EVERGREEN IRP
FINAL MODELING RESULTS

MAY 29, 2023

OVERVIEW
FINAL EVERGREEN IRP MODELING RESULTS

This material reflects the final modeling results of the 2022-2023 evergreen IRP update.

Each scenario includes the following for the modeling horizon:

- Annual generation profile
- Annual capacity additions and retirements
- Annual achieved Planning Reserve Margin (PRM)
- Annual total CO_2 emissions

In addition, NS Power has provided the following:

- Observations for each scenario as compared to applicable reference scenarios
- NPV Revenue Requirement (26 year with and without end-effects (EE) and 11 year)
- Total emissions for 26 years and broken down by time period

Finally, a summary of observations from the modeling outcomes has been provided

EVERGREEN IRP PROCESS – NEXT STEPS

NS Power will hold a stakeholder engagement session on June 5th to review the outcomes of the final evergreen IRP modeling work.

Following the engagement session, stakeholders are invited to provide feedback on the final modeling outcomes by the 16th of June.

NS Power is targeting to provide responses to the feedback and report to stakeholders on the Action Plan and Roadmap updates by the end of June.

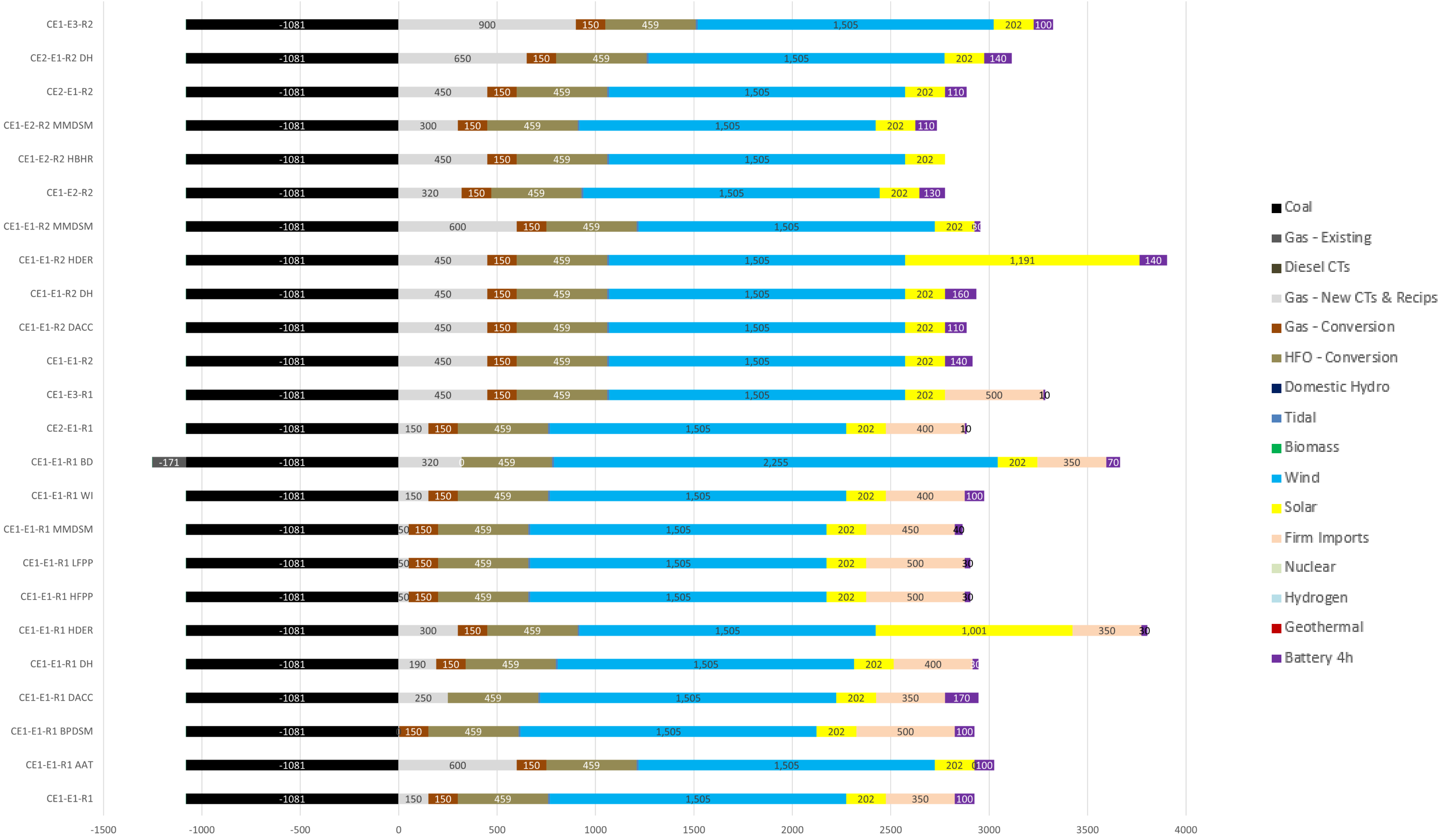
EVERGREEN IRP MODELING SCENARIOS LIST

The scenarios in **purple** reflect additional scenarios included in the Final Modeling Results:

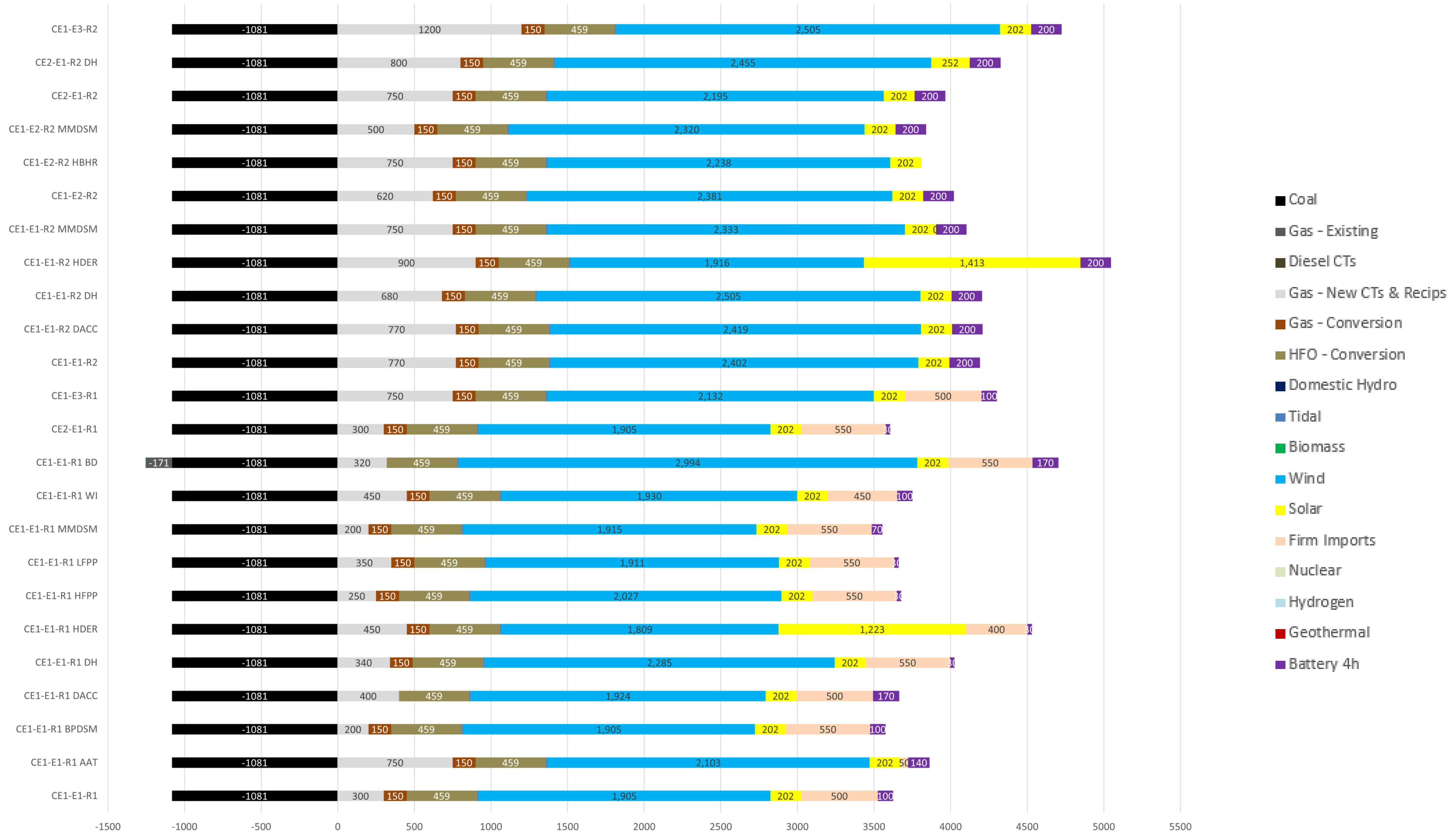
Scenarios	Clean Energy Policy	Electrification	Resource Strategy	Sensitivities
CE1-E1-R1 CE1-E1-R1-DH CE1-E1-R1-LFPP CE1-E1-R1-HFPP CE1-E1-R1-MMDSM CE1-E1-R1-BPDSM CE1-E1-R1-HDER CE1-E1-R1-AAT **CE1-E1-R1-WI** **CE1-E1-R1-DACC** **CE1-E1-R1-BD**	NZ2035	Current Policy and Trends	Atlantic Loop	- Domestic Hydrogen Fuel and PP - Low Fuel and PP - High Modified Mid DSM Base+ DSM High Distributed Energy Resources Adjusted Atlantic Loop Timing Wind Integration Constraints Removed Direct Air Carbon Capture – 2035+ Bidirectional Transaction – Atlantic Loop
CE1-E1-R2 **CE1-E1-R2-DACC** CE1-E1-R2-DH CE1-E1-R2-MMDSM CE1-E1-R2-HDER	NZ2035	Current Policy and Trends	No Atlantic Loop	- Direct Air Carbon Capture – 2035+ Domestic Hydrogen Modified Mid DSM High Distributed Energy Resources
CE1-E2-R2 **CE1-E2-R2-HB/HR** CE1-E2-R2-MMDSM	NZ2035	Hybrid Peak Mitigation	No Atlantic Loop	- High-Cost Battery Storage/High-Cost Renewables Modified Mid DSM
CE1-E3-R1 **CE1-E3-R2**	NZ2035	Accelerated Electrification	Atlantic Loop No Atlantic Loop	- -
CE2-E1-R1	NZ2050	Current Policy and Trends	Atlantic Loop	-
CE2-E1-R2 CE2-E1-R2-DH	NZ2050	Current Policy and Trends	No Atlantic Loop	- Domestic Hydrogen

RESULTS OVERVIEW

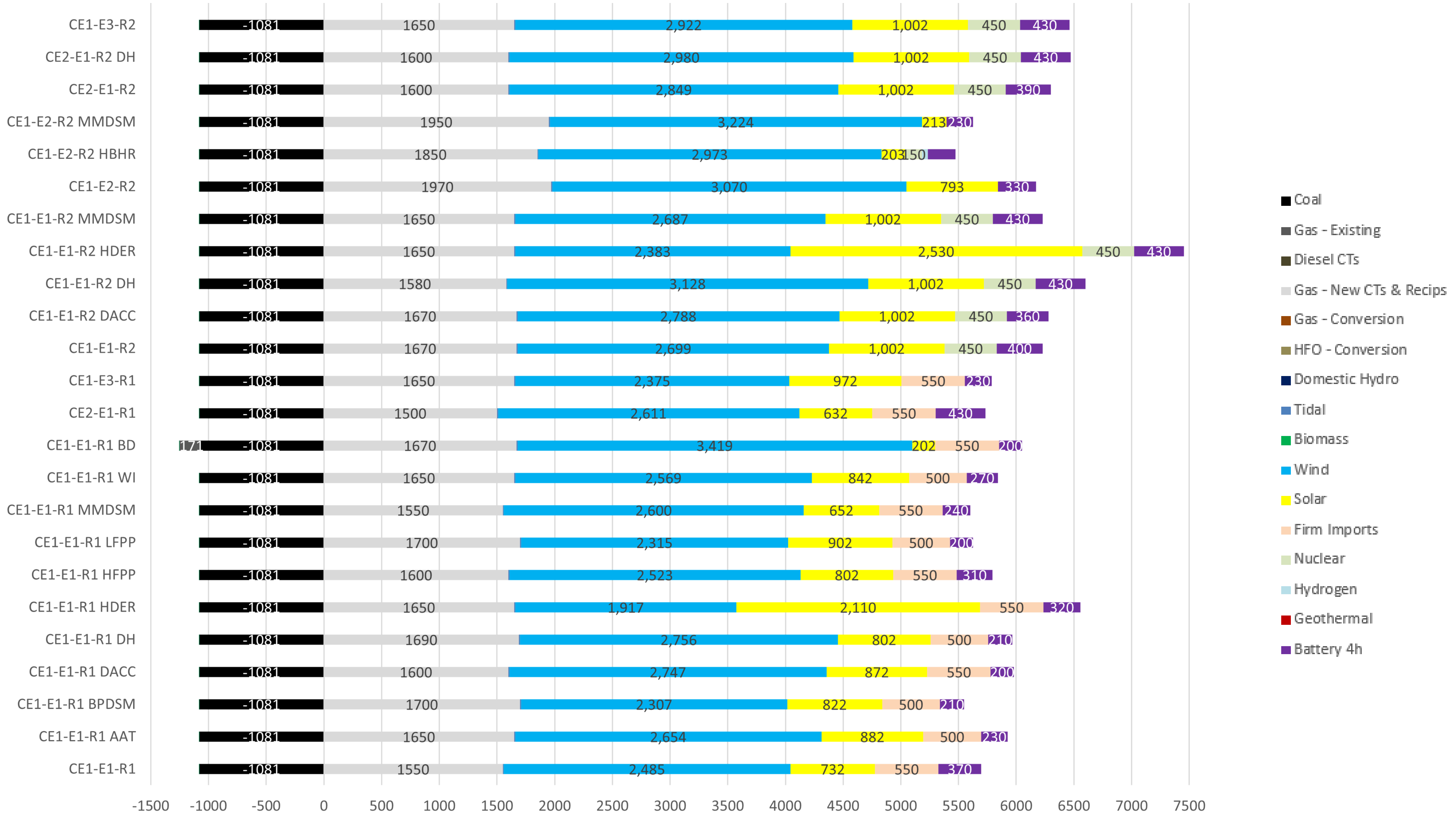
NEW RESOURCES BY 2030



NEW RESOURCES BY 2035



NEW RESOURCES BY 2050



SUMMARY – INSTALLED CAPACITY ADDITIONS

Wind

- Significant wind capacity build by 2050 in all scenarios (~2300 to 3000MW depending on scenario)
- Earlier expansion of wind in CE1-E1-R2 (No Atlantic Loop) scenario as compared to CE1-E1-R1 (With Atlantic Loop) scenario
- Similar wind buildout over the planning horizon in all scenarios between 2025 and 2030

Solar

- Greater, late-period solar expansion in CE1-E1-R2 scenario as compared to CE1-E1-R1
- 200MW of solar selected in all scenarios early in the planning horizon*
- Increase in solar capacity additions later in the planning horizon (mid 2040's)

Nuclear (SMR)

- Capacity additions of SMRs occurring at the end of the planning horizon for the CE1-E1-R2 scenarios and CE1-E3-R2 (450MW) and CE1-E2-R2 (150MW)

Other Emerging Renewables

- 50MW of hydrogen CT capacity added in the CE1-E2-R2 High Renewables and Battery cost scenario
- No geothermal capacity additions

Solar is one of the few resource candidates offered to the model to be in-service by 2025

SUMMARY – INSTALLED CAPACITY ADDITIONS

Coal

- Coal units are phased-out late in the 2020's (all retired by 2030); generally sustained as late as the model allows
- Fuel conversions (coal-to-gas, coal-to-oil) are economically delayed to the latter part of the 2020s to replace coal capacity

Gas and Oil

- All scenarios add at least 50MW of new gas resources by 2030 (range of 50 MW to 900MW); range of 1550MW to 1950MW by 2050
- Earlier expansion of new gas resource builds for the No Atlantic Loop, delayed Atlantic Loop, high battery/high renewable cost and accelerated electrification scenarios as compared to most With Atlantic Loop scenarios (R1 scenarios)

Battery Storage

- Between 200MW and 430MW of battery storage built by 2050
- Battery storage built in all cases by 2030; highest in response to DACC carbon pricing
- Increased capacity additions in scenarios without the Atlantic Loop

Synchronous Condensers

- Between 40 and 200 MVAR of synchronous condensers economically selected over the modeling horizon. By 2030, ~80MW is added on average across all scenarios
- Economic selection of synchronous condensers in Plexos expansion software is driven by the wind integration assumptions; other planning considerations may require additional synchronous condenser resources and may also influence resource location requirements.

SUMMARY – GENERATION

Wind and Solar

- Significant energy contribution from wind generation in all scenarios
  - Increase in wind generation in the No Atlantic Loop scenarios as compared to the with Atlantic Loop scenarios
  - Increased wind and solar generation to support increased load requirements in the domestic hydrogen scenarios
- Wind curtailment between 10% and 45% is observed across the range of scenarios in the long term (average of ~30%)

New and Existing Gas

- Increase in gas utilization in the No Atlantic Loop scenario (more than double the gas generation) as compared to the with Atlantic Loop scenarios, although still operating at low capacity factors

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SUMMARY – GENERATION

Battery Storage

- Double the battery storage usage in the No Atlantic Loop scenarios as compared to the with Atlantic Loop scenarios

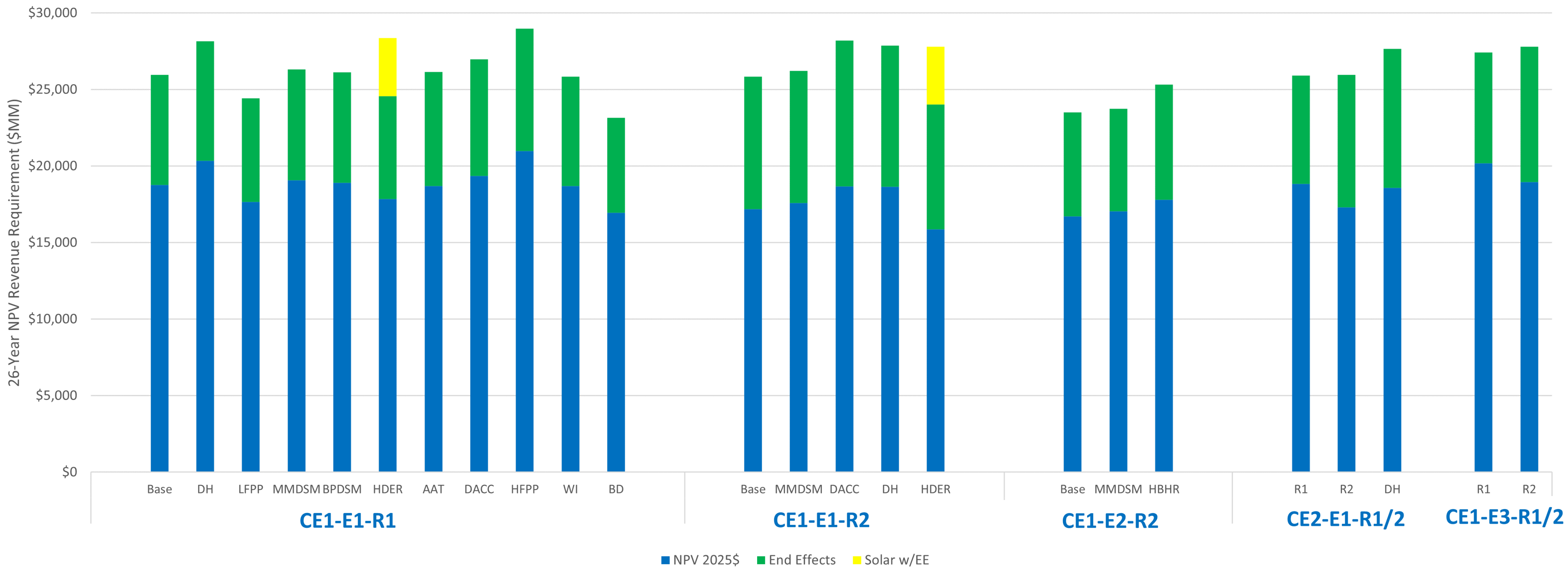
Imported Energy

- Increased reliance on firm and non-firm imports in the with Atlantic Loop and domestic hydrogen scenario
- Relatively similar contributions from non-firm imports via NB and Maritime Link across all scenarios
- The Clean Energy Technology Investment Tax Credit (ITC) has made the with Atlantic Loop and no Atlantic Loop scenarios more cost competitive as compared to previous modeling results.
- The Bidirectional Atlantic Loop scenario CE1-E1-R1-BD results in a significantly lower NPVRR relative to Atlantic Loop CE1-E1-R1 ($2.8B) and No Atlantic Loop CE1-E1-R2 ($2.7B)

