



Towards Canada's Fair Share: New Modelling and Analysis on Achieving a Stronger Climate Target



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Modeling and analysis of a policy packages to achieve 284 Mt GHGs in 2030

Highlights of Moving From Stay-the-Course to Fair-Share

Higher ambition before 2030 is feasible with more stringent policies.

- A policy package of flexible regulations and carbon pricing can deliver Canada's "Fair-Share" of 284 Mt of GHG emissions by 2030.
- Average annual GHG reductions after 2020 are 8.4%, more than doubling the Stay-the-Course pathway with a \$170 carbon price.

Canada's economy continues to grow.

- With the Fair-Share scenario, GDP grows 1.8% per year versus 2.2% (GDP 1.19 larger vs 1.23 in 2030 vs 2020)

Investment in low carbon technology hits \$400 billion between 2002 and 2030.

- By 2030, industry invests 34% more on low carbon technology while households invest 32% more.

Households save on energy

- Household energy expenditures fall across all income groups, higher income households do better

Oil and Gas Production Falls

- Significant production declines at US \$40 WTI oil and with the Fair-Share Scenario, down 83% from 2020 levels

Policy Package Reduces GHGs 134 Mt by 2030

Building Regulations

- Zero Building Heat Emissions starting in 2021.

Transportation Regulations

- National Renewable Fuel Standard (RFS) for diesel and gasoline
- ZEV Mandates.

Other Fuels Regulations

Renewable Natural Gas (RNG) 15% mandate starting 2026.

Emissions Cap on Electricity Production (9 Mt in 2030).

Industry Regulations

- Emission limit of 80%; 20% granted for free to 2030.
- Methane regulations in oil and gas (-50% by 2030).

Carbon Price

- Closes the Gap to “Fair-Share”, doubling to tripling the HEHE \$170 carbon price.

| Residential | Mt Co2e | | | Annual Decline Rate | Level Change |
|------------------------------|---------|-------|-------|---------------------|--------------|
| | 2020 | 2025 | 2030 | | |
| Ref+\$170 C Price | 44.60 | 42.02 | 38.44 | -1% | -14% |
| + REGs | | 34.49 | 20.86 | -7% | -53% |
| Commercial and Institutional | | | | | |
| Ref+\$170 C Price | 28.95 | 26.00 | 24.33 | -2% | -16% |
| + REGs | | 24.42 | 14.86 | -6% | -49% |

| | 2020 | 2025 | 2030 | Annual Tightening Rate |
|-------------------------------|------|------|------|------------------------|
| Renewable Content of Gasoline | 5% | 12% | 15% | 12% |
| Renewable Content of Diesel | 2% | 6% | 34% | 33% |
| Light-duty Vehicle ZEV | 0% | 40% | 80% | 209% |
| Medium-duty Vehicle ZEV | 0% | 11% | 50% | 195% |
| Heavy-duty Vehicle ZEV | 0% | 8% | 35% | 185% |

| RNG (PJ) | Mt Co2e | | | Annual Tightening Rate |
|---------------------------|---------|------|------|------------------------|
| | 2020 | 2025 | 2030 | |
| Electricity CAP (MT CO2e) | 48 | 25 | 9 | -15% |
| 15% RNG (PJ) | 3 | 30 | 324 | 62% |

