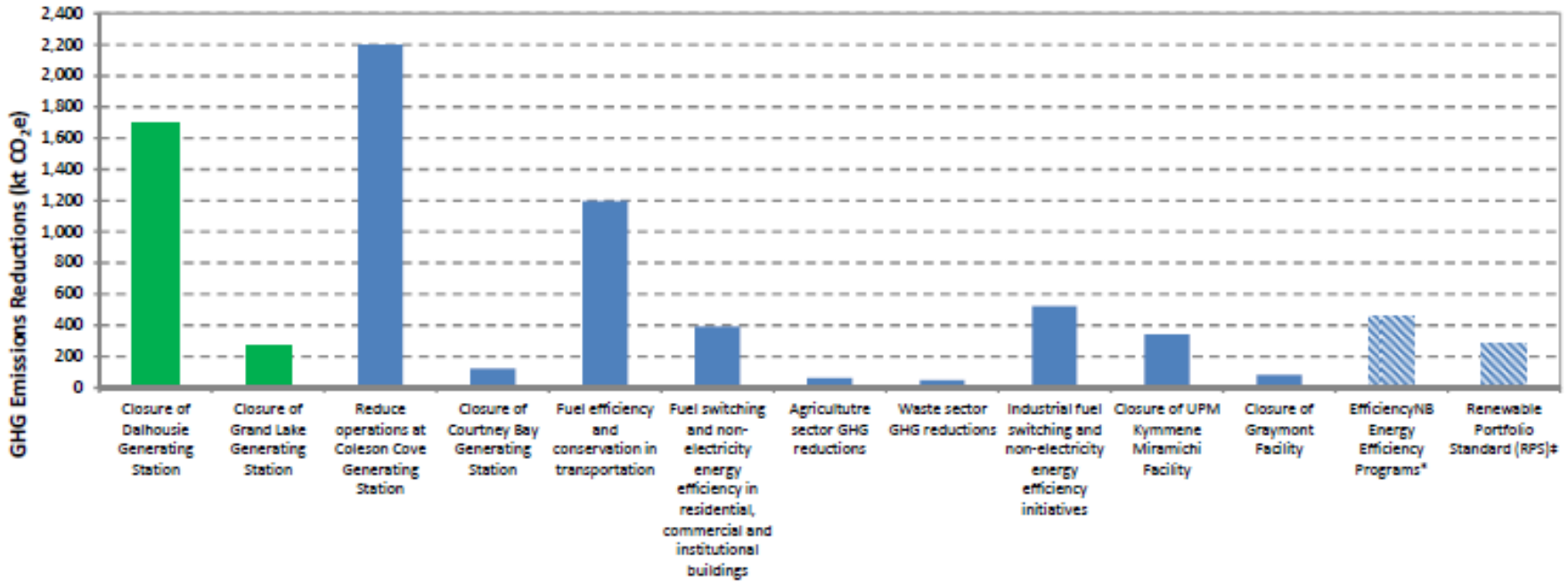
- FEDERAL GOVERNMENT UPDATING ITS OWN CLIMATE PLAN FOR MARCH 2022
- RECENT FEDERAL CABINET MANDATE (AND PUBLIC) LETTERS SHOW PATHWAY
  1. NET ZERO HOMES BUILDING CODE BY 2024 FOR 2025; ALL BUILDINGS NET ZERO BY 2050; ENERGUIDE LABELING OF BUILDINGS (GREEN CONSTRUCTION THROUGH WOOD);
  2. RISING PRICE ON CARBON POLLUTION ($15T/YEAR TO $170/T IN 2030)
  3. COAL PHASE-OUT "AS SWIFTLY AS POSSIBLE" AND NO LATER THAN 2030
  4. CLEAN ELECTRICITY STANDARD TO "ACHIEVE A NET-ZERO CLEAN ELECTRICITY GRID BY 2035 AND ACHIEVE 100% NET ZERO EMITTING ELECTRICITY FUTURE"; ADVANCE ATLANTIC LOOP
  5. REGULATED SALES MANDATE OF 50% OF NEW LIGHT DUTY VEHICLES ZERO EMISSIONS BY 2030; 100% NON-EMITTING VEHICLE SALES BY 2035; 100% OF MEDIUM-AND-HEAVY-DUTY VEHICLES SALES ZERO EMISSION BY 2040