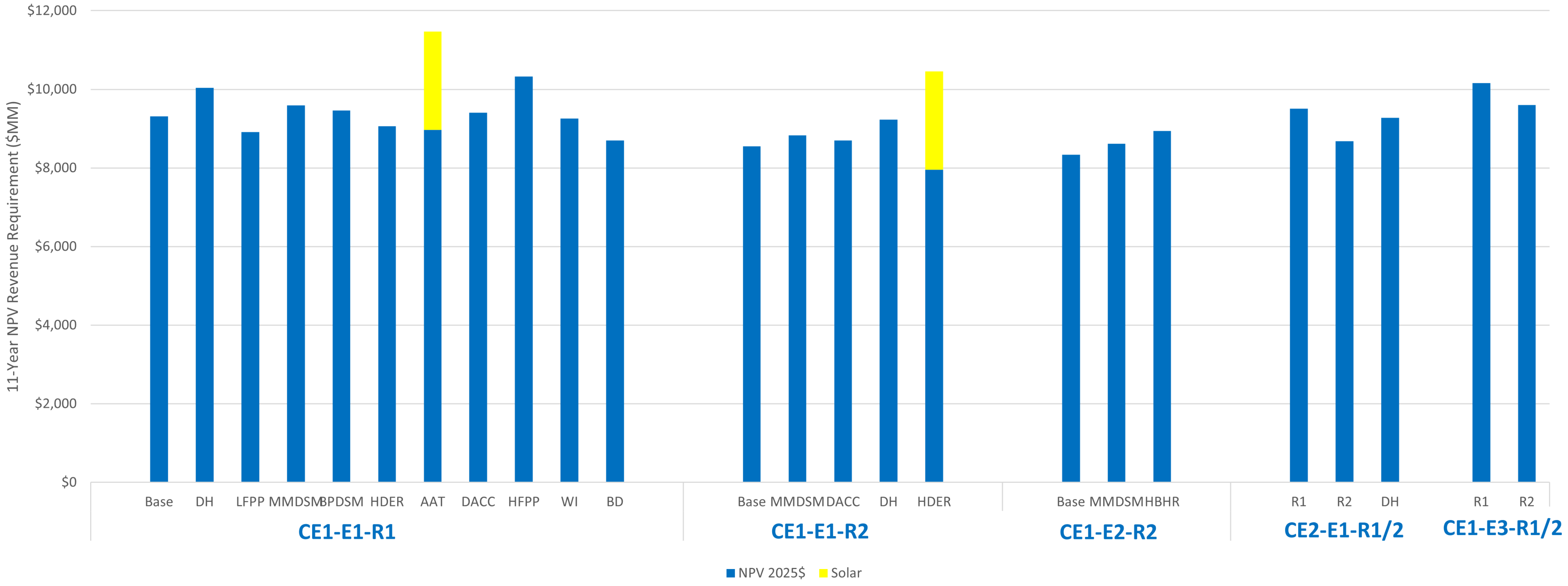
SUMMARY – LOAD AND ENERGY EFFICIENCY

- The Hybrid Peak scenarios (E2) show cost savings relative to the base load (E1) scenarios; this seems to indicate pursuing a hybrid peak solution could have value to customers via avoidance of new firm capacity costs
- Base Plus and Modified Mid DSM scenarios have higher NPVs across all three NPV time horizons than the equivalent Base DSM scenarios for all sets of comparable scenarios
- NS Power has added two "Accelerated Electrification" scenarios in the Final Modeling Results; these achieve the same peak and energy requirements by 2050 but at an accelerated pace. The capacity build-outs select similar resources to the E1 load cases but with accelerated additions of new firm capacity resources.

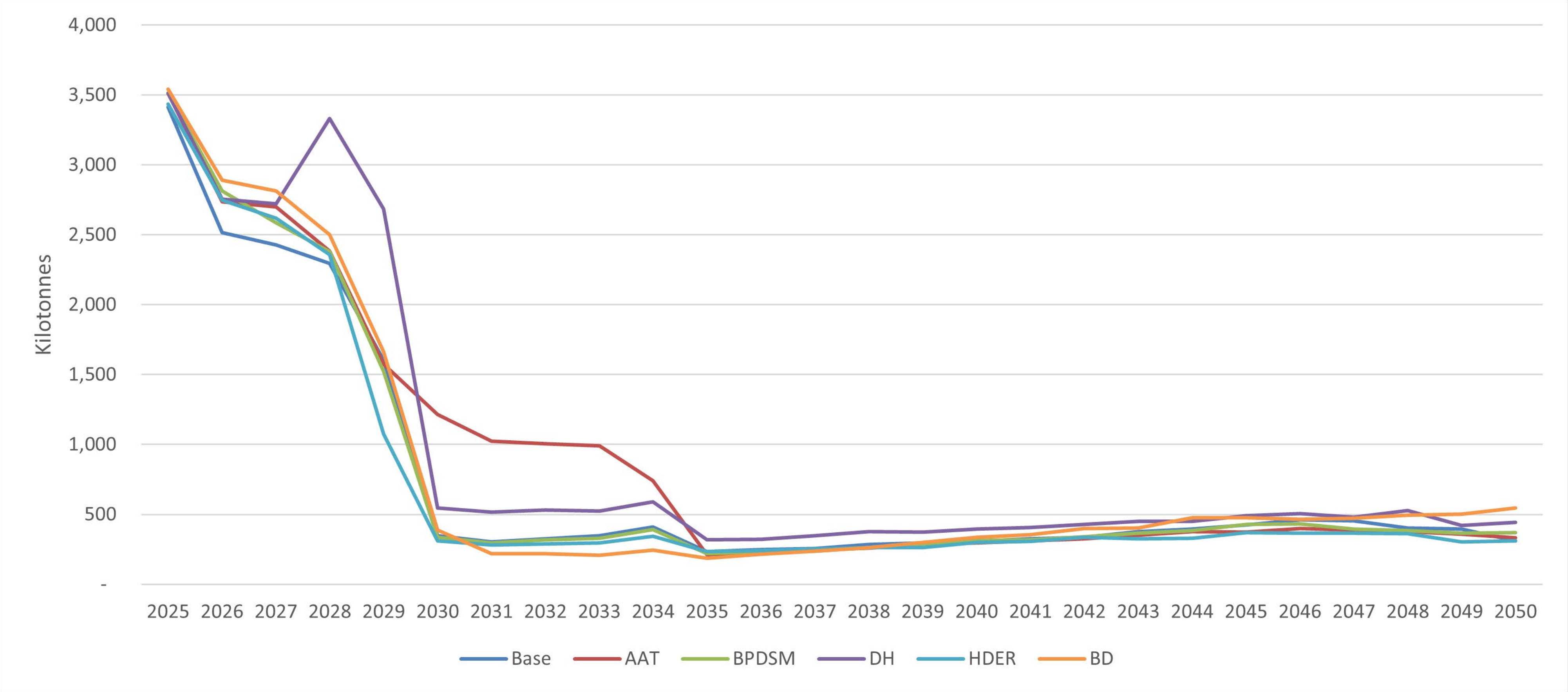
RESOURCE PLAN COST SUMMARY (2025-2050)



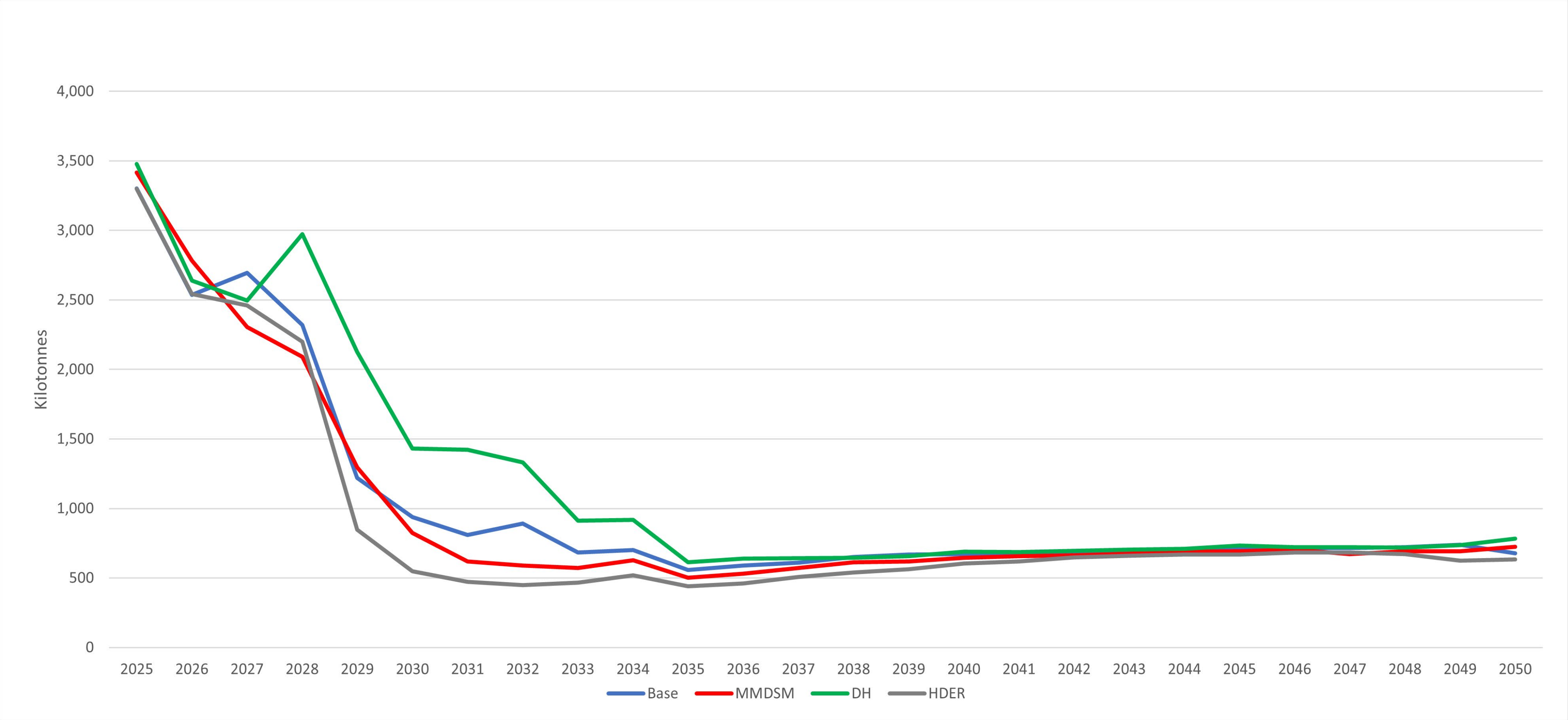
RESOURCE PLAN COST SUMMARY (2025-2035)



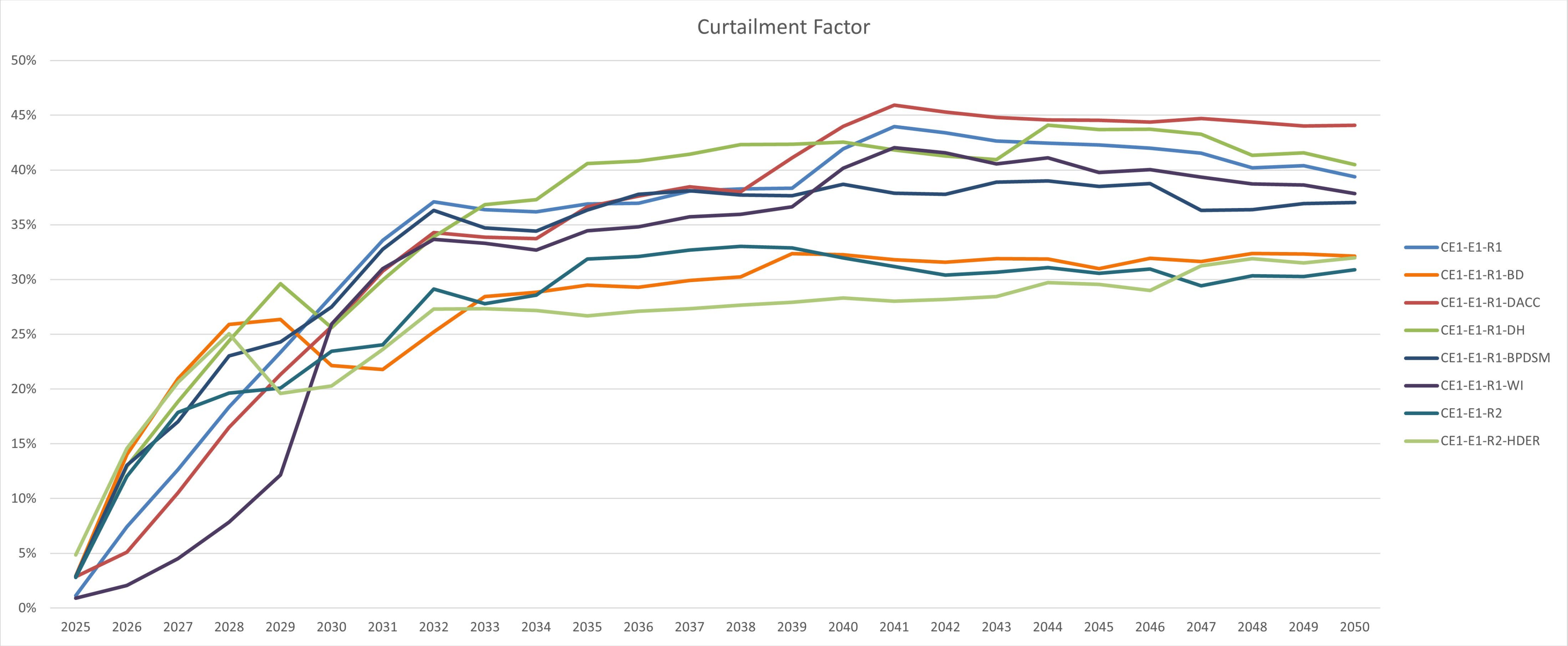
CO_2 EMISSIONS
WITH ATLANTIC LOOP SCENARIOS



CO_2 EMISSIONS
NO ATLANTIC LOOP SCENARIOS

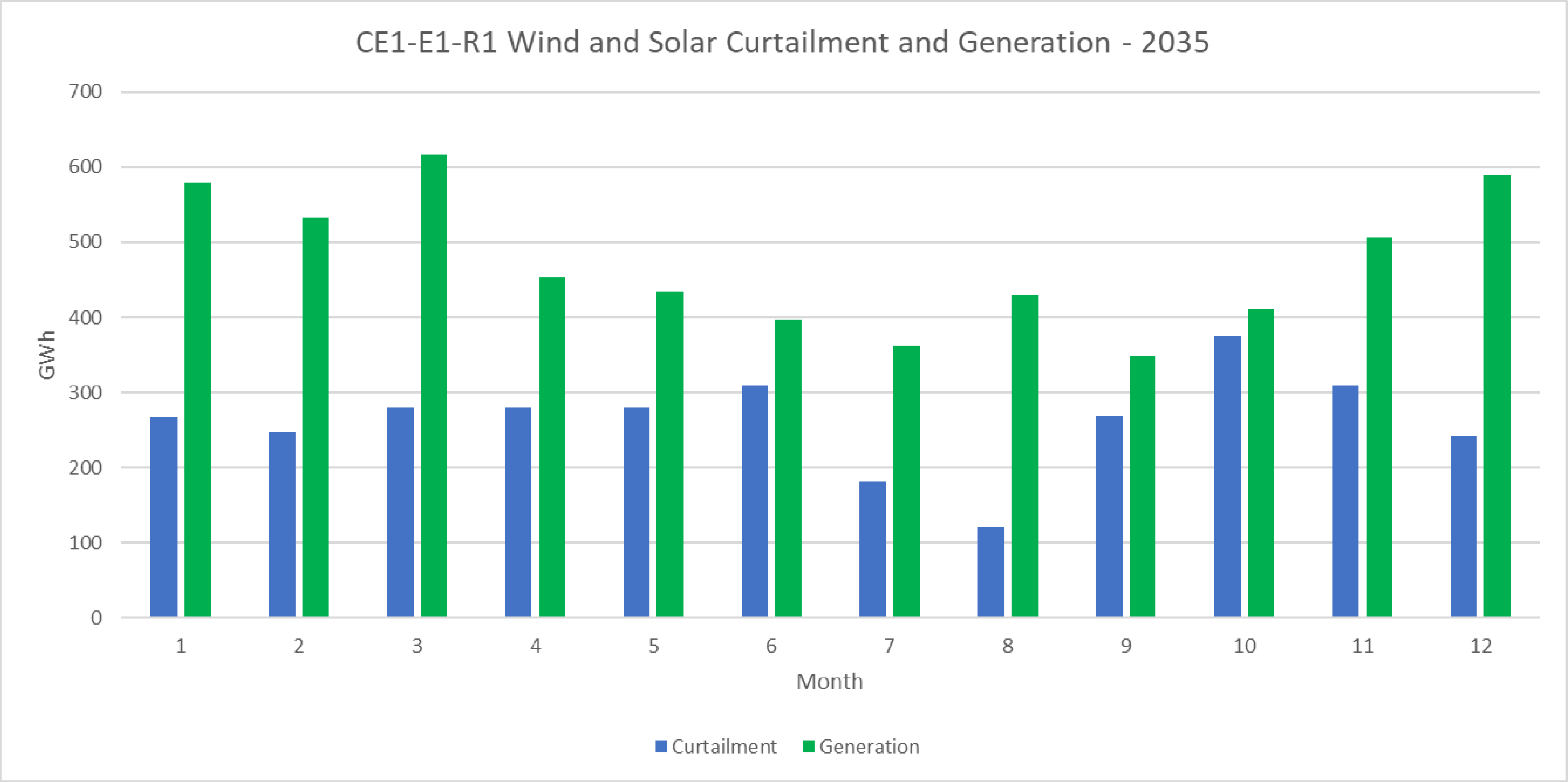


WIND & SOLAR CURTAILMENT



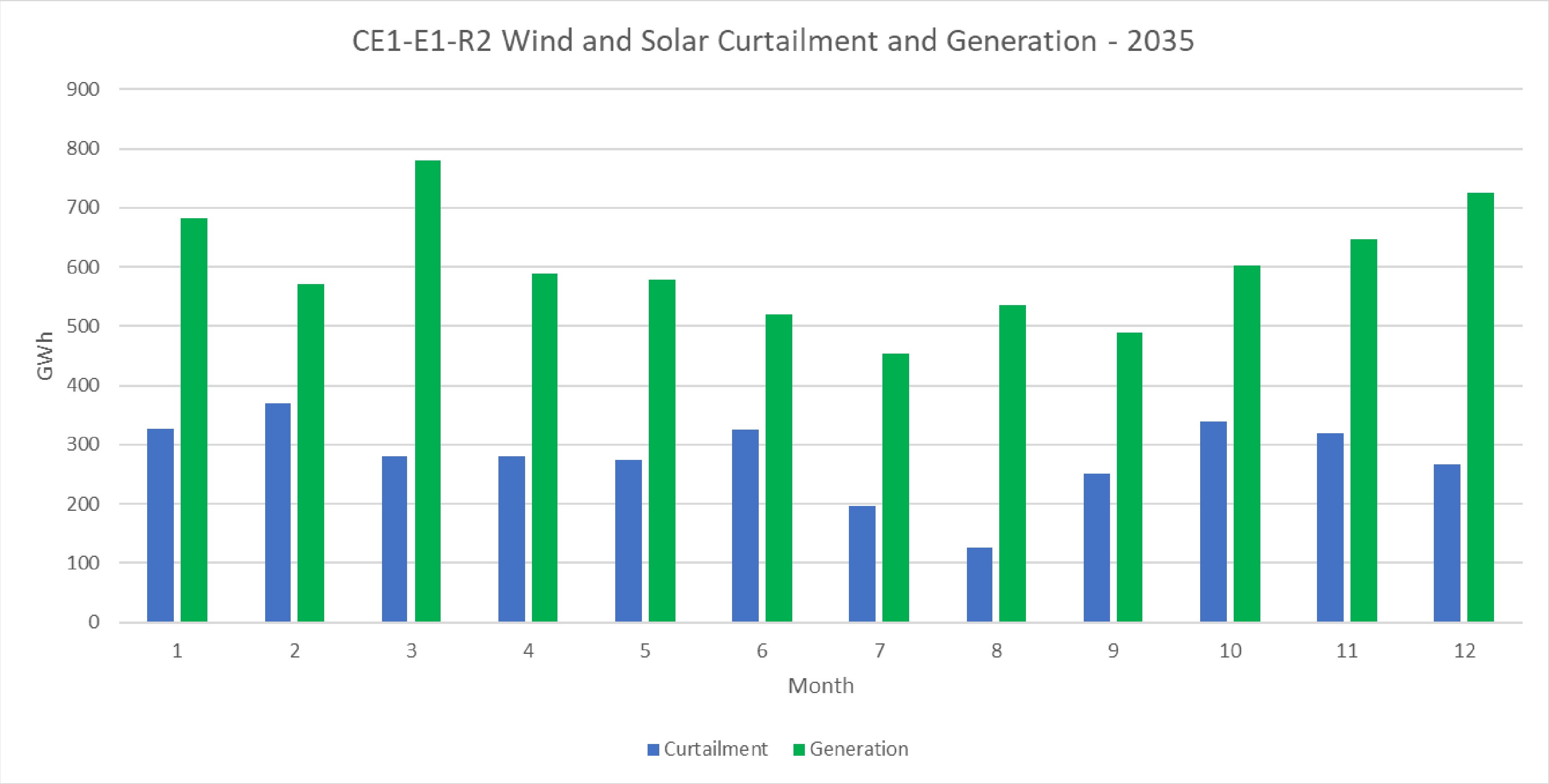
*Curtailment factor represents percentage of potential generation from wind and solar that is curtailed due to a combination of i) wind integration constraints ii) transmission limitations iii) load/generation balance (i.e. wind + solar > load); NS Power will investigate curtailment management strategies to reduce the level of curtailment seen with increasing penetration of variable renewable resources on the grid