Scenarios for Fair-Share Emissions Pathway

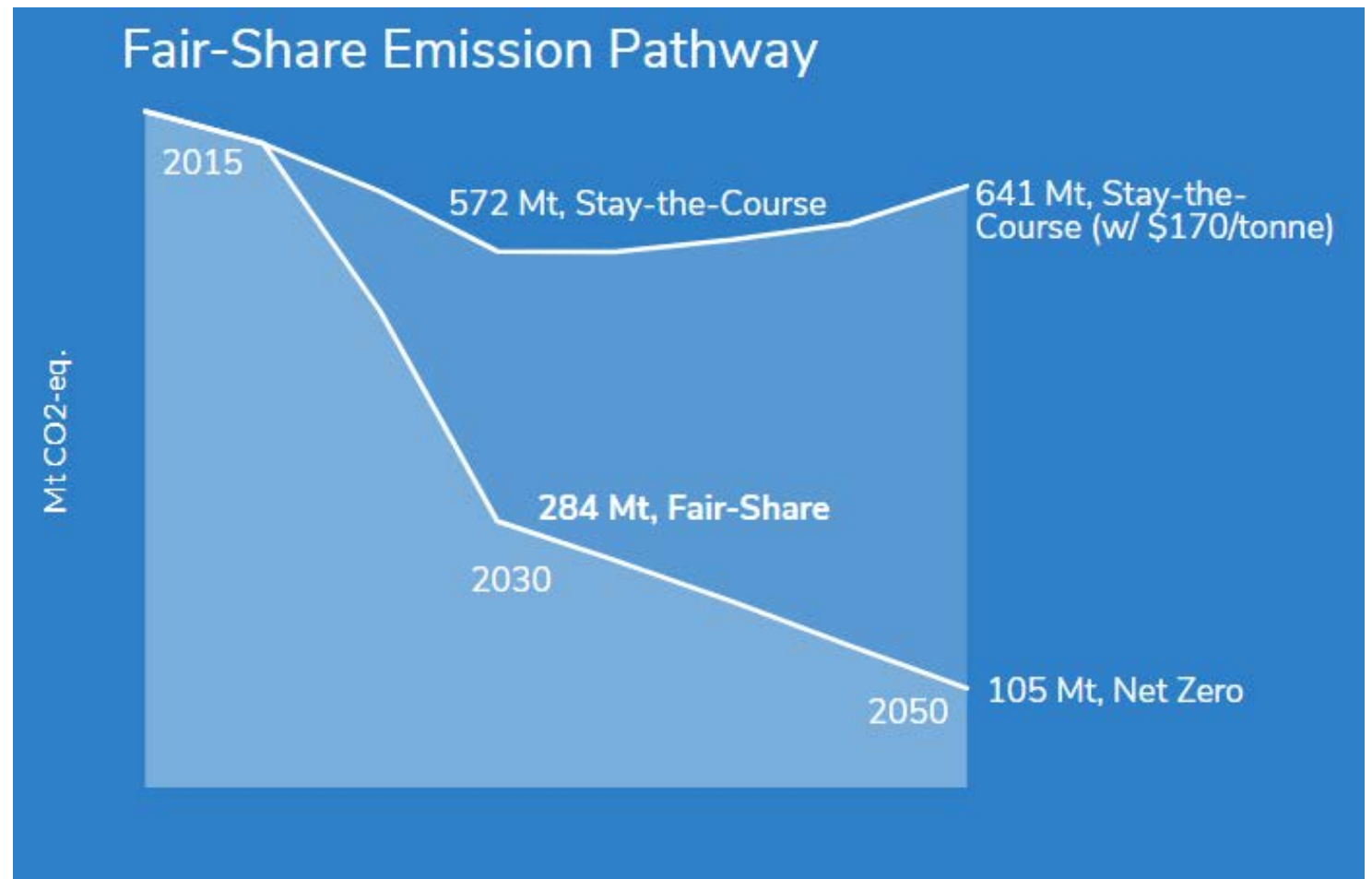
Stay-The-Course: Current policy plus HEHE \$170 carbon price by 2030.

- GHGs fall 3.8% annually between 2020 and 2030.