TOP EMITTERS IN NB 2019

New Brunswick	
Facility Name	**2019 CO2e Emissions (Mt)**
Irving Oil Refinery	2.980111918
Belledune Generating Station	2.55087999
Coleson Cove Generating Station	0.29048059
Brunswick Smelter	0.16617
Bayside Power	0.1214866
ECO360 Landfill	0.10229912
Irving Paper	0.095818187
Irving Pulp & Paper, Limited	0.091361341
Nackawic Mill	0.07593033
Havelock Plant	0.059490304

AUDITOR GENERAL 2017 CLOSURE EFFECTS

Exhibit 3.9 - Attributions of Total Provincial GHG Emissions Reductions from 2004 to 2015



Notes: GHG emissions reductions marked with an * are not additive and are captured under the various electricity sector, buildings and industrial GHG emissions reductions, while those marked with a ‡ are not additive and are captured under the various electricity sector GHG emissions reductions.

Sources: Environment and Climate Change Canada (2017). *National Inventory Report 1990-2015: Greenhouse Gas Sources and Sinks in Canada, Canada's Submission to the United Nations Framework on Climate Change - Part 3.* Gatineau (QC), 108 p. & Environment and Climate Change Canada (2017). *GHG Emissions Reporting Program.* Available at: http://www.ec.gc.ca/ges-ghg/default.asp?lang=En&n=040E378D-1.
Energy Efficiency and Conservation Agency of New Brunswick (EfficiencyNB), 2014. *Annual Report 2013-2014.*
New Brunswick Department of Environment and Local Government (2016). *New Brunswick and Climate Change Progress Report Summary 2013-2014.*
New Brunswick Department of Environment and Local Government (2016). *New Brunswick and Climate Change Progress Report Summary 2014-2015.*

BELLEDUNE: RESPOND THROUGH ELECTRIFICATION STRATEGY

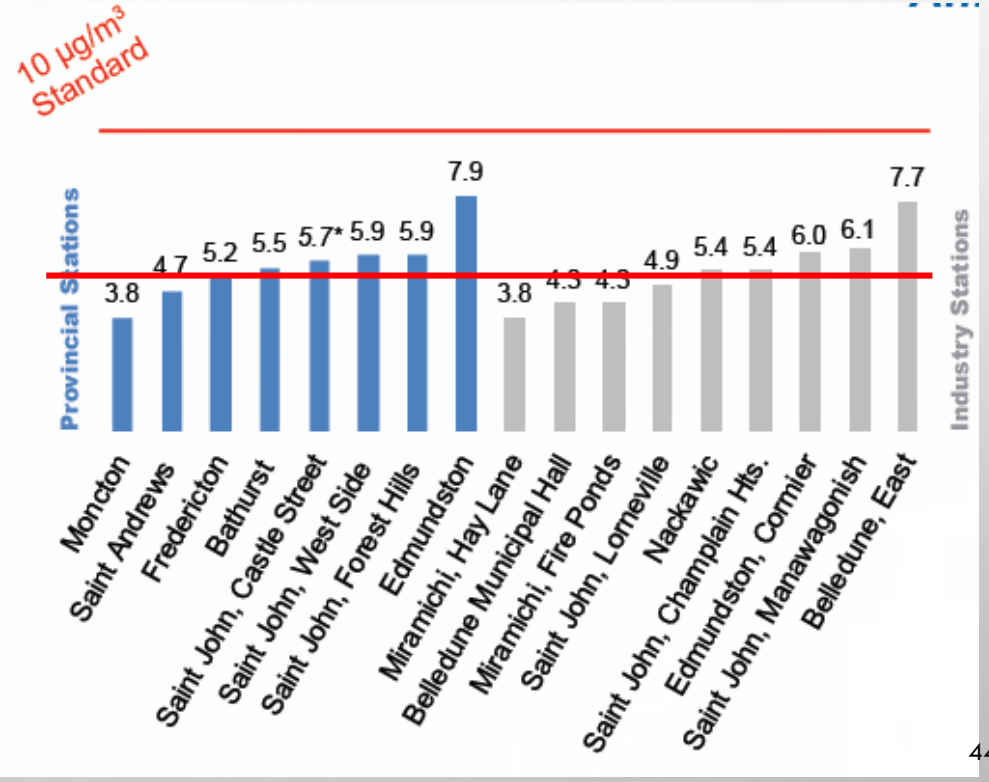
- WOOD PELLETS SOME CONSIDERATIONS:
  - NB CURRENT PRODUCTION: **JUST UNDER 500,000 TONNES ANNUALLY (492,500)**
  - WE WOULD NEED TO DOUBLE OR QUADRUPLE WOOD PELLET PRODUCTION
    - MOST WOOD PELLETS PRODUCED IN NEW BRUNSWICK EXPORTED TO THE UK DRAX BIOMASS PLANT (90% OR MORE?)
    - IN-PROVINCE PELLETS USED FOR HEAT (BOILERS IN SCHOOLS, HOSPITALS, HOMES, BUILDINGS)