WIND AND SOLAR CURTAILMENT – CE1-E1-R1



*Note: Generation represents the energy supplied to the grid, not the potential output of the installed wind capacity

WIND AND SOLAR CURTAILMENT - CE1-E1-R2



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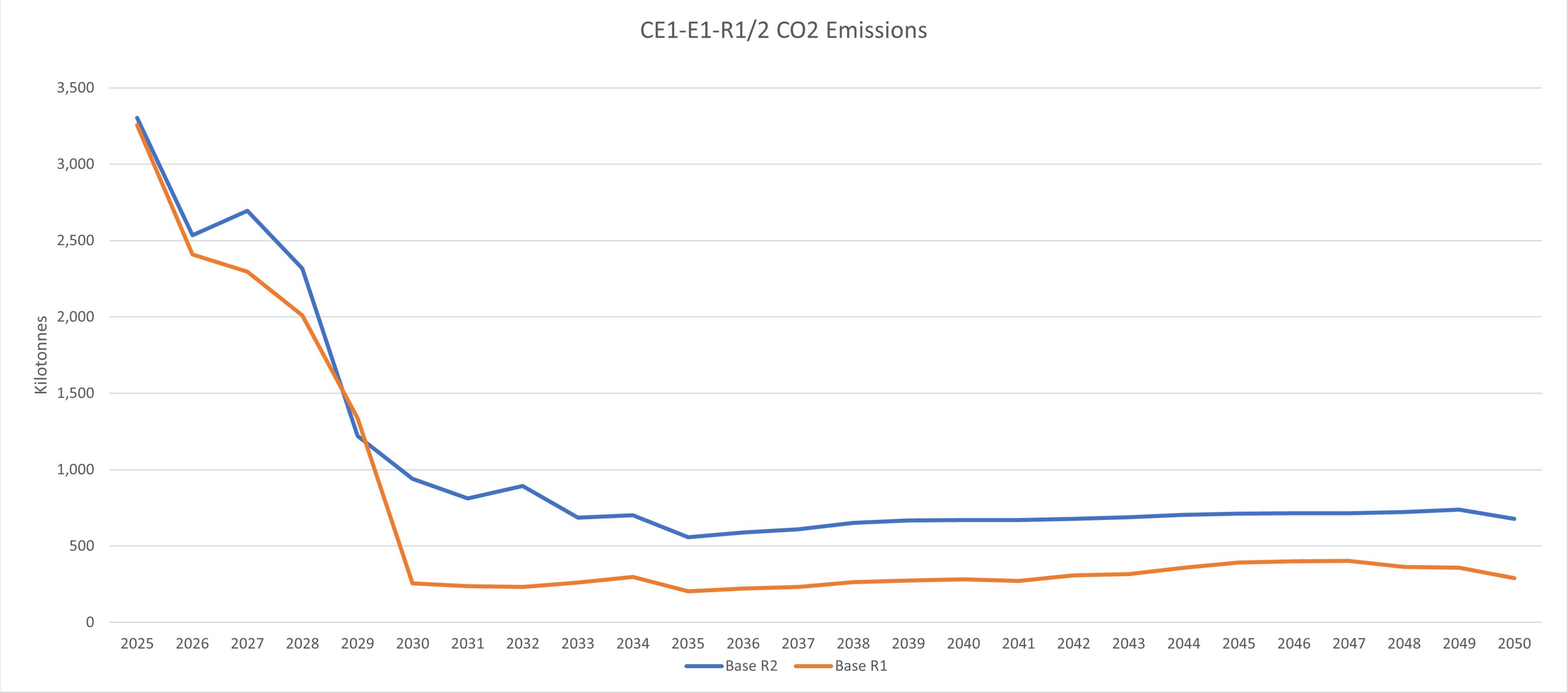
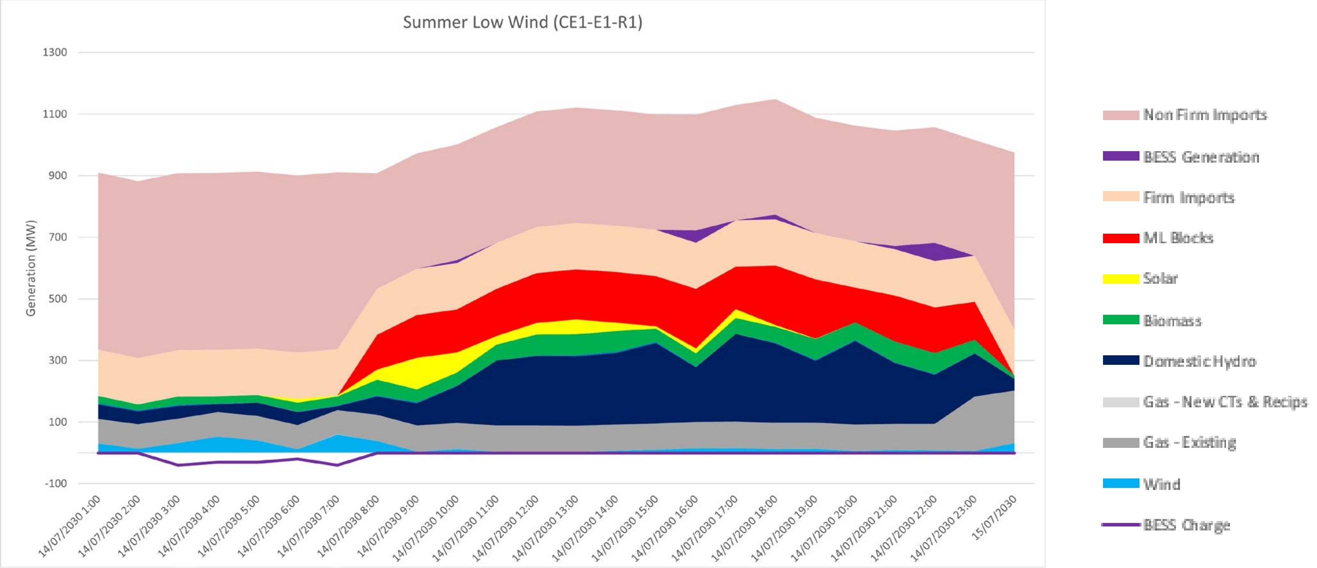
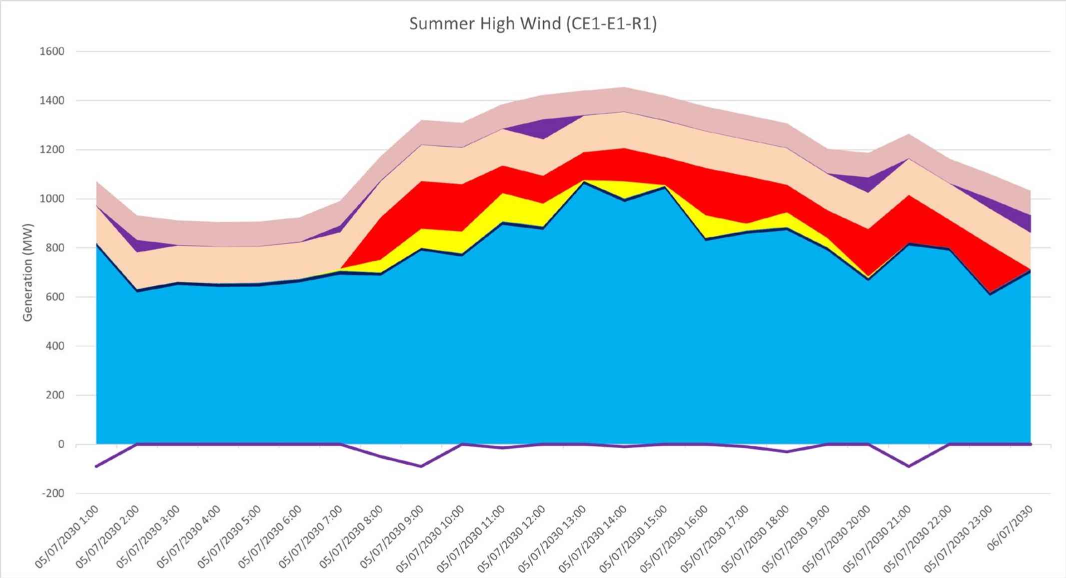
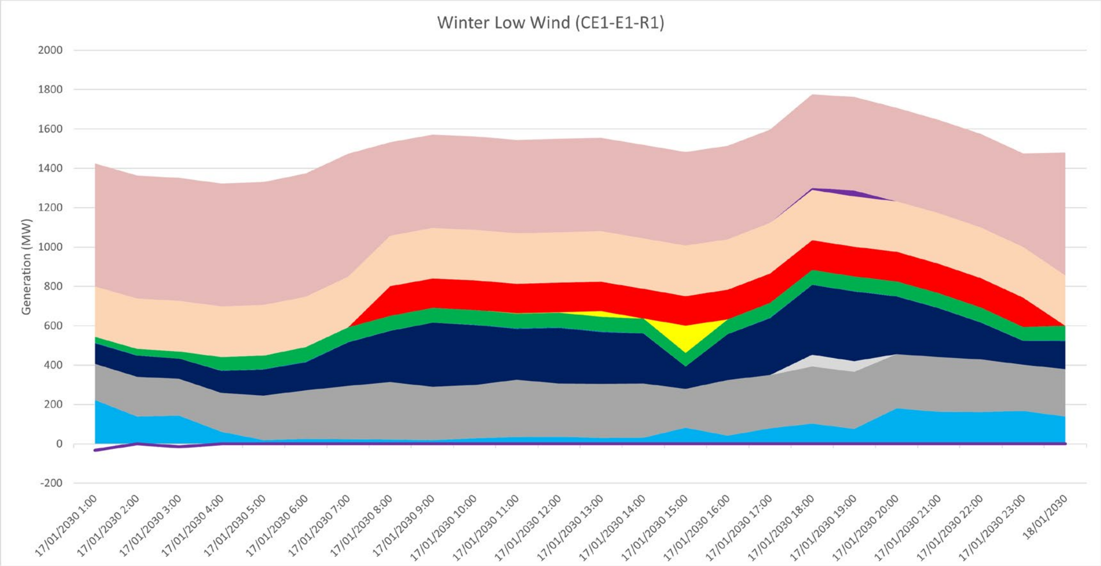
CO_2 EMISSIONS