Fair-Share: Regulatory package plus carbon pricing

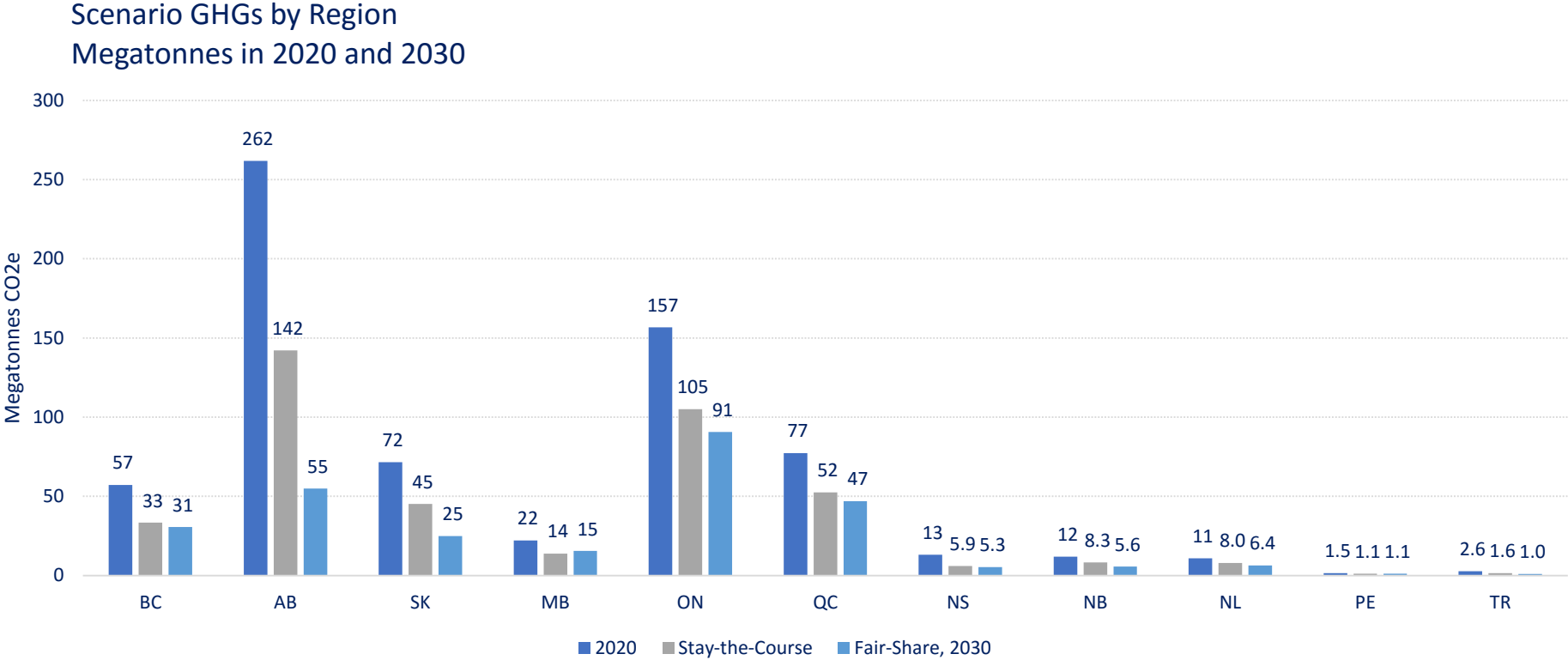
- GHGs fall 8.4% annually between 2020 and 2030.

Oil Price: COVID adjusted. US\$ \$40/bbl WTI average to 2050.