BELLEDUNE: WHAT ABOUT AIR QUALITY?

WORLD HEALTH ORGANIZATION AIR QUALITY GUIDELINES 2021

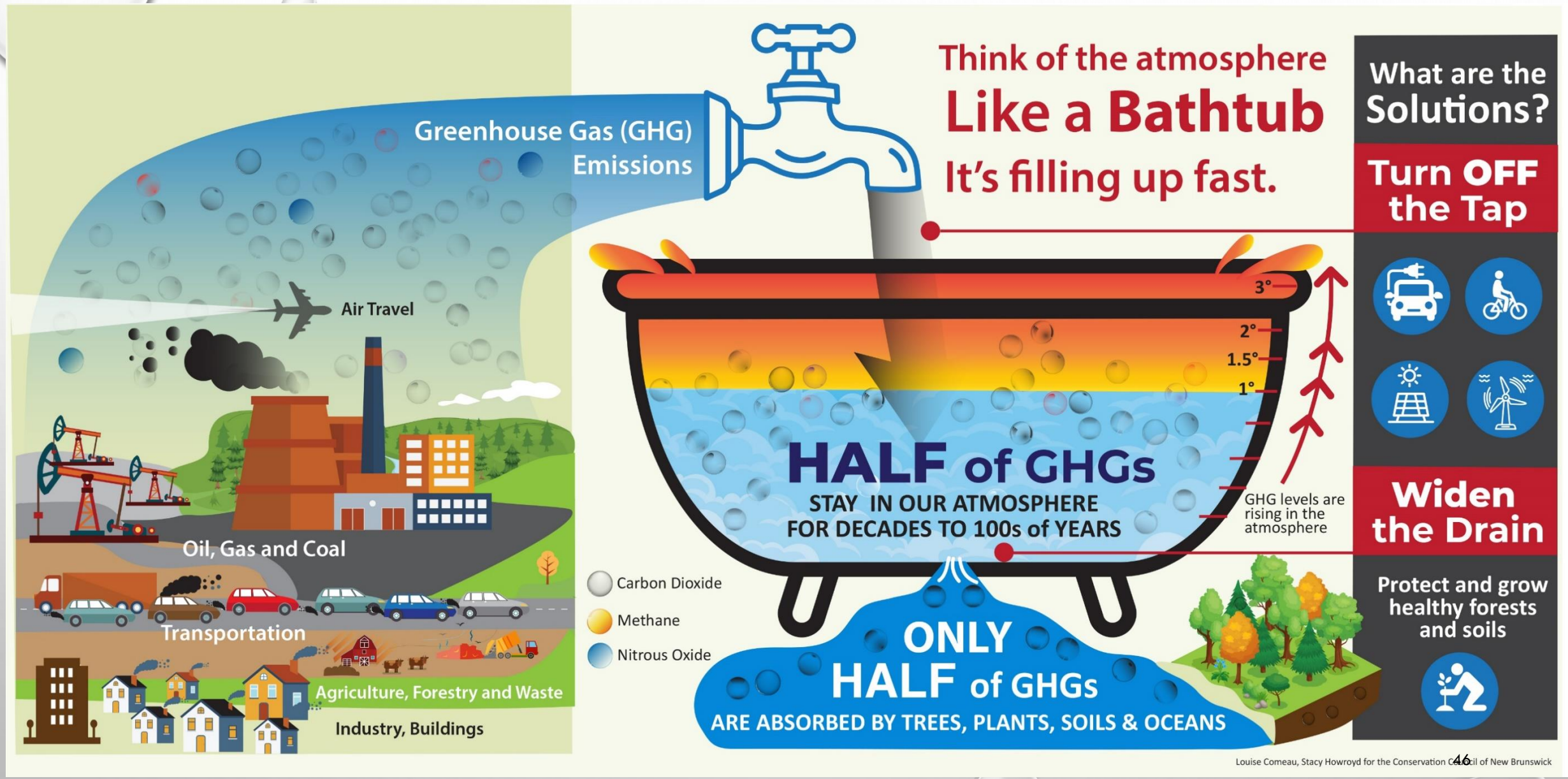
- CAN A RETROFITTED PLANT MEET NEW WORLD HEALTH ORGANIZATION STANDARDS OF NO MORE THAN 5 MICROGRAMS OF 2.5 PARTICULATE MATTER IN A YEAR?
- BELLEDUNE AREA MONITORING EXCEEDED THIS LEVEL IN 2019
  - HTTPS://WWW2.GNB.CA/CONTENT/DAM/GNB/DEPARTMENTS/ENV/PDF/AIR-LAIR/AIRQUALITY-QUALITEDELAIR/AIR-QUALITY-MONITORING-RESULTS-2019.PDF
- WHAT EFFECT ON NEAR-BY RESIDENTS?