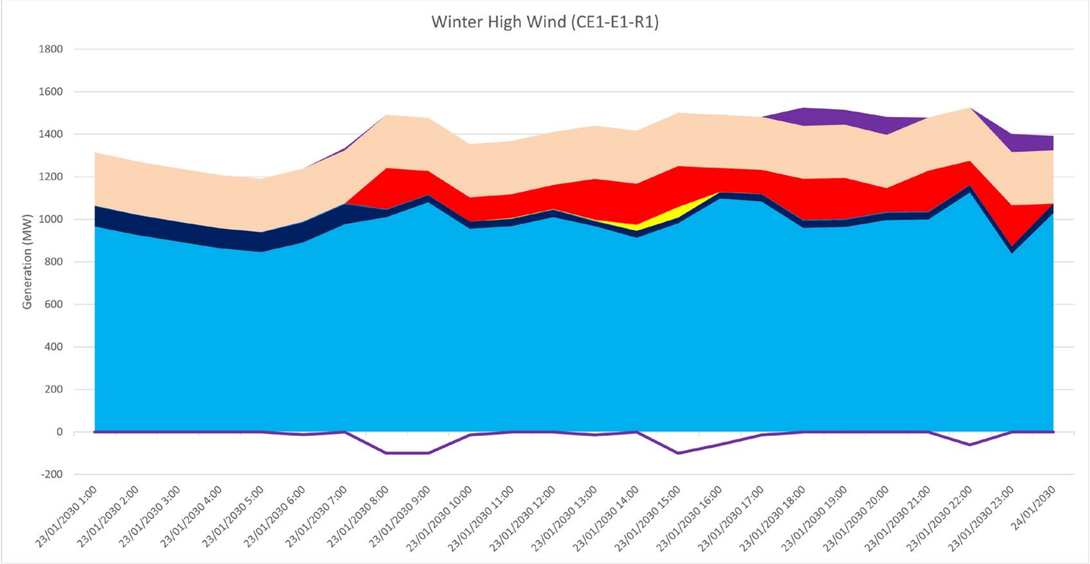


SYSTEM DISPATCH SAMPLE DAYS CE1-E1-R1

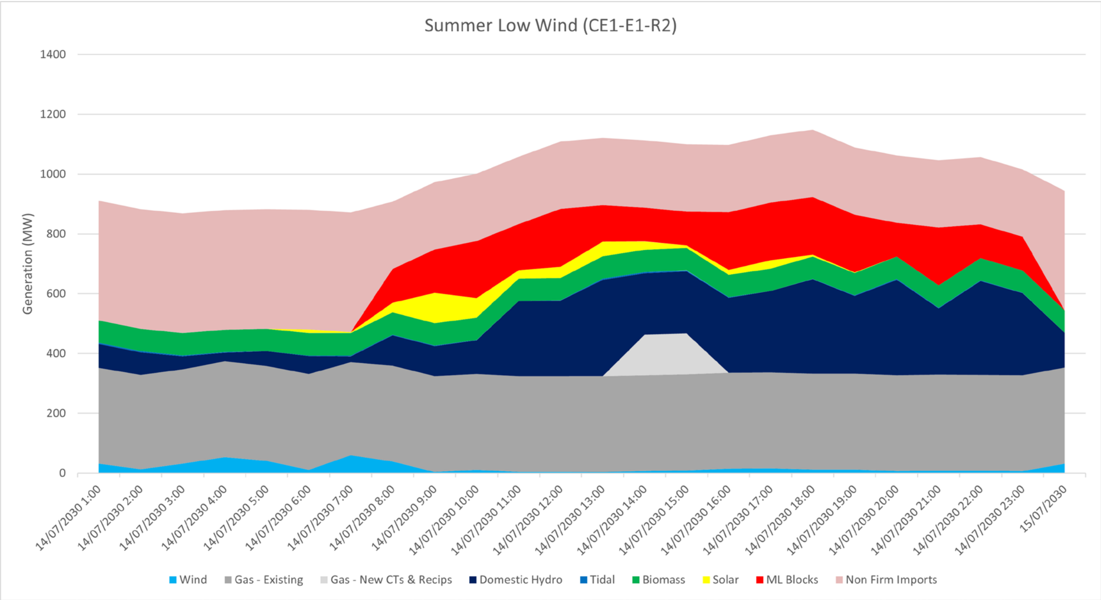


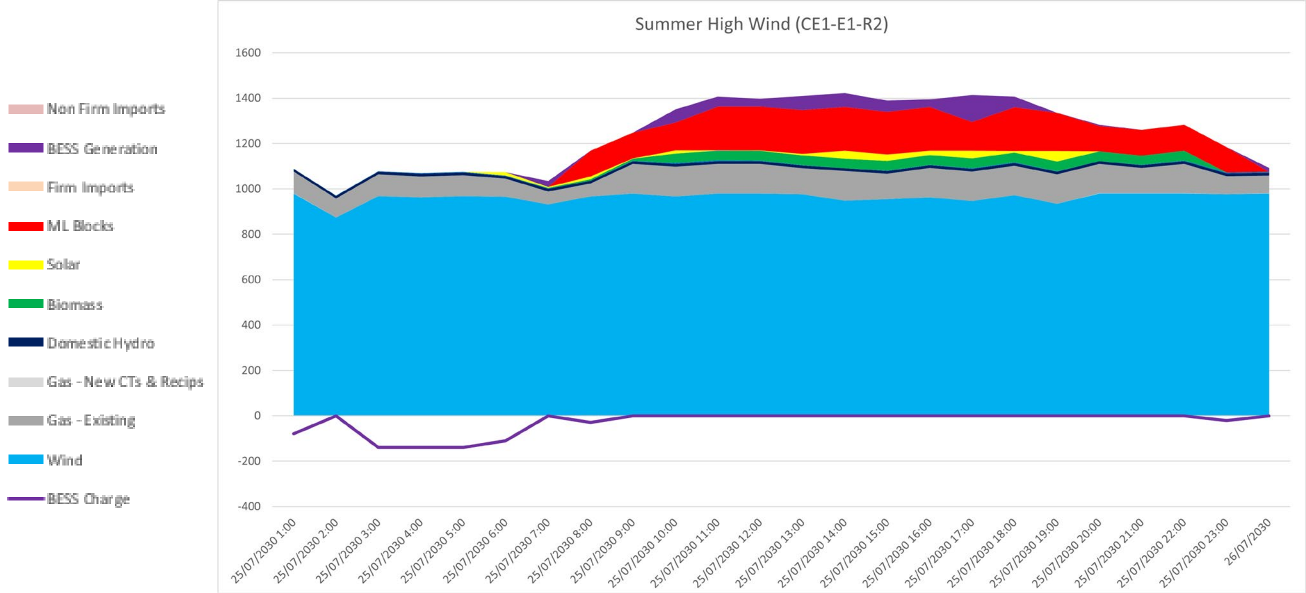


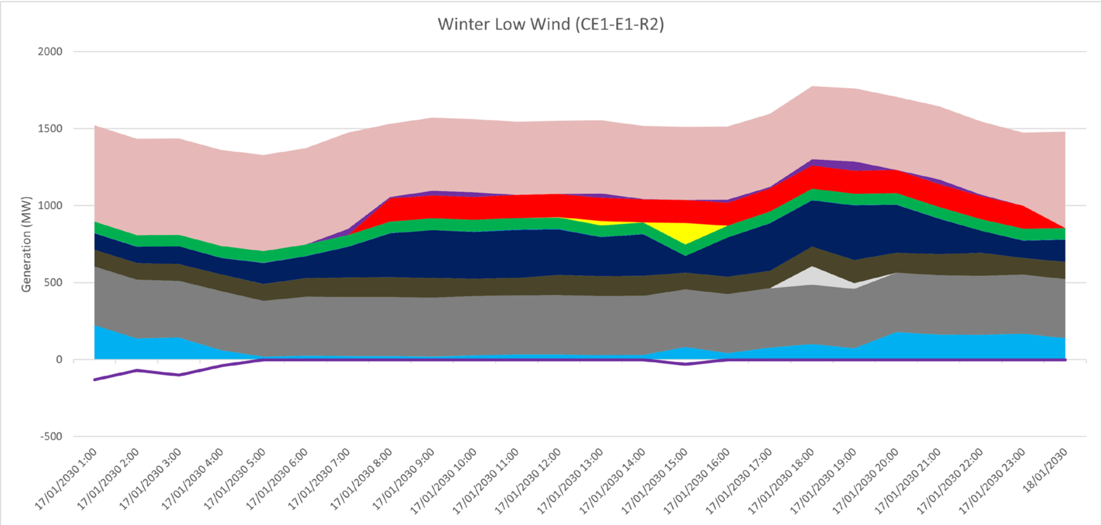


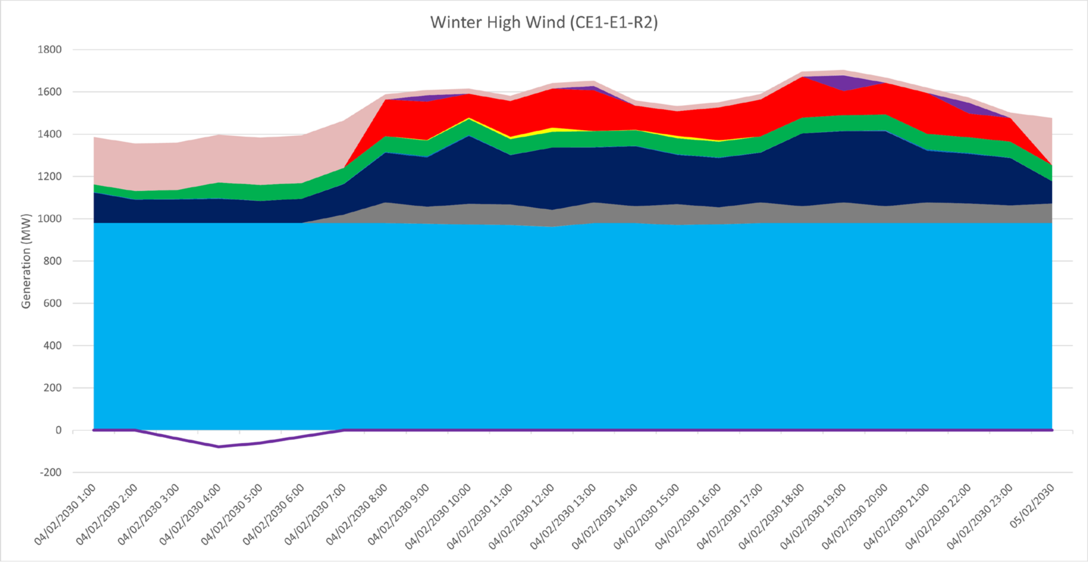


SYSTEM DISPATCH SAMPLE DAYS CE1-E1-R2









SCENARIO RESULTS

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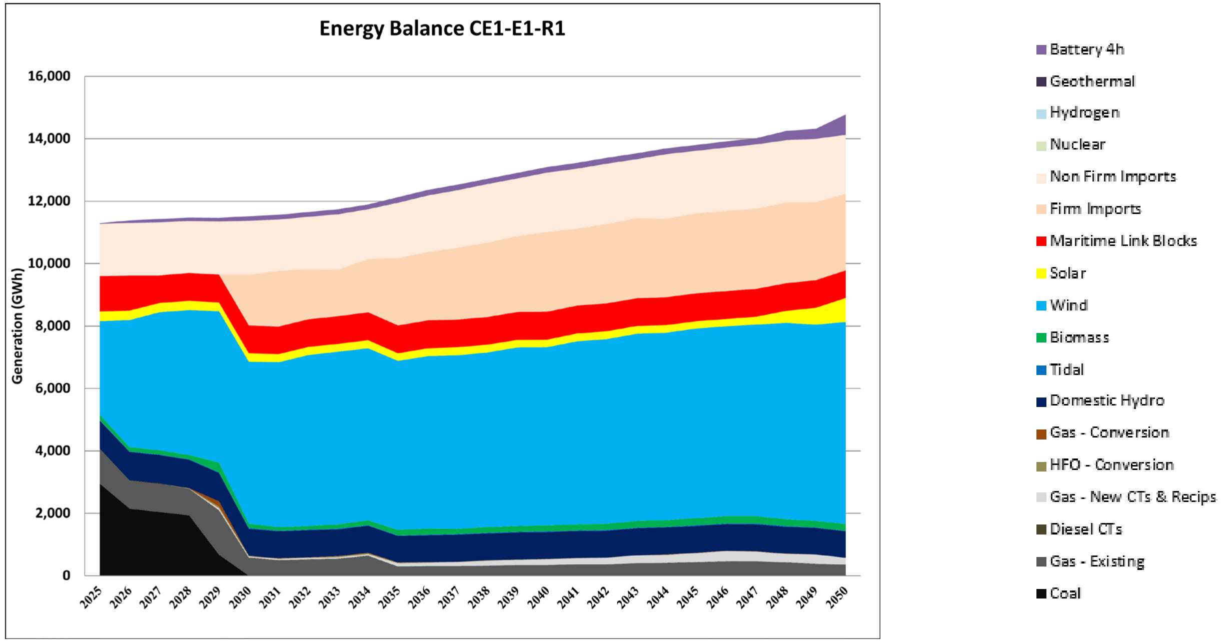
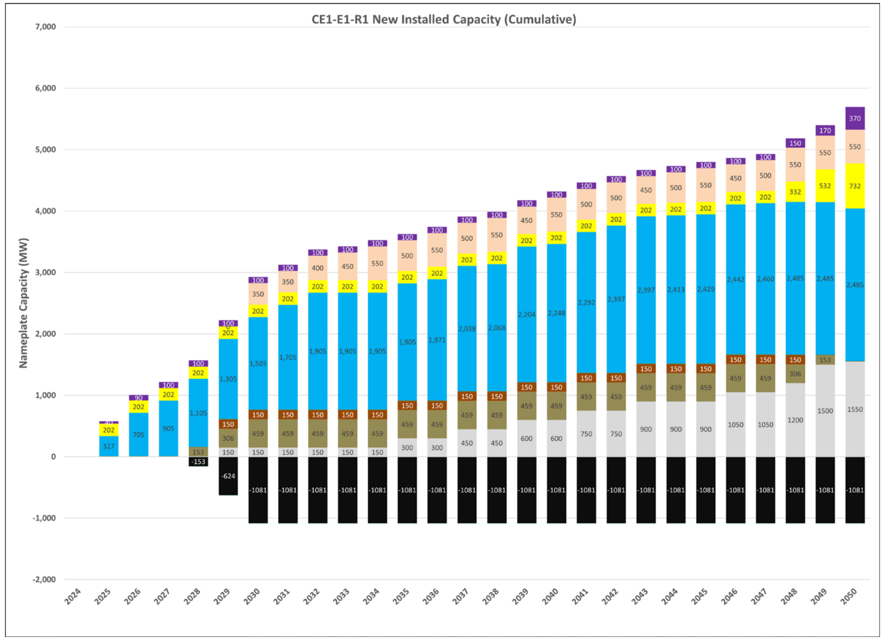
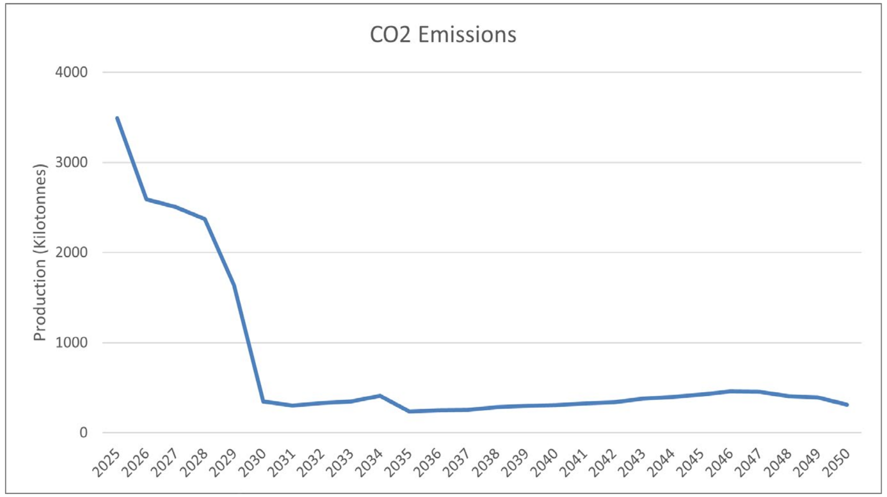
RESULTS

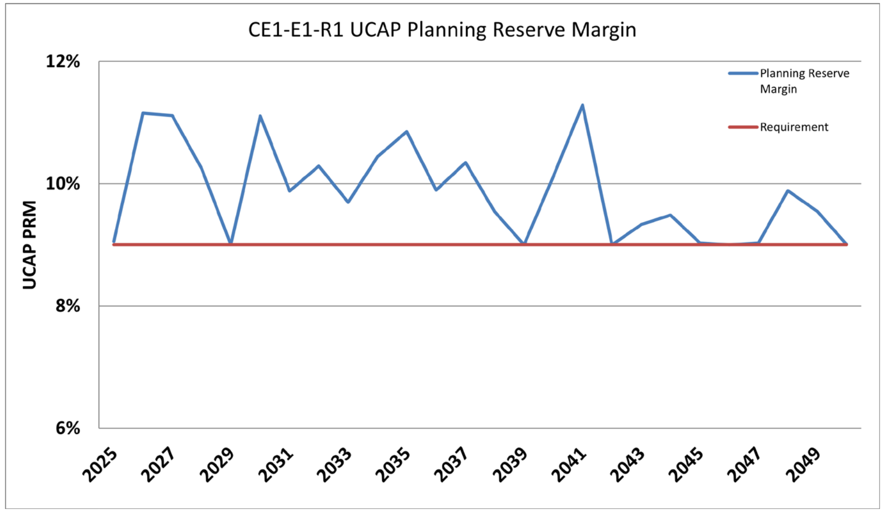
CE1-E1-R1

NZ 2035-CURRENT POLICY AND TRENDS-ATLANTIC LOOP









CE1-E1-R1

NZ 2035-CURRENT POLICY AND TRENDS-ATLANTIC LOOP

Scenario Metrics and Evaluation

26 Year NPVRR ($MM) 2025$	$18,760
26 Year NPVRR with End Effects ($MM 2025$)	$25,960
11 Year NPVRR (MM) 2025$	$9,310
Total CO_2 Emissions 2025-2030 (kT)	12,601
Total CO_2 Emissions 2031-2035 (kT)	1,623
Total CO_2 Emissions 2035-2050 (kT)	5,510
Total CO_2 Emissions 2025-2050 (kT)	19,499

Assumptions and Observations

Capacity Expansion

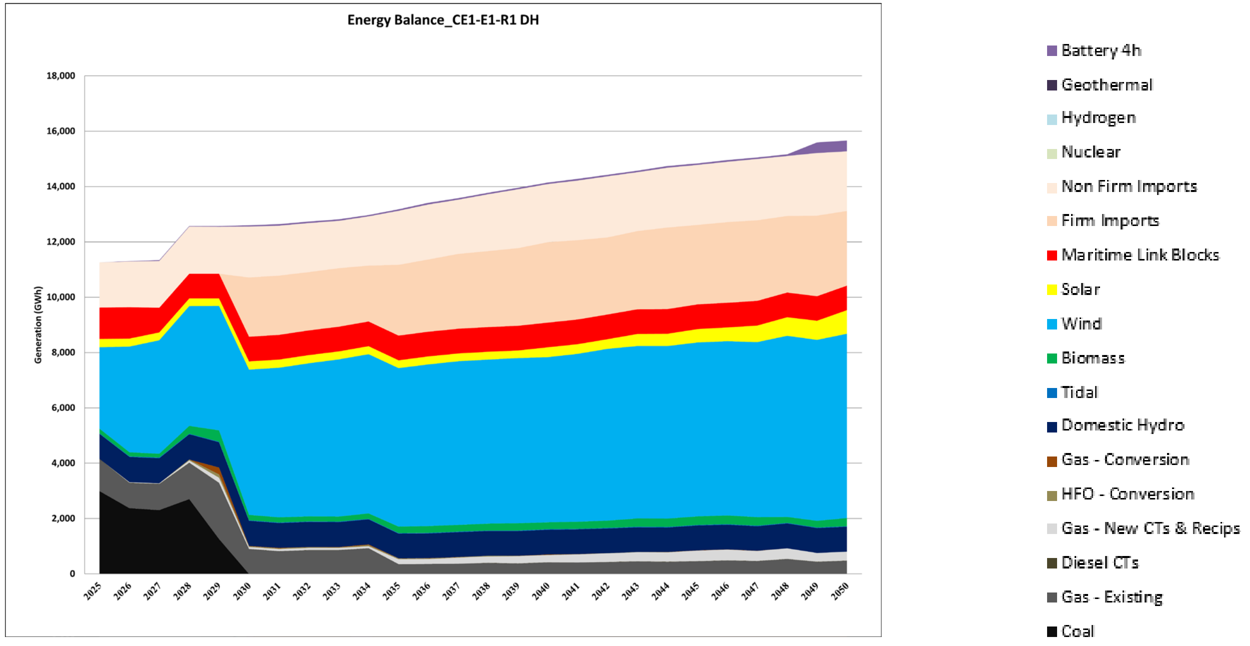
- Reliability Tie selected in 2030 (all R1 scenarios requires reliability tie to be built by 2030)
- Rate Base Procurement of 372 MW fixed-in in 2024/25 (194MW/178 MW) – consistent with all Scenarios
- Other IPP Wind: 130MW fixed in in 2025 – consistent with all scenarios
- Significant wind build economically selected to meet RES constraints, serve load and minimize carbon taxes (~1500MW incremental capacity by 2030, including the assumed projects above)
- As coal is phased out and firm peaks increase, new gas units and HFO conversions are added to provide firm capacity at low utilization factors
- Energy is primarily served via wind, Maritime Link and Atlantic Loop energy, domestic hydro and natural gas generation during periods of high demand and/or low renewable output
- 100MW BESS added by 2027; some late-period additions replace retiring thermal units

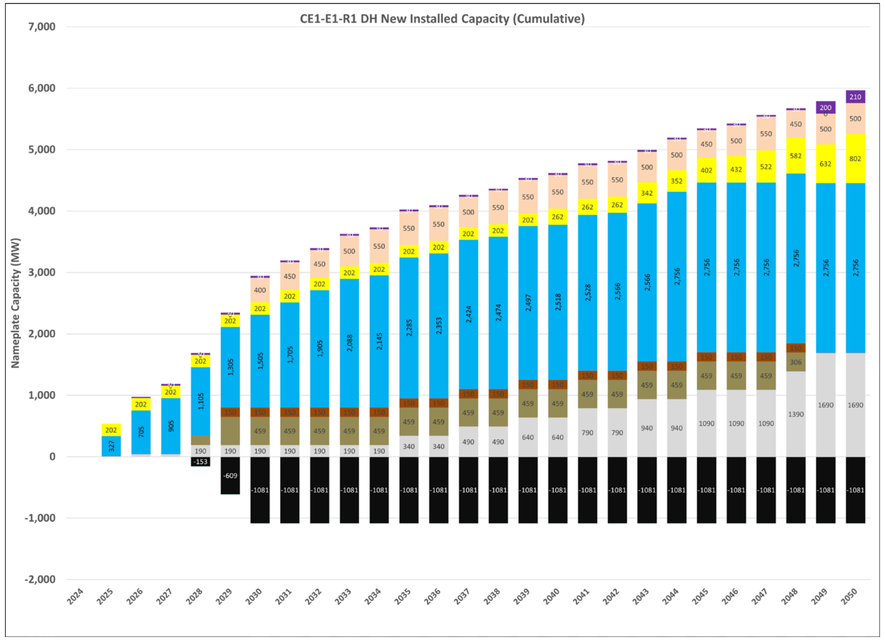
Other

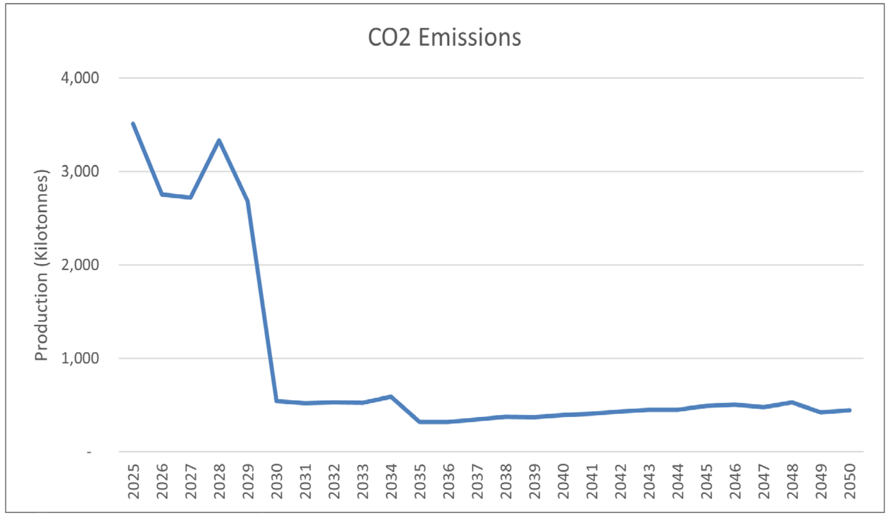
- 2030 coal phase-out is achieved - consistent across all scenarios
- 80% Renewable Electricity Standard achieved in 2030 - consistent across all scenarios
- 2035+ Net Zero assumptions - Federal Carbon price applies to all emissions; 50g/kWh system annual emissions intensity hard cap

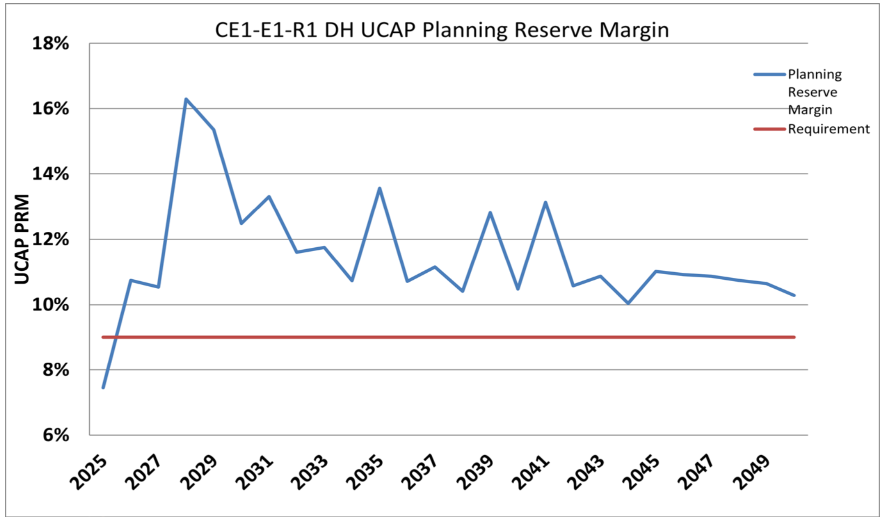
CE1-E1-R1 DH (DOMESTIC HYDROGEN)

NZ 2035-CURRENT POLICY AND TRENDS-ATLANTIC LOOP









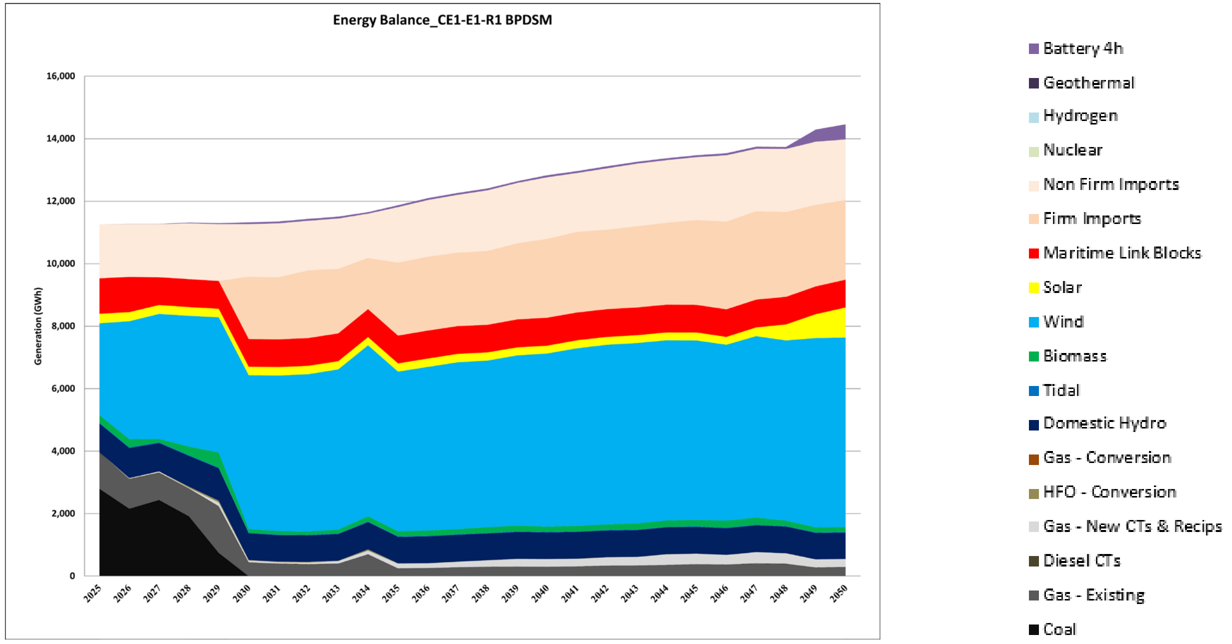
CE1-E1-R1 DH (DOMESTIC HYDROGEN)