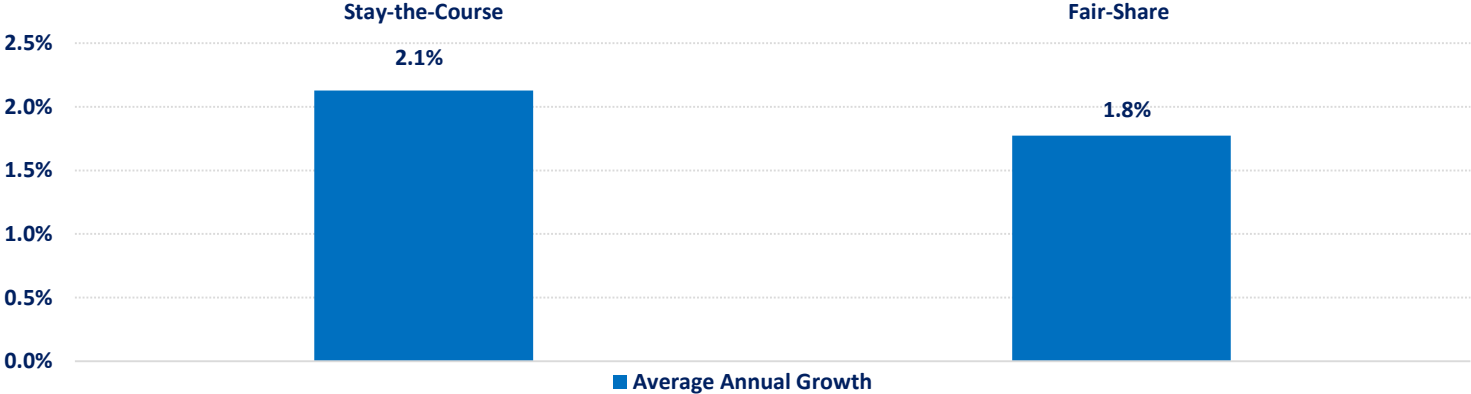
Fair-Share Emission Pathways by Region

To hit the Fair-Share target, national emissions must fall 8% annually between 2020 and 2030