NEW BRUNSWICK 2019 FINE PARTICULATE MATTER (PM2.5) *ANNUAL METRIC*



BELLEDUNE: RESPOND THROUGH ELECTRIFICATION STRATEGY

- WOOD PELLETS: SOME CONSIDERATIONS:
  - WHAT KIND OF TRUCK TRAFFIC AND AIR QUALITY EFFECTS AT BELLEDUNE?
    - THE 60-MW GENERATOR IN PORT HAWKESBURY: UP TO 50 TRACTOR TRAILER TRUCKS A DAY DELIVER UP TO 2000 TONNES OF BIOMASS (HTTP://WWW.TREPA.COM/?P=2097)
    - NEW WORLD HEALTH ORGANIZATION AIR QUALITY GUIDELINES ARE HALF NB'S FOR PARTICULATE MATTER: NEED OPTIONS WITH LEAST ENVIRONMENTAL AND HEALTH EFFECTS
  - WHAT KIND OF COSTS?
    - CONVERTING ATIKOKAN AND PORT HAWKESBURY: $200M


Greenhouse Gas (GHG) Emissions
Air Travel
Oil, Gas and Coal
Transportation
Agriculture, Forestry and Waste
Industry, Buildings
Think of the atmosphere
Like a Bathtub
It's filling up fast.
3°
2°
1.5°
1°
HALF of GHGs
STAY IN OUR ATMOSPHERE
FOR DECADES TO 100s of YEARS
GHG levels are rising in the atmosphere
Carbon Dioxide
Methane
Nitrous Oxide
ONLY
HALF of GHGs
ARE ABSORBED BY TREES, PLANTS, SOILS & OCEANS
What are the Solutions?
Turn OFF the Tap
Widen the Drain
Protect and grow healthy forests and soils
Louise Comeau, Stacy Howroyd for the Conservation Council of New Brunswick