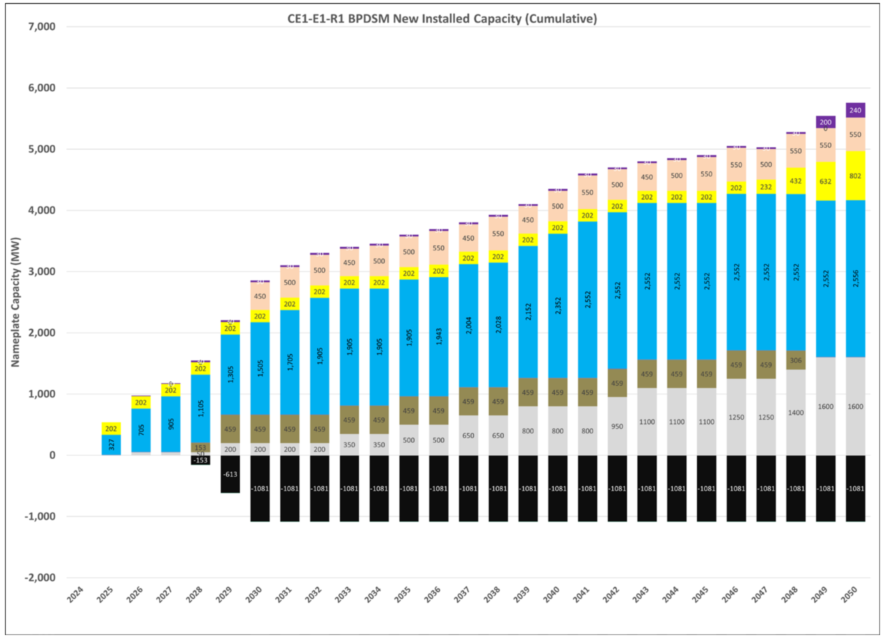
NZ 2035-CURRENT POLICY AND TRENDS-ATLANTIC LOOP

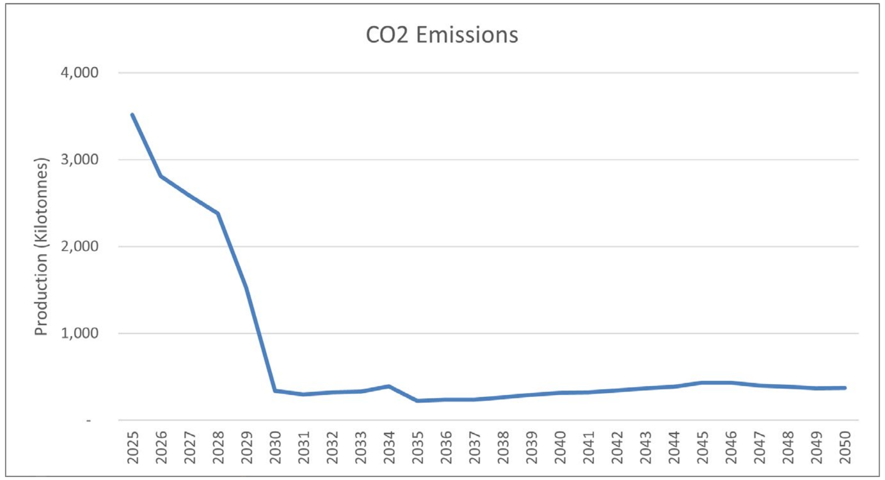
Scenario Metrics and Evaluation		
26 Year NPVRR ($MM) 2025$	$20,350	Assumptions and Observations Capacity Expansion – as compared to CE1-E1-R1 • Reliability Tie selected in 2030 • Earlier and larger expansion of wind and solar to support the hydrogen demand • Incremental expansion of new gas units (140MW by the end of the modeling horizon) Other • $2,180MM higher NPV w/end effects than CE1-E1-R1 • Less BESS installed over the planning horizon (70-160MW), likely due to flexible nature of the H_2 Load • Higher H_2 load results in higher emissions (~5MT cumulative over the horizon), but at low emissions intensity (~0.22g/kWh) • Alt Loop serves H_2 load at lower cost than No Loop plans ($145MM) • Per the evergreen IRP assumptions, hydrogen load is served with 100% renewable electricity on an annual basis, as defined in the Nova Scotia Renewable Electricity Regulations
26 Year NPVRR with End Effects ($MM 2025$)	$28,140	
11 Year NPVRR (MM) 2025$	$10,040	
Total CO_2 Emissions 2025-2030 (kT)	15,548	
Total CO_2 Emissions 2031-2035 (kT)	2,479	
Total CO_2 Emissions 2035-2050 (kT)	6,737	
Total CO_2 Emissions 2025-2050 (kT)	24,446	

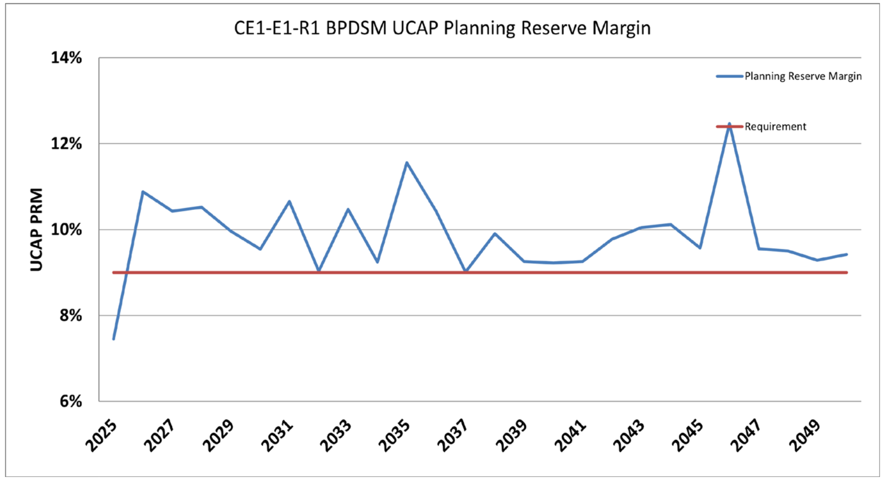
CE1-E1-R1 BPDSM (BASE PLUS DSM)

NZ 2035-CURRENT POLICY AND TRENDS-ATLANTIC LOOP









CE1-E1-R1 BPDSM (BASE PLUS DSM)

NZ 2035-CURRENT POLICY AND TRENDS-ATLANTIC LOOP

Scenario Metrics and Evaluation

26 Year NPVRR ($MM) 2025$	$18,900
26 Year NPVRR with End Effects ($MM 2025$)	$26,130
11 Year NPVRR ($MM) 2025$	$9,460
Total CO_2 Emissions 2025-2030 (kT)	13,150
Total CO_2 Emissions 2031-2035 (kT)	1,553
Total CO_2 Emissions 2035-2050 (kT)	5,346
Total CO_2 Emissions 2025-2050 (kT)	19,830

Assumptions and Observations

Capacity Expansion – as compared to CE1-E1-R1

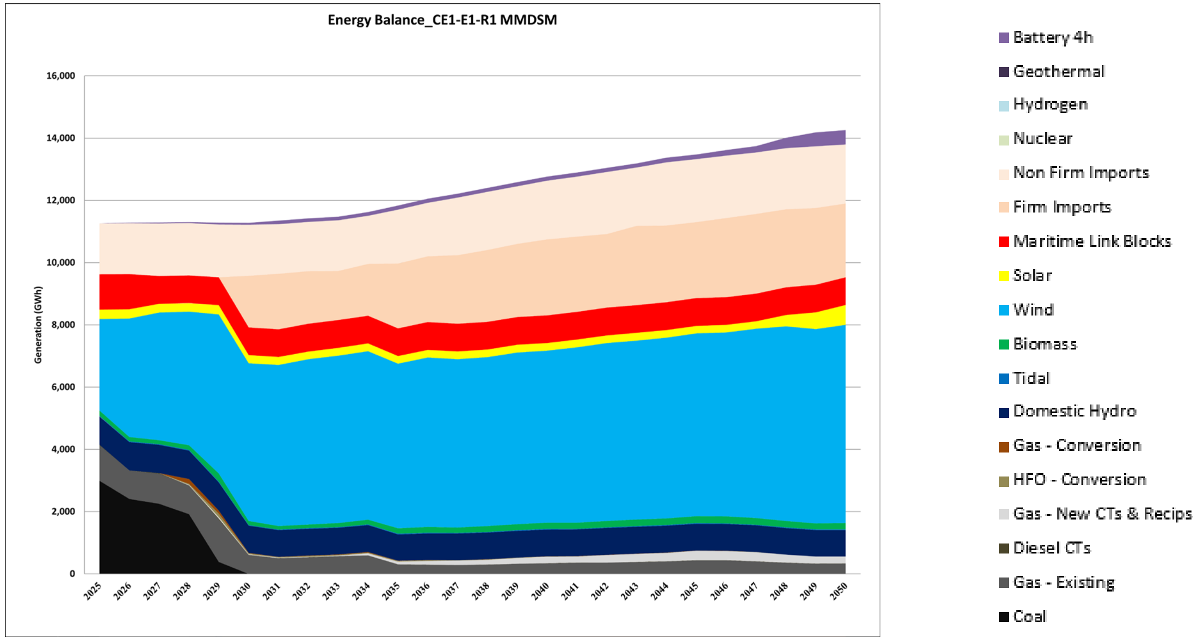
- Reliability Tie selected in 2030
- Higher firm capacity purchases (50-150MW) in the early-mid period (to period ending 2035) with less new Gas CTs than Base DSM; in the mid/late periods (2036+) more gas and solar (50-150MW and 90MW respectively), less wind (~100-180MW), firm capacity purchases (0-550MW), and BESS (160MW) at the end of the horizon
- Marginally lower firm capacity on the system, due to DSM impacts on peak
- 10MW of Synchronous Condensers by 2030; 200MW by 2050

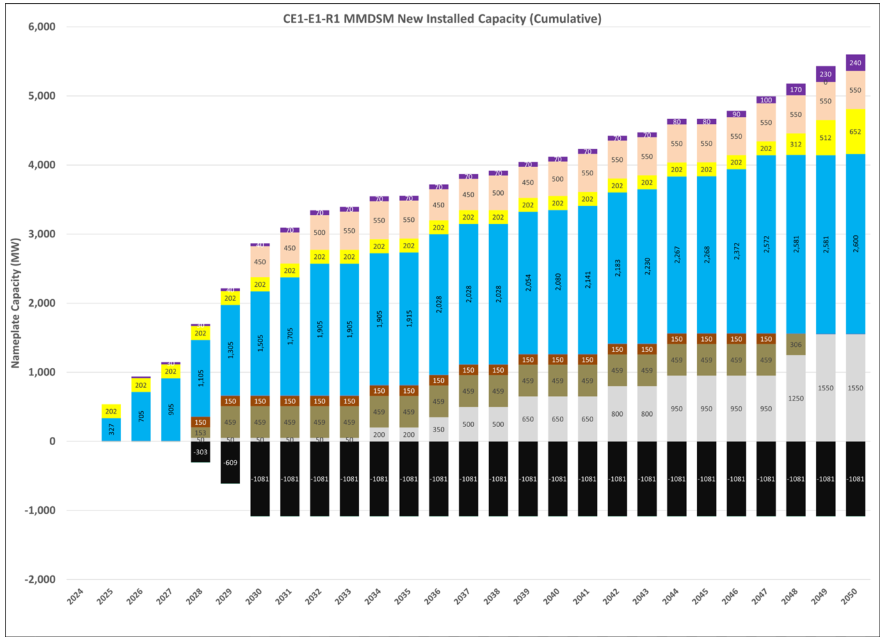
Other

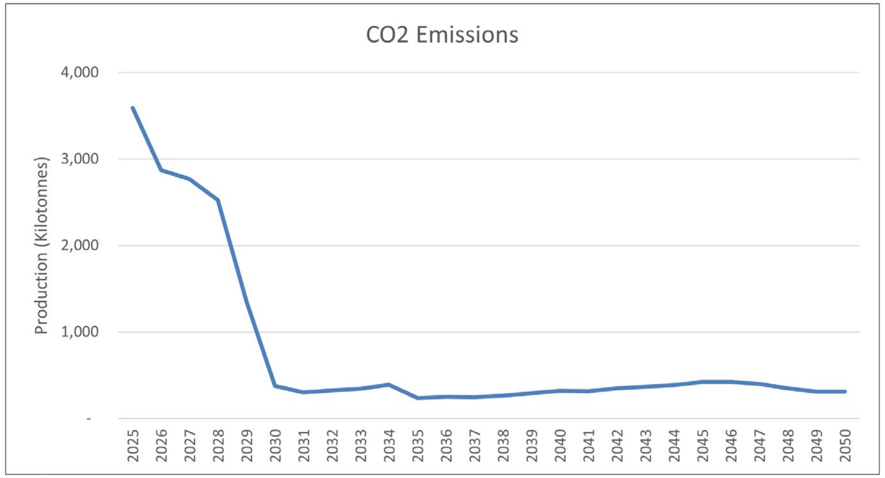
- $170MM higher NPV w/end effects than CE1-E1-R1
- $150MM higher 11-YR NPV

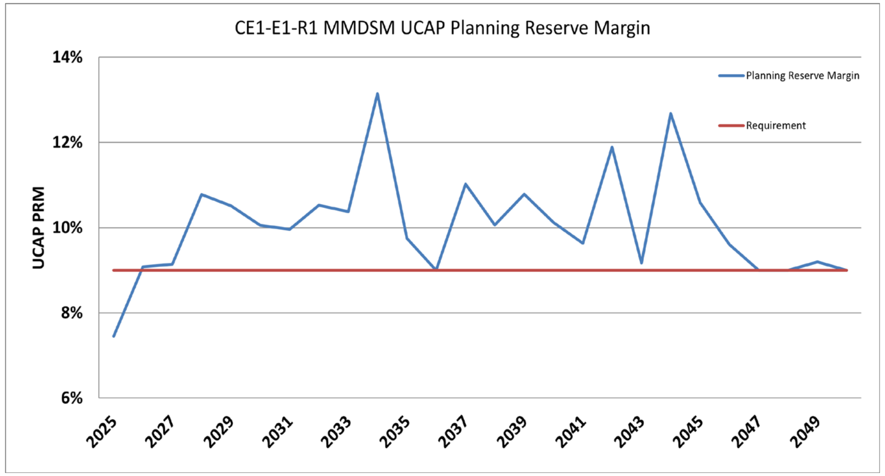
CE1-E1-R1 MMDSM (MODIFIED-MID DSM)

NZ 2035-CURRENT POLICY AND TRENDS-ATLANTIC LOOP









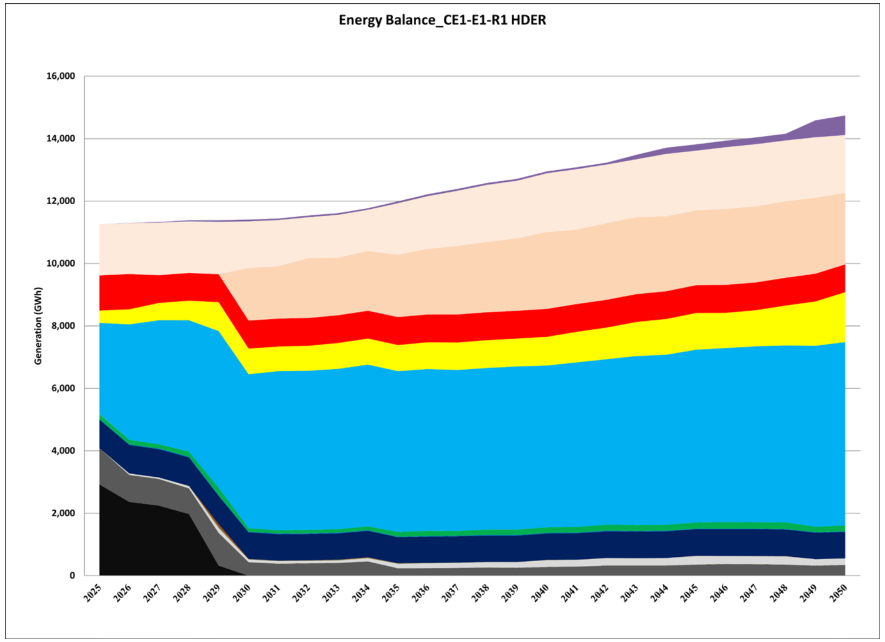
CE1-E1-R1 MMDSM (MODIFIED-MID DSM)

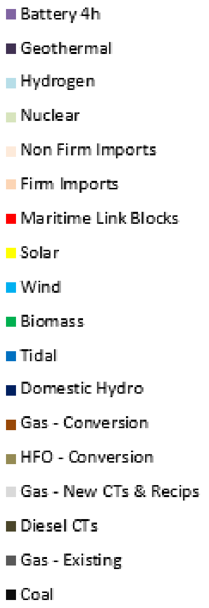
NZ 2035-CURRENT POLICY AND TRENDS-ATLANTIC LOOP

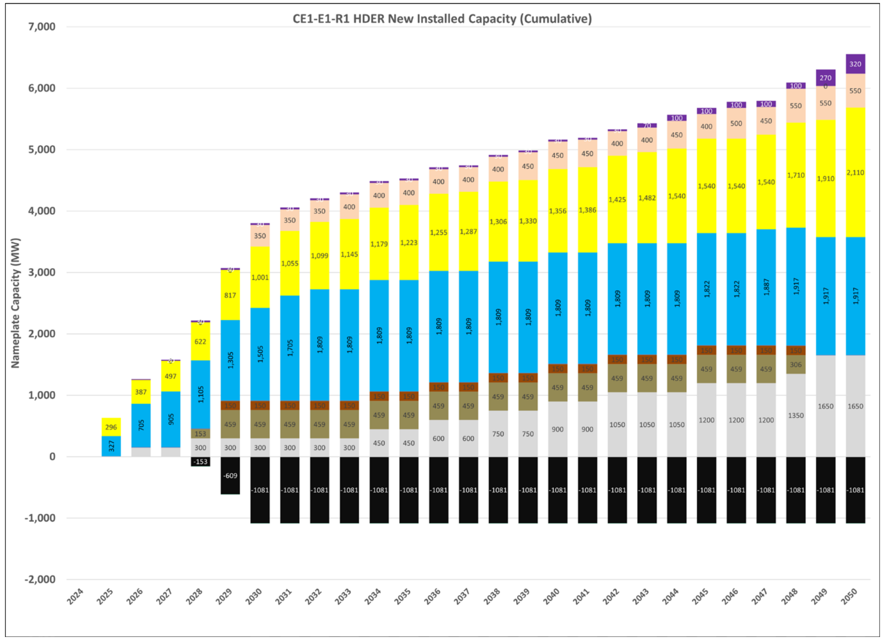
Scenario Metrics and Evaluation		
26 Year NPVRR ($MM) 2025$	$19,080	Assumptions and Observations Capacity Expansion – as compared to CE1-E1-R1 • Reliability Tie economically selected in 2029 • In the early-to-mid period (2025-2035) firm capacity purchases offset gas CTs and BESS relative to CE1-E1-R1. • In the mid-to-late period (2036-2045) the plan has lower wind and BESS (~160MW and ~25MW respectively) and greater new gas CTs (50MW) vs. CE1-E1-R1 • By the end of the horizon (2045-2050) the plan has higher wind (115MW) and lower solar and BESS (80MW and 130MW respectively) • Lower firm capacity reflective of DSM reduction on peak demand • 150MW of coal-to-gas conversion selected in 2028 Other • $360MM higher NPV w/end effects than CE1-E1-R1 • $280MM higher 11YR NPV than CE1-E1-R1
26 Year NPVRR with End Effects ($MM 2025$)	$26,320	
11 Year NPVRR ($MM) 2025$	$9,590	
Total CO_2 Emissions 2025-2030 (kT)	13,143	
Total CO_2 Emissions 2031-2035 (kT)	1,590	
Total CO_2 Emissions 2035-2050 (kT)	5,219	
Total CO_2 Emissions 2025-2050 (kT)	19,718	

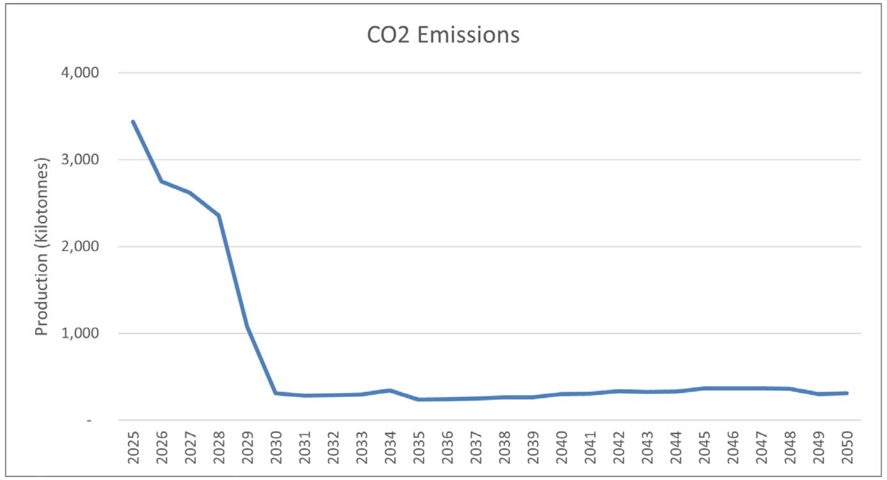
CE1-E1-R1 HDER (HIGH DER)

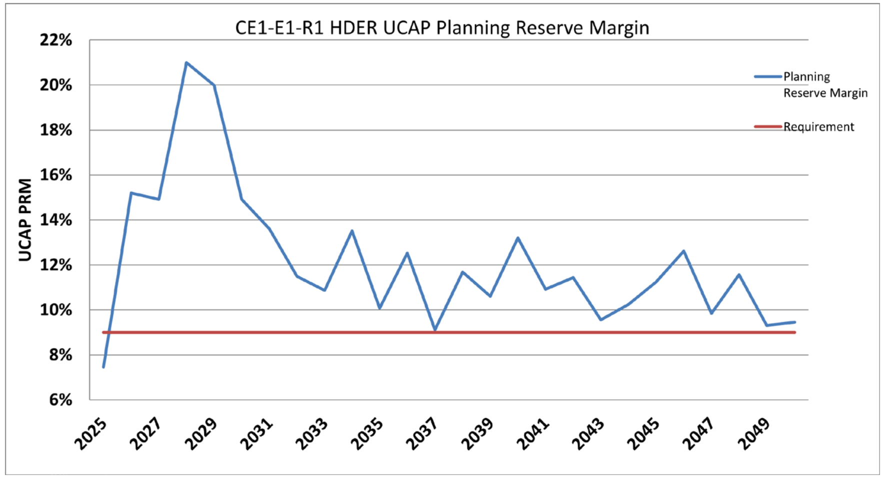
NZ 2035-CURRENT POLICY AND TRENDS-ATLANTIC LOOP











CE1-E1-R1 HDER (HIGH DER)