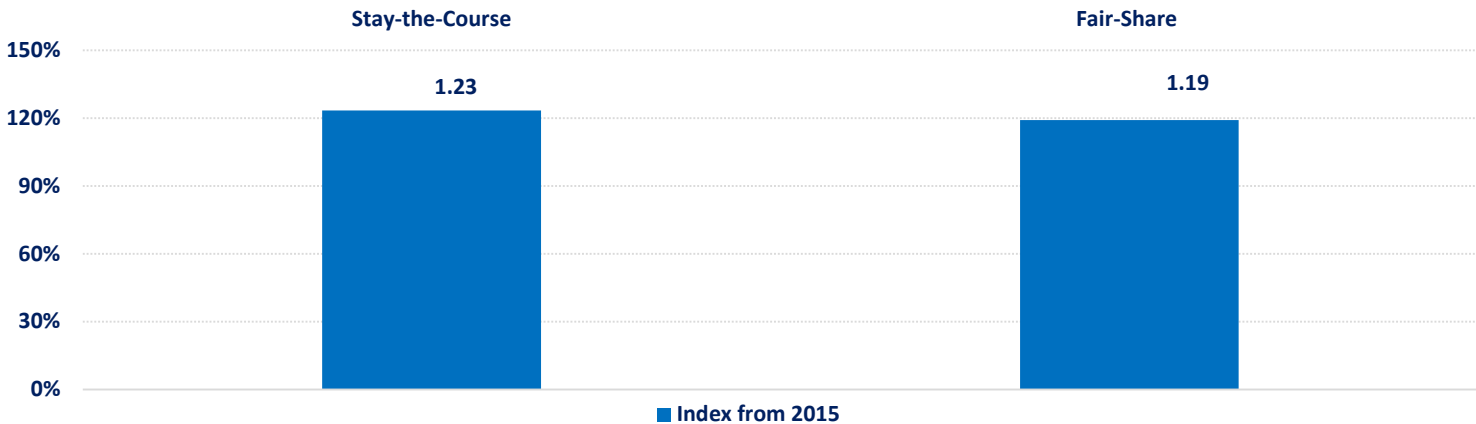


Canada's GDP: Average Annual Growth Rate and Size in 2030

Change in Average Annual Growth from 2020
Chained GDP



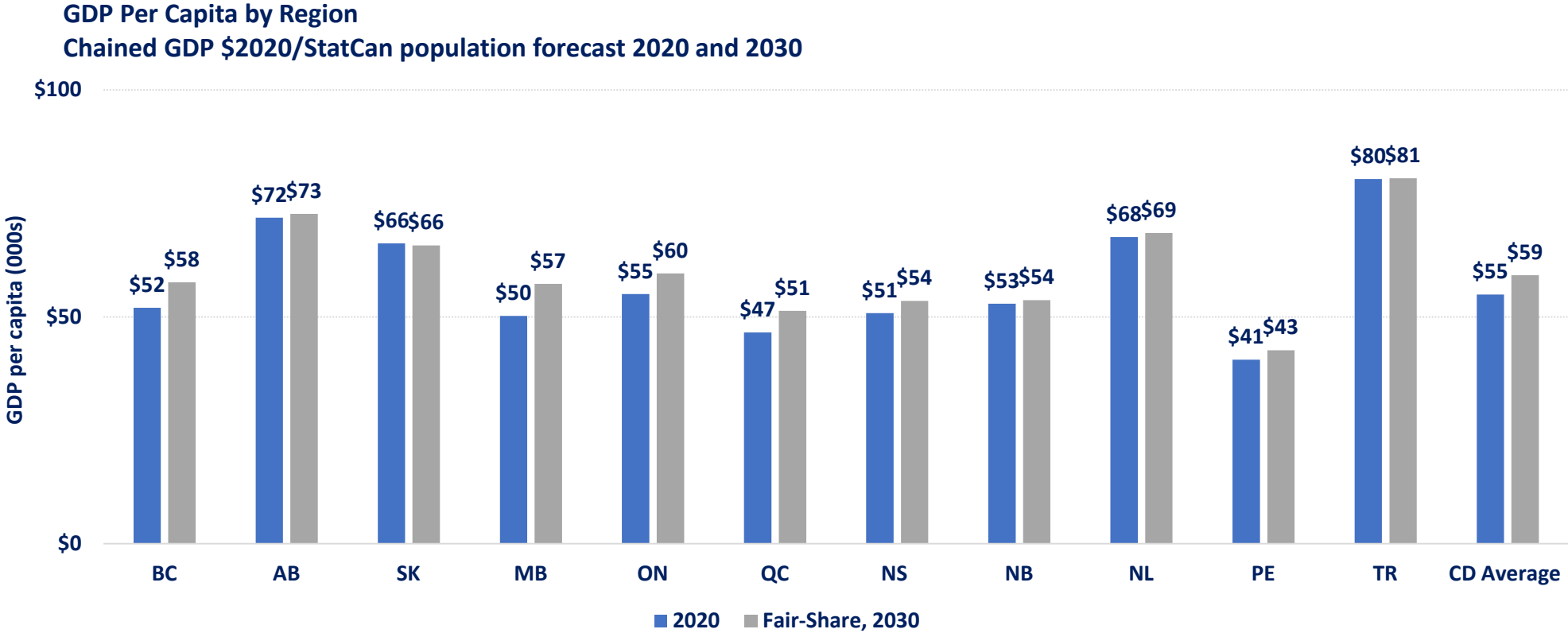
Change in the Size of the GDP, 2030
2020 = 1



Per Capita GDP grows above 2020 levels in all regions under Fair-Share Scenario

By 2030, income per capita grows above 2020 levels in all regions in the Fair-Share Scenario

- National GDP per capita increases 8% by 2030 above 2020 levels.