NZ 2035-CURRENT POLICY AND TRENDS-ATLANTIC LOOP

Scenario Metrics and Evaluation

26 Year NPVRR ($MM) 2025$	$17,840
NPV Capital Cost Solar (2025$)	$3,100
Total NPV Cost (NPVRR + NPV Solar)	$20,940
26 Year NPVRR with End Effects ($MM 2025$)	$24,570
NPV Capital Cost – Solar with End Effects	$3,800
Total 26 Year NPVRR + NPV Solar	$28,370
11 Year NPVRR ($MM) 2025$	$9,060
11 Year NPV Capital Cost Solar (2025$)	$2,500
	$11,560
Total CO_2 Emissions 2025-2030 (kT)	12,542
Total CO_2 Emissions 2031-2035 (kT)	1,446
Total CO_2 Emissions 2035-2050 (kT)	4,930
Total CO_2 Emissions 2025-2050 (kT)	18,683

Assumptions and Observations

Capacity Expansion – as compared to CE1-E1-R1

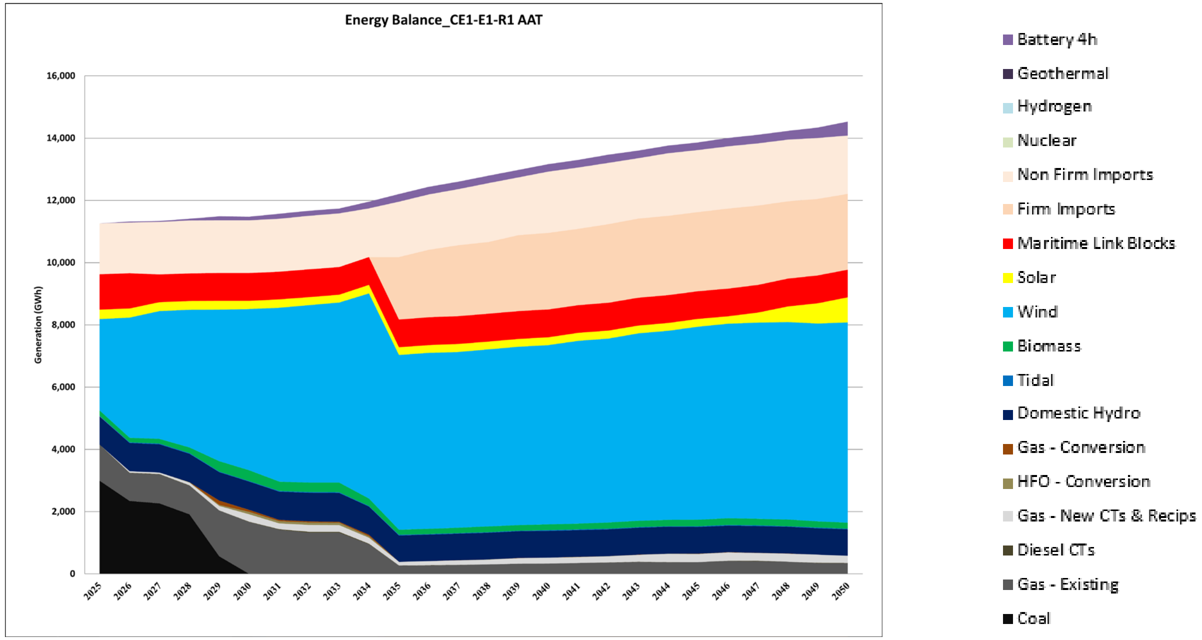
- Reliability Tie economically selected in 2029
- Significant DER (solar) expansion displaces wind in the mid-to-late period (2030-2050 ~440-610MW less wind and 1230MW of incremental distributed solar)
- Incremental new gas vs CE1-E1-R1 during most of the period (150-300MW) with 100MW incremental by the end of the modeling horizon

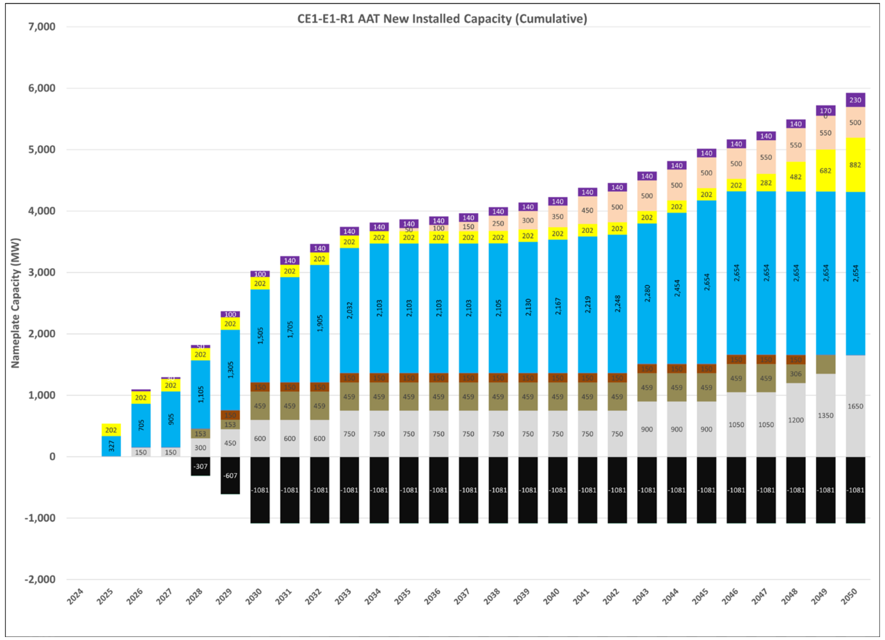
Other

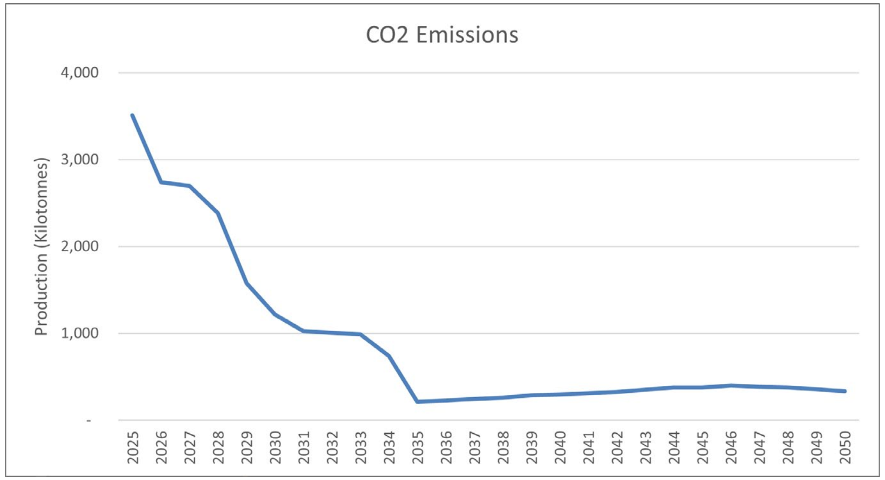
- $2,400MM higher NPV w/end effects than CE1-E1-R1 including solar costs
- HDER results in 816kT cumulative emissions reductions over the modeling horizon
- Diversity benefit of more solar and less wind may influence lower total curtailment of variable renewable energy (but at higher total system cost)
- Grid operational impacts with this quantity of behind the meter solar installations would require further study

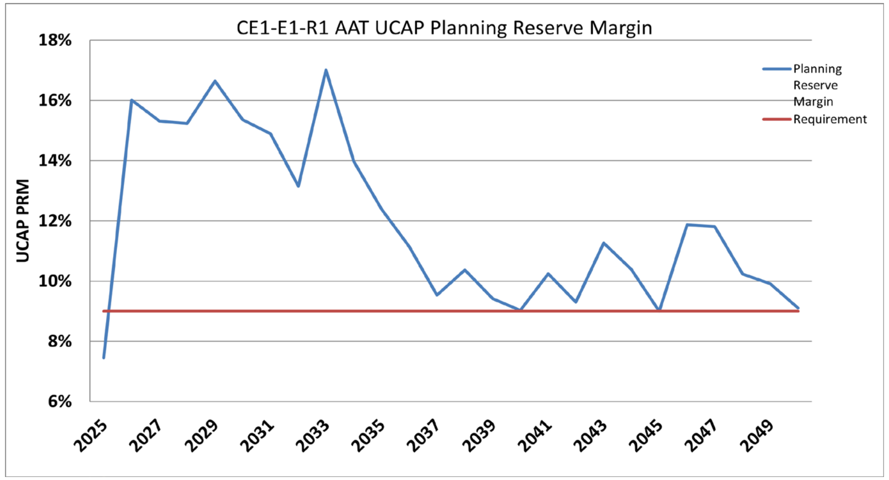
CE1-E1-R1 AAT (ADJUSTED ATLANTIC LOOP TIMING)

NZ 2035-CURRENT POLICY AND TRENDS-ATLANTIC LOOP









CE1-E1-R1 AAT (ADJUSTED ATLANTIC LOOP TIMING)

NZ 2035-CURRENT POLICY AND TRENDS-ATLANTIC LOOP

Scenario Metrics and Evaluation

26 Year NPVRR ($MM) 2025$	$18,700	Assumptions and Observations
26 Year NPVRR with End Effects ($MM 2025$)	$26,140	
11 Year NPVRR ($MM) 2025$	$8,970	
Total CO_2 Emissions 2025-2030 (kT)	14,124	
Total CO_2 Emissions 2031-2035 (kT)	3,966	
Total CO_2 Emissions 2035-2050 (kT)	5,119	
Total CO_2 Emissions 2025-2050 (kT)	22,999	

Capacity Expansion – as compared to CE1-E1-R1

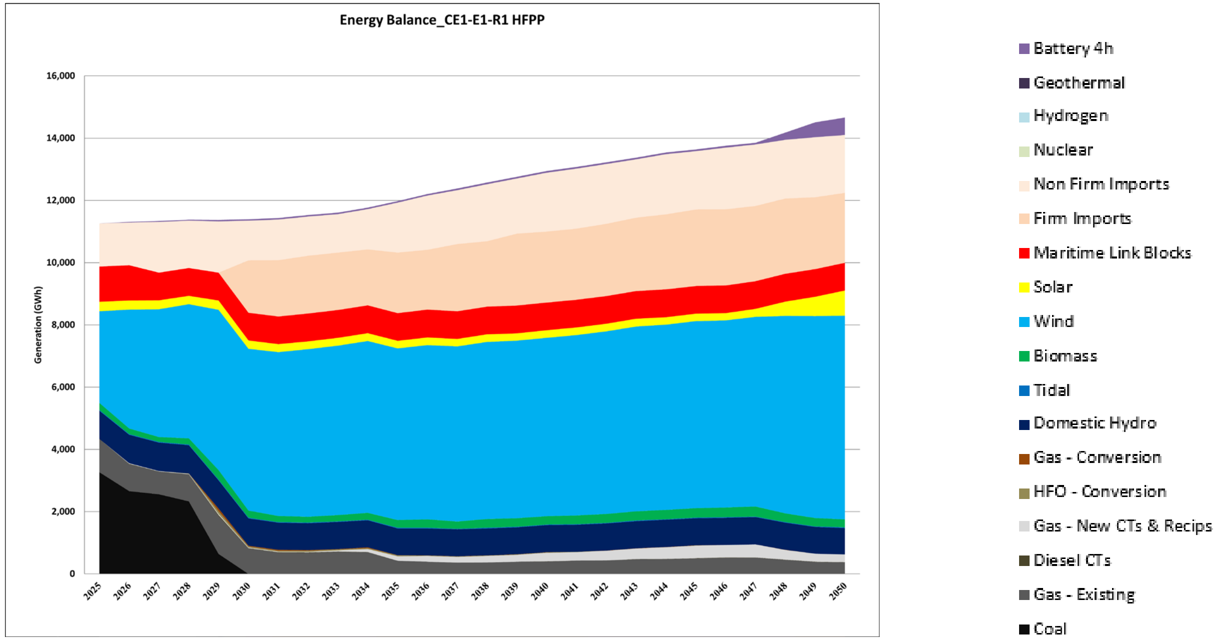
- Reliability Tie selected in 2034
- Early incremental gas additions ~450MW (2025-2035) relative to CE1-E1-R1 replaces Atlantic Loop capacity import in 2030; 100MW incremental total gas additions by the end of the modeling horizon.
- Comparable wind and solar additions throughout the modeling horizon
- Additional ~150MW of solar by end of period (2050)

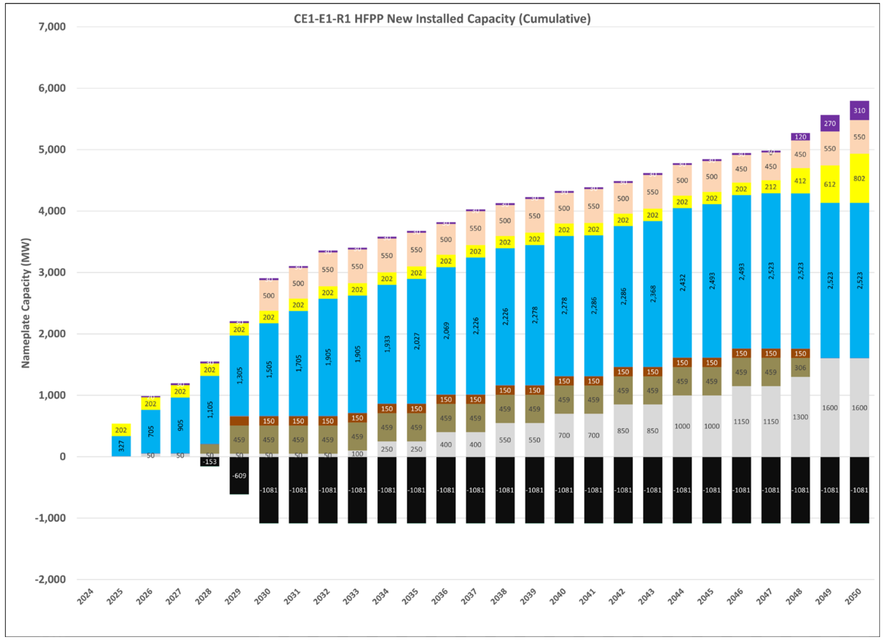
Other

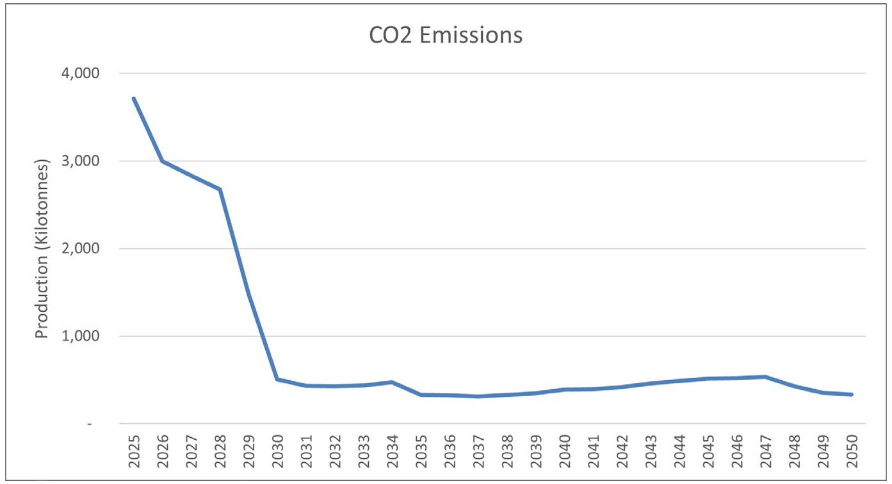
- $180MM higher NPV w/end effects than CE1-E1-R1
- Increase in gas generation between 2030 and 2035 as compared to CE1-E1-R2
- 2030 PRM requirements met without the Atlantic Loop via advancement of fast acting generation capacity; suggests that the Atlantic Loop provides value relative to CE1-E1-R2 even if the in-service date is delayed past 2030 coal phase-out
- Higher emissions compared to CE1-E1-R1, primarily attributable to higher emissions during 2030-2034 period; total incremental cumulative emissions of 3.5MT relative to CE1-E1-R1

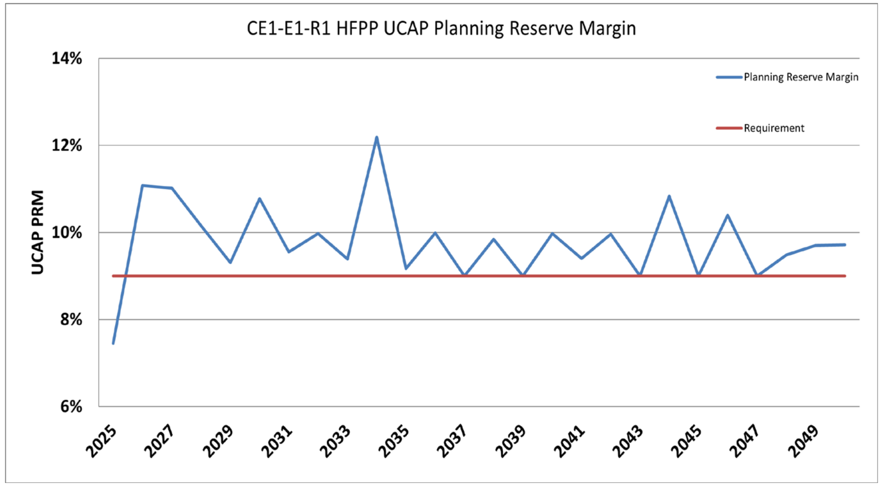
CE1-E1-R1 HFPP (HIGH FUEL & POWER PRICING)

NZ 2035-CURRENT POLICY AND TRENDS-ATLANTIC LOOP









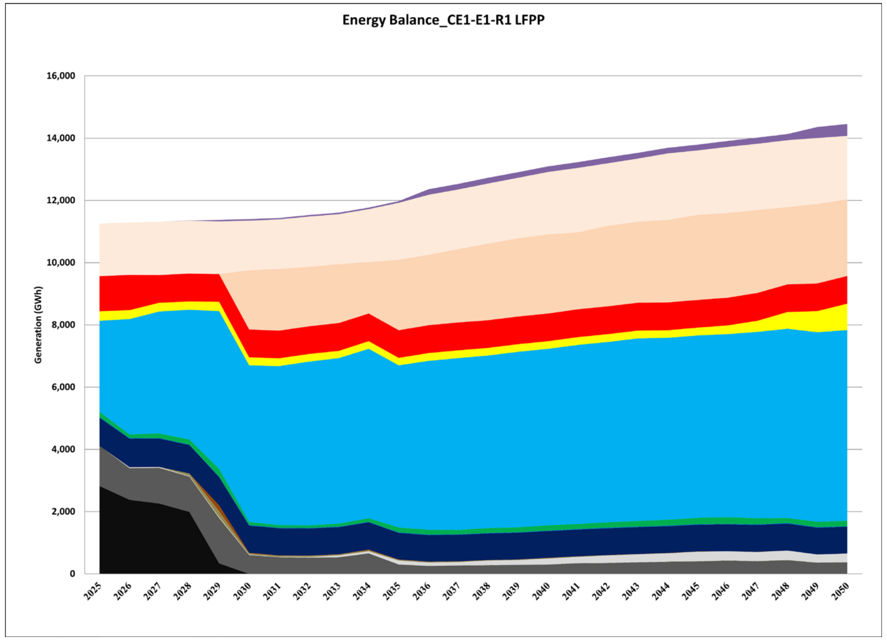
CE1-E1-R1 HFPP (HIGH FUEL & POWER PRICING)

NZ 2035-CURRENT POLICY AND TRENDS-ATLANTIC LOOP

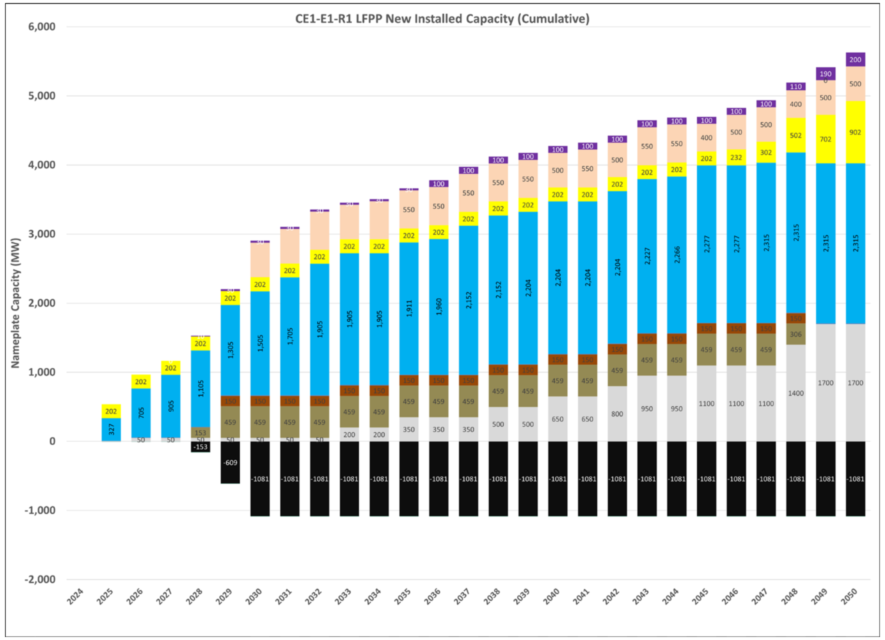
Scenario Metrics and Evaluation		
26 Year NPVRR ($MM) 2025$	$20,990	Assumptions and Observations Capacity Expansion – as compared to CE1-E1-R1 • Reliability Tie economically selected in 2029 • Incremental wind over the horizon (ranging from 40-120MW); generally comparable expansion plan with timing differences • End-of-period portfolio has moderately more new gas resources (50MW) and more wind and solar than CE1-E1-R1 Other • $3,010MM higher NPV w/end effects than CE1-E1-R1 • Significant volume of energy imports via the Atlantic Loop makes this scenario sensitive to high pricing
26 Year NPVRR with End Effects ($MM 2025$)	$28,970	
11 Year NPVRR ($MM) 2025$	$10,330	
Total CO_2 Emissions 2025-2030 (kT)	14,205	
Total CO_2 Emissions 2031-2035 (kT)	2,093	
Total CO_2 Emissions 2035-2050 (kT)	6,473	
Total CO_2 Emissions 2025-2050 (kT)	22,443	

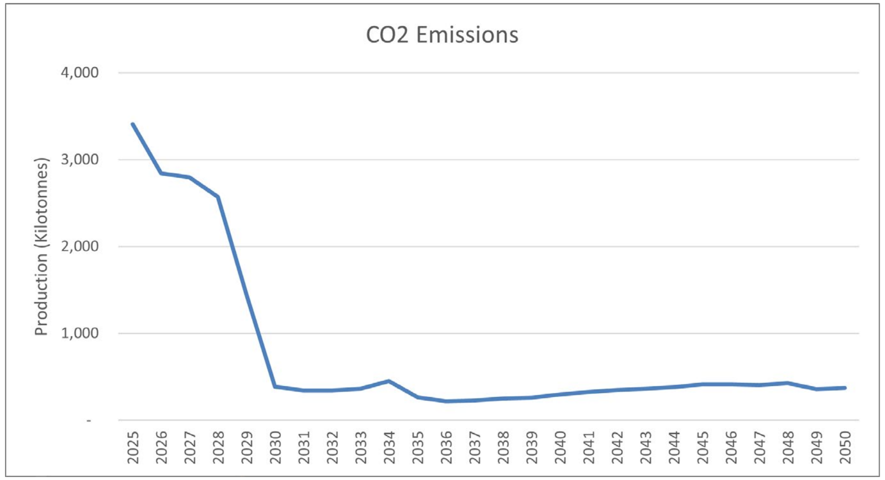
CE1-E1-R1 LFPP (LOW FUEL & POWER PRICING)

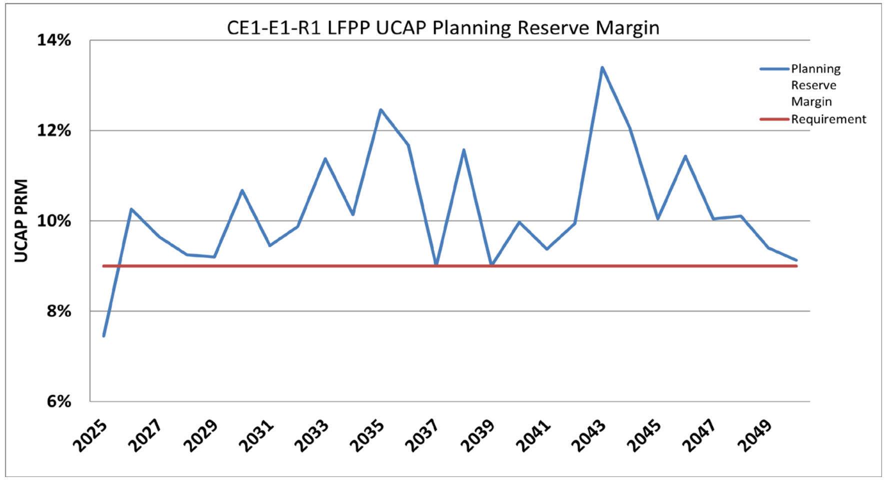
NZ 2035-CURRENT POLICY AND TRENDS-ATLANTIC LOOP



- Battery 4h
- Geothermal
- Hydrogen
- Nuclear
- Non Firm Imports
- Firm Imports
- Maritime Link Blocks
- Solar
- Wind
- Biomass
- Tidal
- Domestic Hydro
- Gas - Conversion
- HFO - Conversion
- Gas - New CTs & Recips
- Diesel CTs
- Gas - Existing
- Coal







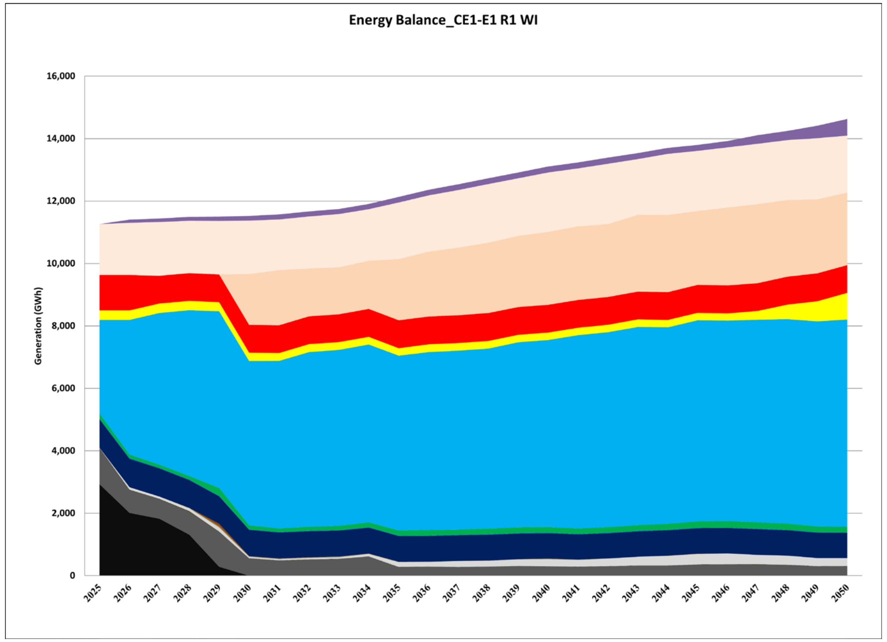
CE1-E1-R1 LFPP (LOW FUEL & POWER PRICING)

NZ 2035-CURRENT POLICY AND TRENDS-ATLANTIC LOOP

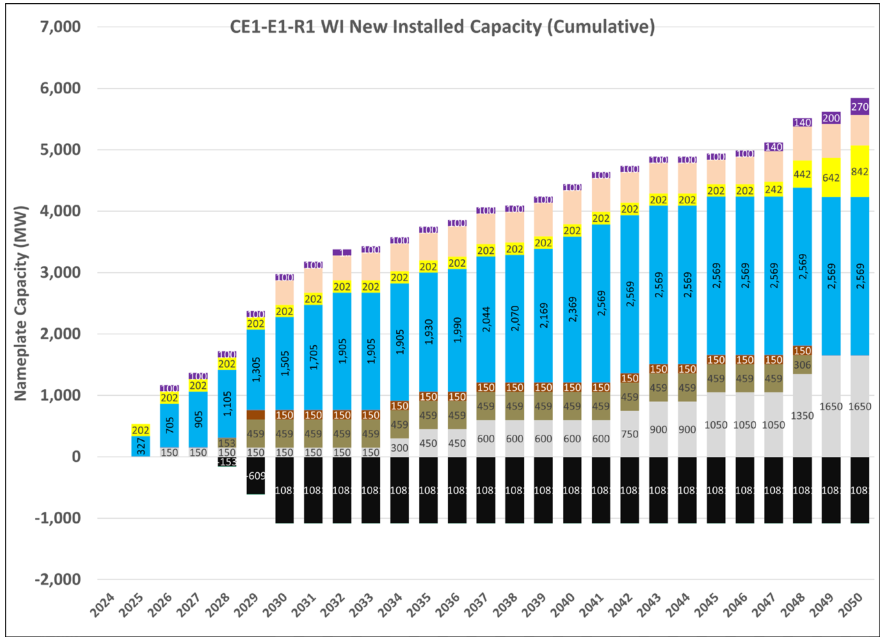
Scenario Metrics and Evaluation		
26 Year NPVRR ($MM) 2025$	$17,670	Assumptions and Observations Capacity Expansion – as compared to CE1-E1-R1 • Low natural gas pricing assumption leads to higher natural gas expansion vs. CE1-E1-R1 (50-200MW); 150MW incremental at the end of the planning horizon • Lower expansion of BESS through much of the planning horizon relative to CE1-E1-R1 (70-170MW), as new natural gas units are competitive alternatives (170MW less by end of the horizon) • Reliability Tie economically chosen in 2029 Other • $1,540MM lower NPV w/end effects than CE1-E1-R1 • Marginally higher CO_2 emissions than CE1-E1-R1; 730kt cumulative over the horizon
26 Year NPVRR with End Effects ($MM 2025$)	$24,420	
11 Year NPVRR ($MM) 2025$	$8,910	
Total CO_2 Emissions 2025-2030 (kT)	13,442	
Total CO_2 Emissions 2031-2035 (kT)	1,758	
Total CO_2 Emissions 2035-2050 (kT)	5,293	
Total CO_2 Emissions 2025-2050 (kT)	20,229	

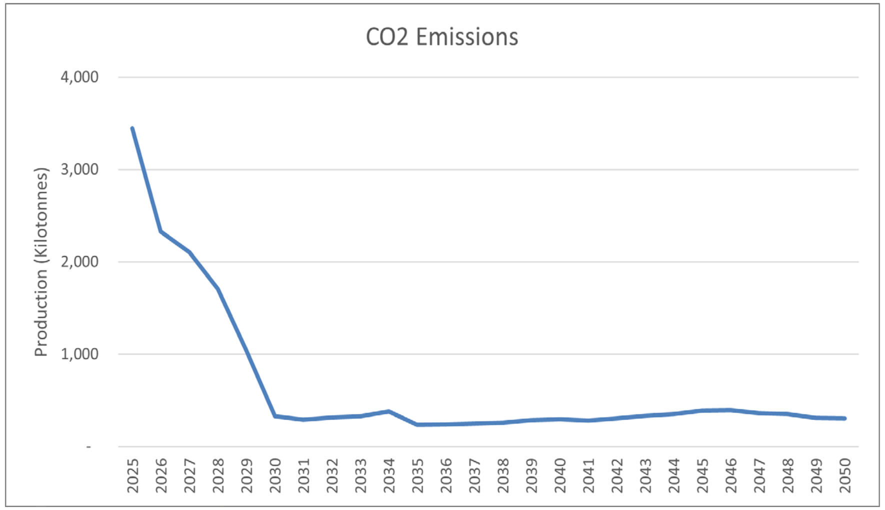
CE1-E1-R1 WI (NO WIND INTEGRATION CONSTRAINTS)

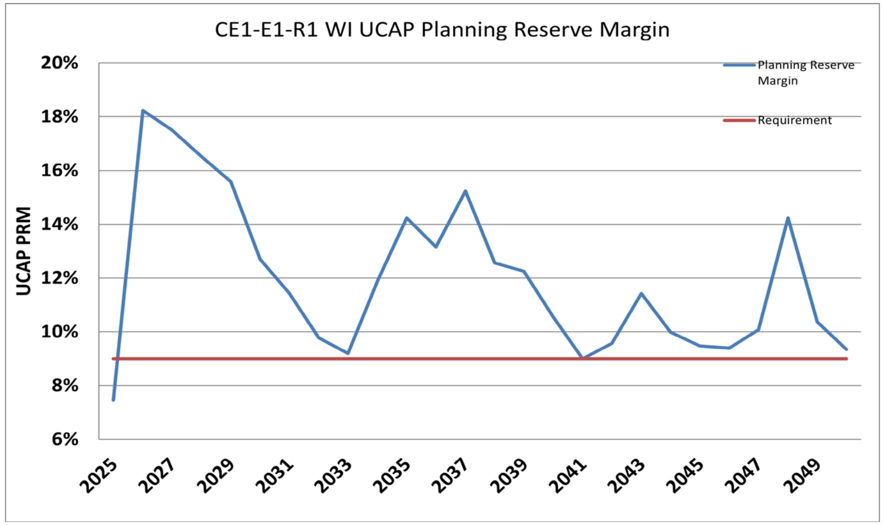
NZ 2035-CURRENT POLICY AND TRENDS-ATLANTIC LOOP



- Battery 4h
- Geothermal
- Hydrogen
- Nuclear
- Non Firm Imports
- Firm Imports
- Maritime Link Blocks
- Solar
- Wind
- Biomass
- Tidal
- Domestic Hydro
- Gas - Conversion
- HFO - Conversion
- Gas - New CTs & Recips
- Diesel CTs
- Gas - Existing
- Coal







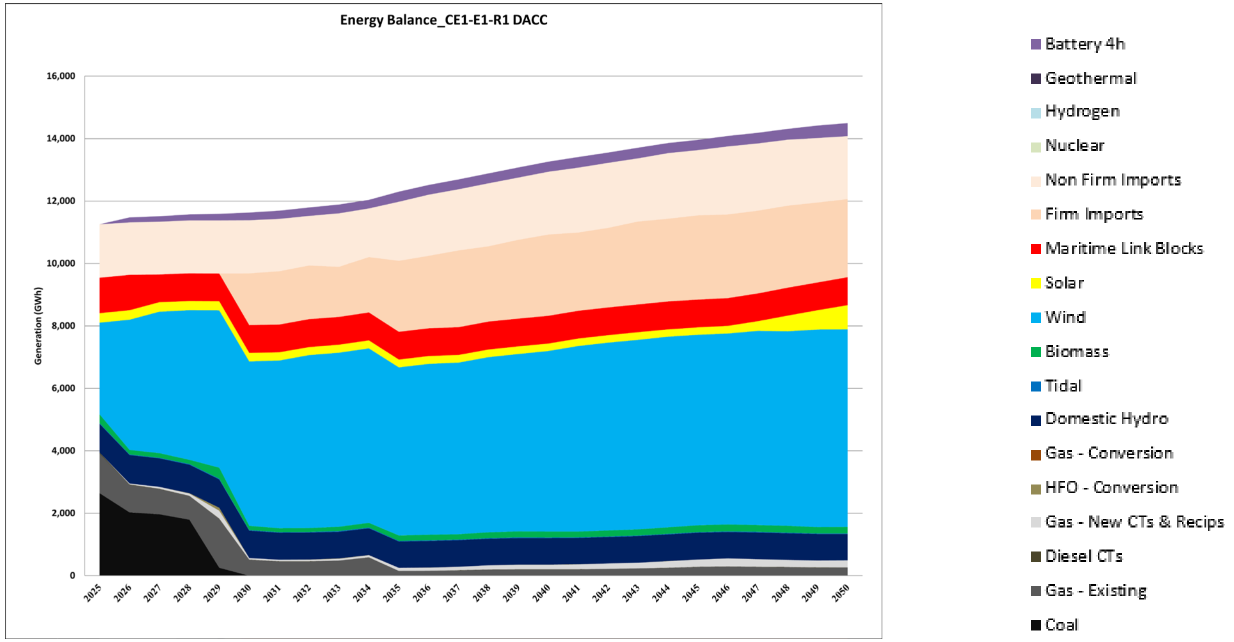
CE1-E1-R1 WI (NO WIND INTEGRATION CONSTRAINTS)

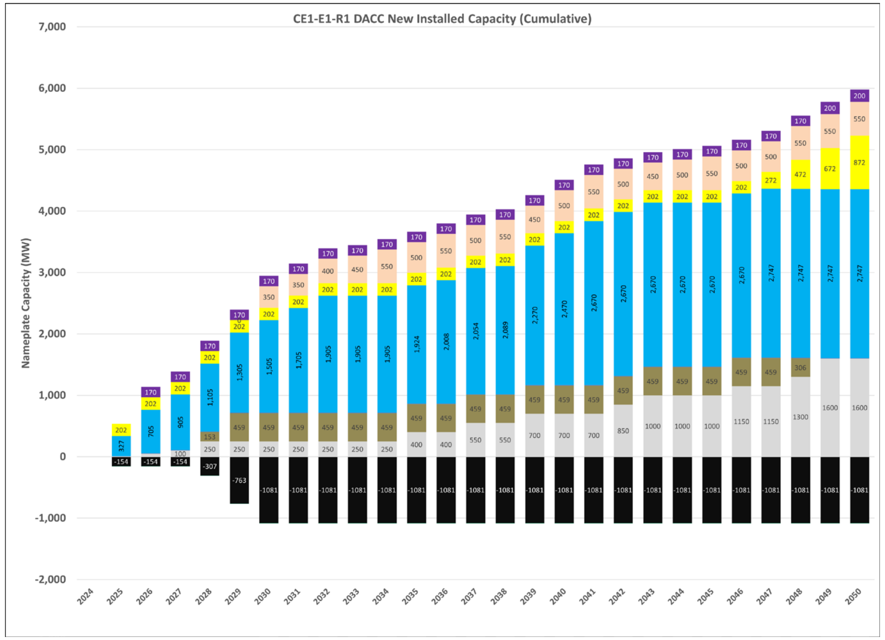
NZ 2035-CURRENT POLICY AND TRENDS-ATLANTIC LOOP

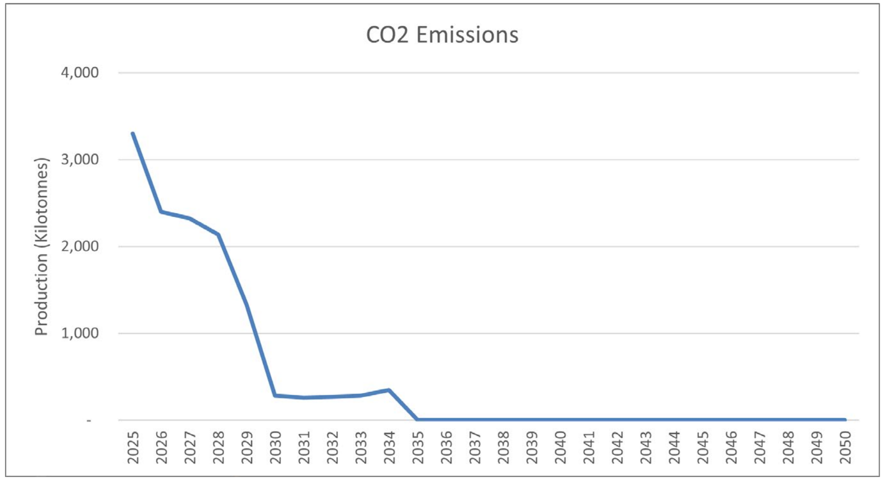
Scenario Metrics and Evaluation		
26 Year NPVRR ($MM) 2025$	$18,690	Assumptions and Observations This scenario assesses the impacts of removing the *Renewable Integration Requirements* constraints on the expansion plan and unit commitment and economic dispatch (i.e., max. hourly dispatch & max instantaneous wind/solar penetration constraints, respectively - see pg. 48 of the 2022 Evergreen IRP Updated Assumptions – Jan 26, 2023) Capacity Expansion – as compared to CE1-E1-R1 • Lower expansion of BESS at the end of the horizon; • Incremental new gas expansion over import capacity purchases over most of the horizon (100-150MW); 100MW incremental by end-of-period • Greater wind expansion over most of the horizon (85MW by the end of the horizon) • Reliability Tie selected in 2030 Other • $110MM lower NPV w/end effects than CE1-E1-R1 • Lower CO_2 emissions relative to CE1-E1-R1 (2.3MT cumulative over the period), primarily achieved during the early period of the modeling horizon prior to the expansion of the Reliability Tie • Large quantities of VRE curtailment even in the absence of VRE integration constraints, however, materially lower than CE1-E1-R1
26 Year NPVRR with End Effects ($MM 2025$)	$25,850	
11 Year NPVRR ($MM) 2025$	$9,260	
Total CO_2 Emissions 2025-2030 (kT)	10,959	
Total CO_2 Emissions 2031-2035 (kT)	1,547	
Total CO_2 Emissions 2035-2050 (kT)	4,943	
Total CO_2 Emissions 2025-2050 (kT)	17,215	