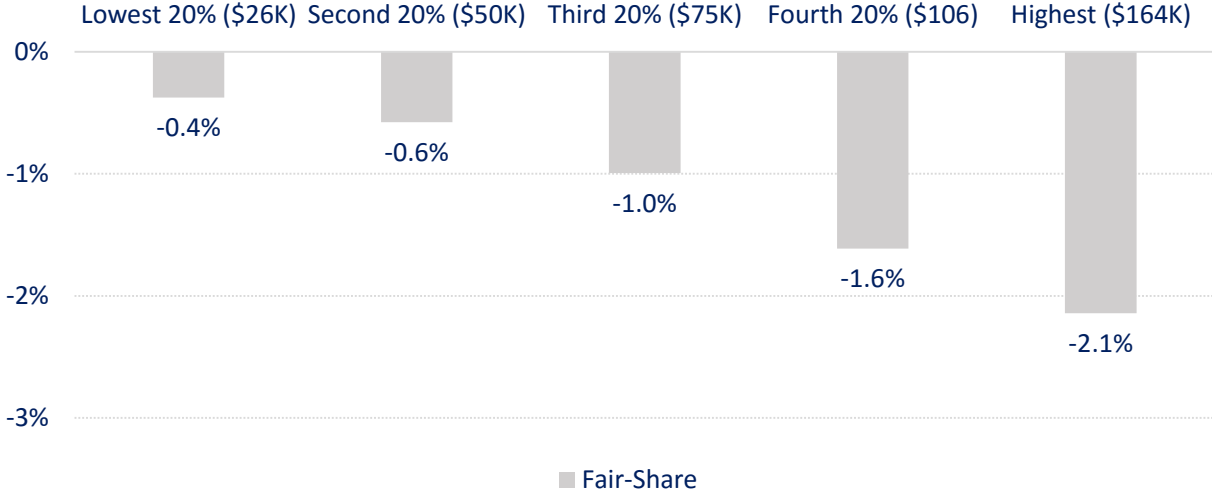
Households Energy Expenditures by Quintile (lowest to highest) – Canada

Energy savings across all income groups.

Higher income groups do proportionally better than low income groups.

Regulatory package is regressive, and complementary income support policies would help address the higher proportionate impacts on low income households.

Change in Household Energy Expenditure in 2030
Relative to Stay-the-Course

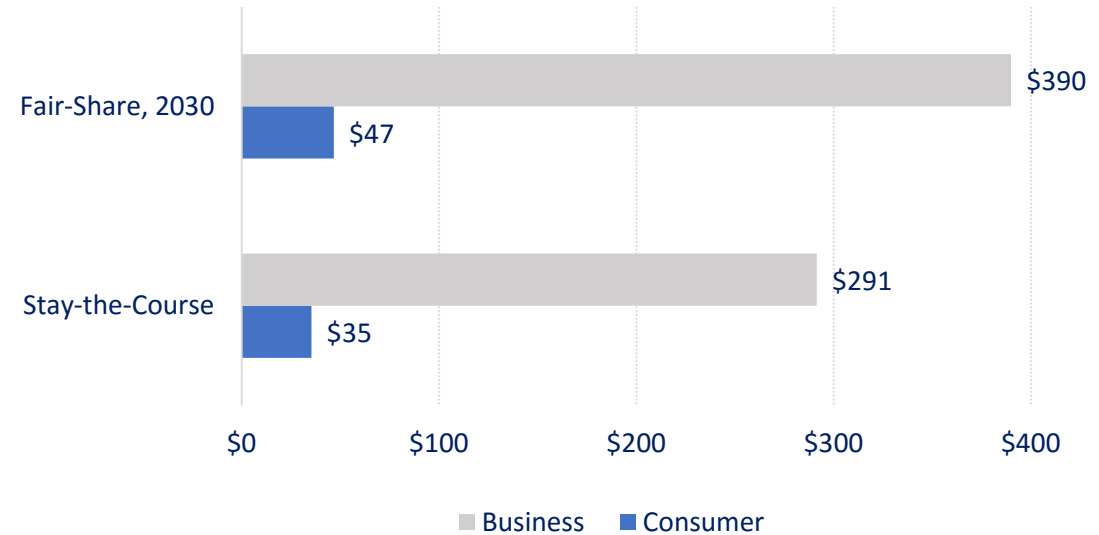


Clean Energy Investment (Industry) and Consumption (Households), 2030

Business investment in all forms of low carbon technology and fuel switching increases 34% from 2020.

Consumers invest 32% more over the same period in low carbon vehicles and houses.

Investment in Low Carbon Technology, 2020 to 2030
Billions, (NPV @3%: \$2020)



Oil and Gas Production

At USD WTI US \$40 oil and with stringent carbon policy, oil sector production falls significantly by 2030.