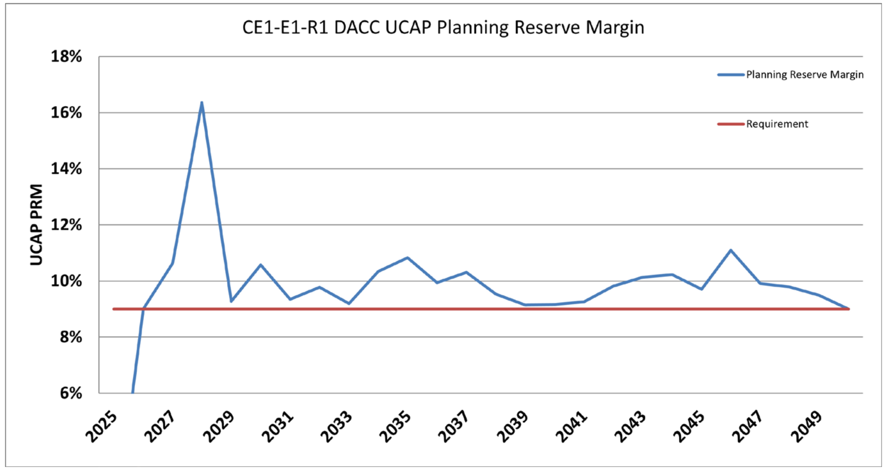
CE1-E1-R1 DACC (DIRECT AIR CARBON CAPTURE)

NZ 2035-CURRENT POLICY AND TRENDS-ATLANTIC LOOP









CE1-E1-R1 DACC (DIRECT AIR CARBON CAPTURE)

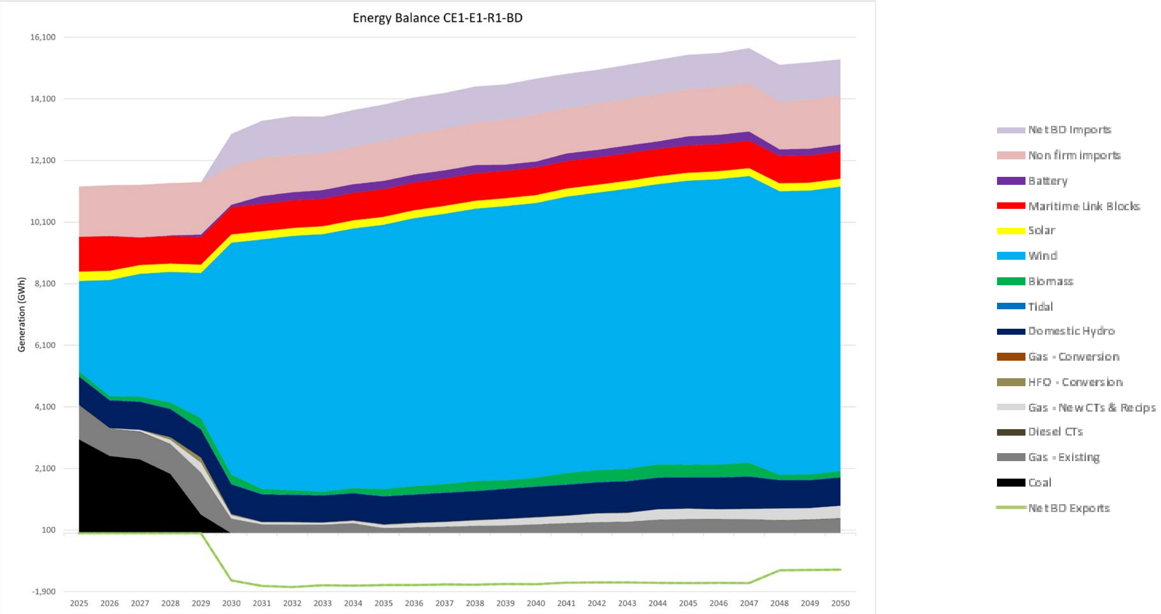
NZ 2035-CURRENT POLICY AND TRENDS-ATLANTIC LOOP

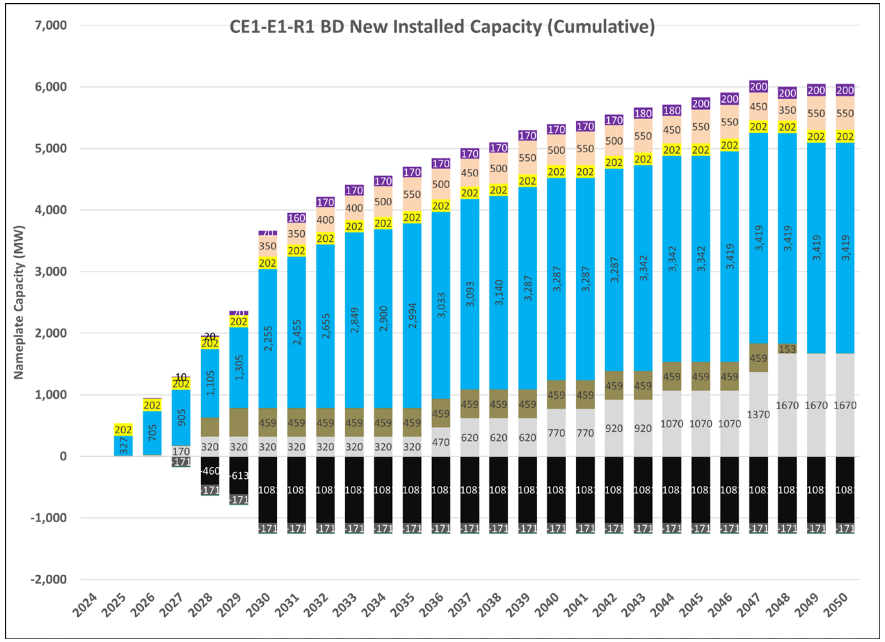
Scenario Metrics and Evaluation		
26 Year NPVRR ($MM) 2025$	$19,360	Assumptions and Observations • Emissions can be removed at a cost of $500/t (flat) – proxying the cost of physical CO_2 removal from the atmosphere Capacity Expansion – as compared to CE1-E1-R1 • 70MW of Incremental BESS over most of the modeling horizon • Larger wind expansion over the horizon vs CE1-E1-R1 (~20-160MW) • Larger BESS expansion over the horizon vs CE1-E1-R1 (70MW) • Incremental fast acting gas generation replaces coal-to-gas Conversion in CE1-E1-R1 • Reliability Tie selected in 2030 Other • $1,020MM higher NPV w/end effects than CE1-E1-R1 • Increased battery storage usage (energy balance) as compared to CE1-E1-R1 • Cost of removal drives CO_2 emission (removed emissions + emitted) to 3MT lower than the CE1-E1-R1.
26 Year NPVRR with End Effects ($MM 2025$)	$26,980	
11 Year NPVRR ($MM) 2025$	$9,410	
Total CO_2 Emissions 2025-2030 (kT)	11,770	
**Total CO_2 Emissions and removed Emissions 2031-2035 (kT)	1,281	
Total **removed** CO_2 Emissions 2035-2050 (kT)	3,485	
Total CO_2 Emissions and removed Emissions 2025-2050 (kT)	16,475	

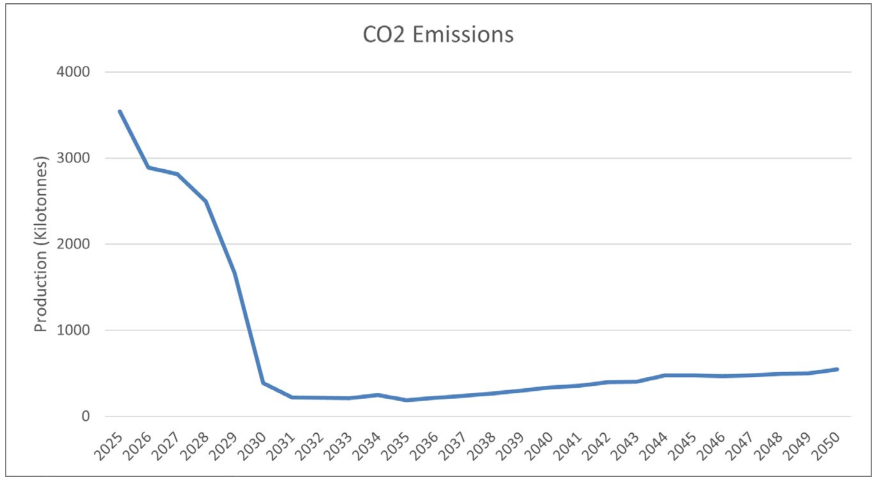
** Removed emissions apply to year 2035 and beyond

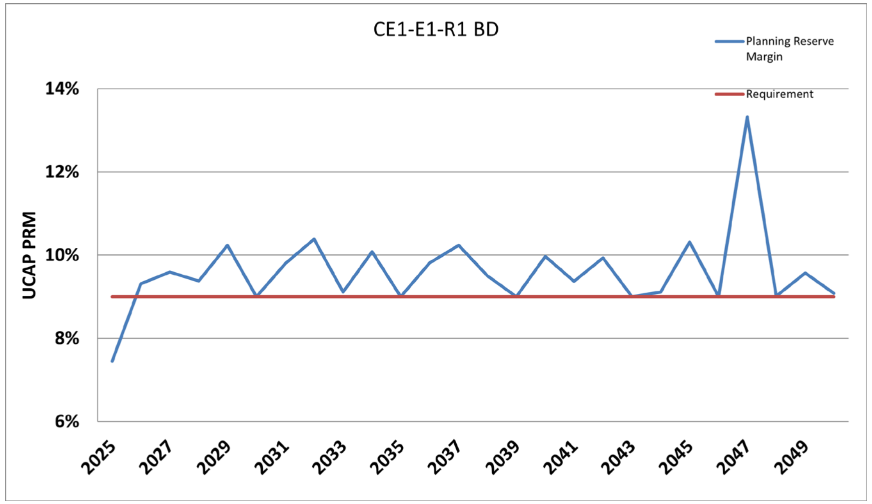
CE1-E1-R1 BD (BIDIRECTIONAL ATLANTIC LOOP)

NZ 2035-CURRENT POLICY AND TRENDS-ATLANTIC LOOP









CE1-E1-R1 BD (BIDIRECTIONAL ATLANTIC LOOP)

NZ 2035-CURRENT POLICY AND TRENDS-ATLANTIC LOOP

Scenario Metrics and Evaluation

26 Year NPVRR ($MM) 2025$	$16,950
26 Year NPVRR with End Effects ($MM 2025$)	$23,160
11 Year NPVRR ($MM) 2025$	$8,700
Total CO_2 Emissions 2025-2030 (kT)	13,796
**Total CO_2 Emissions 2031-2035 (kT)	1,078
Total CO_2 Emissions 2035-2050 (kT)	6,127
Total CO_2 Emissions 2025-2050 (kT)	20,813

Assumptions and Observations

- This scenario represents a representative bidirectional energy exchange over the Atlantic Loop where 2.5TWh of wind energy is exported and 2TWh of dispatchable energy is re-imported on an annual basis. Imports and Exports are modeled as contracted volumes rather than purchases/sales at a market price.

Capacity Expansion – as compared to CE1-E1-R1

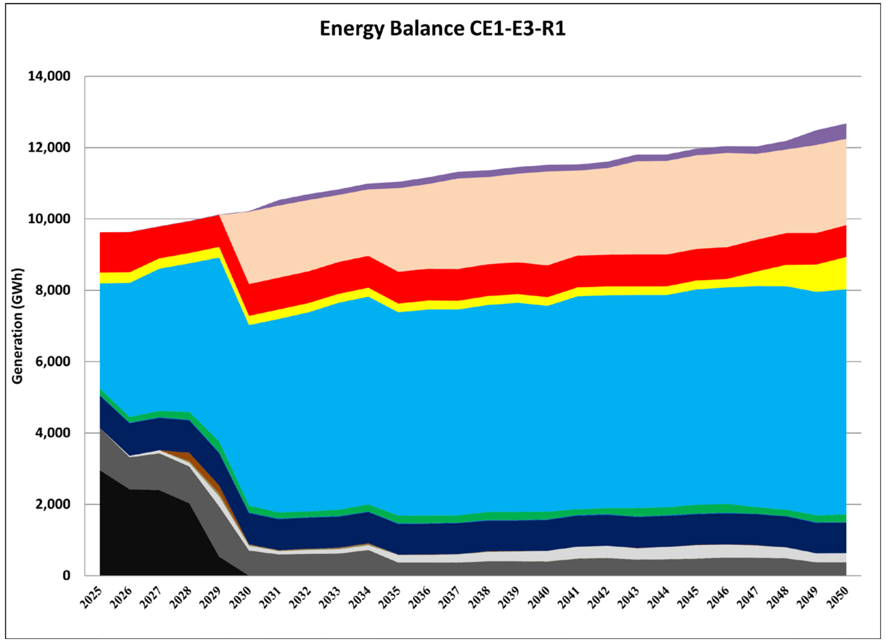
- Additional 750MW of installed wind capacity by 2030 to support bidirectional transaction across the Atlantic Loop
- Significantly higher wind additions (1000MW of wind capacity) added by 2035; additional 70MW of battery storage
- By 2050, ~500MW less of solar and 170MW less of battery storage

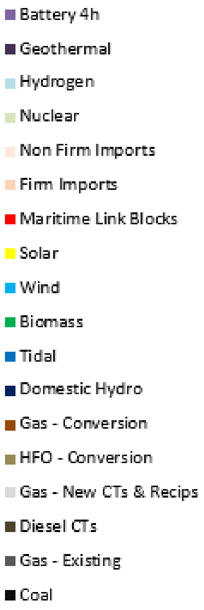
Other

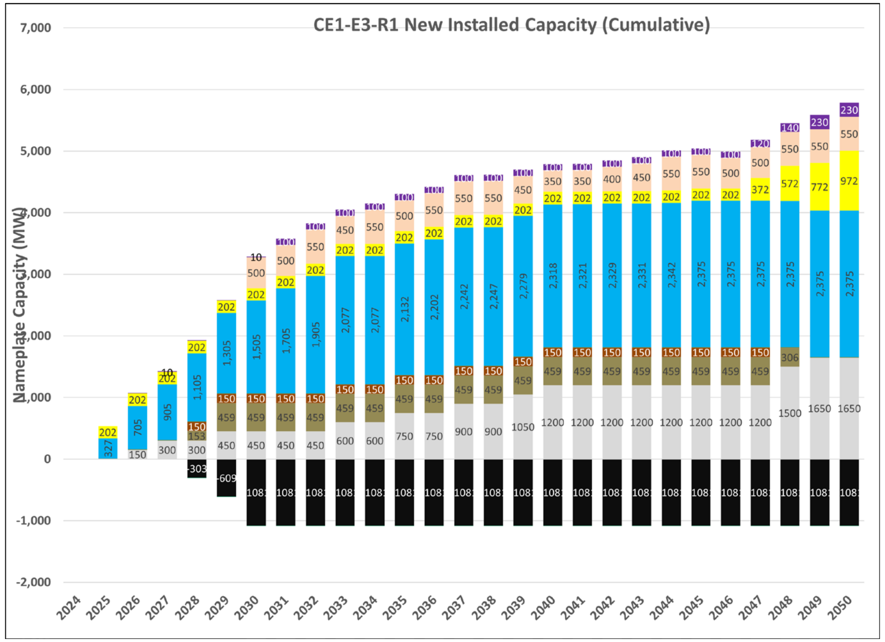
- 26 year NPV w/EE is $2.8B less as compared to CE1-E1-R1; $2.7B less as compared to CE1-E1-R2
- Lower curtailment observed as compared to CE1-E1-R1 (~32% wind curtailment vs ~40% wind curtailment for CE1-E1-R1 by 2050)

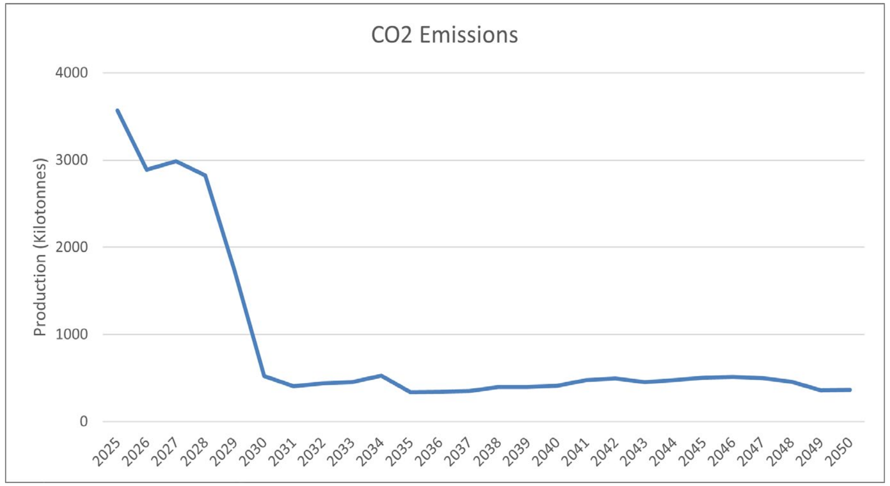
CE1-E3-R1

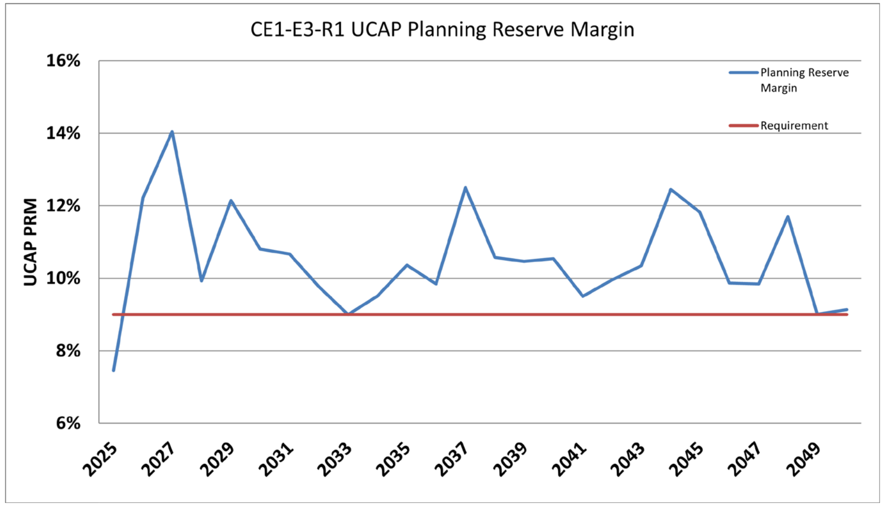
NZ 2035-ACCELERATED ELECTRIFICATION-ATLANTIC LOOP











CE1-E3-R1

NZ 2035-ACCELERATED ELECTRIFICATION-ATLANTIC LOOP

Scenario Metrics and Evaluation

26 Year NPVRR ($MM) 2025$	$19,400
26 Year NPVRR with End Effects ($MM 2025$)	$26,500
11 Year NPVRR ($MM) 2025$	$9,650
Total CO_2 Emissions 2025-2030 (kT)	14,519
Total CO_2 Emissions 2031-2035 (kT)	2,156
Total CO_2 Emissions 2035-2050 (kT)	6,824
Total CO_2 Emissions 2025-2050 (kT)	22,820

Assumptions and Observations

- Accelerated Electrification scenarios (E3) have been added in the Final Results to reflect peak and energy requirements that accelerate faster than in the base load (E1) scenario but generally reach the same level by the end of the horizon

Capacity Expansion – as compared to CE1-E1-R1

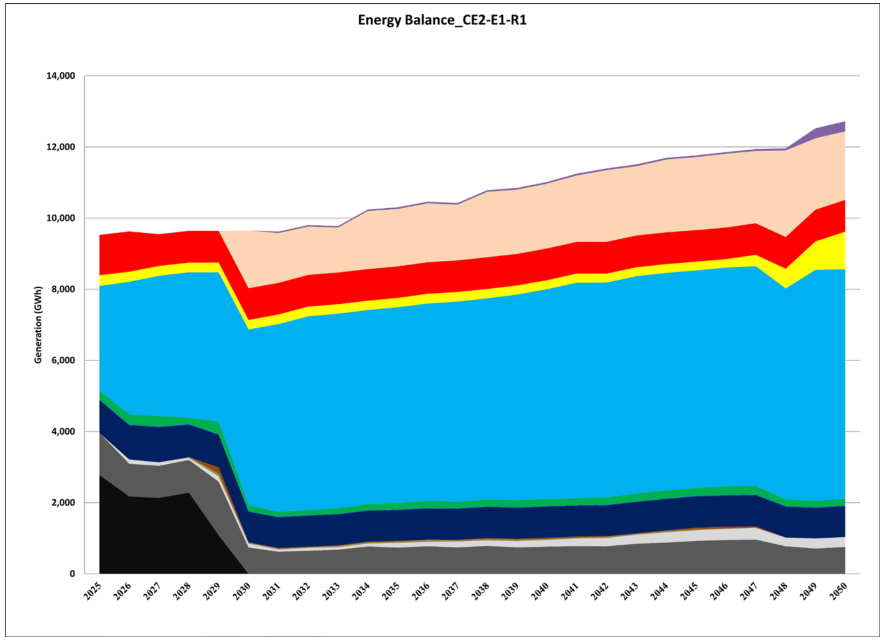
- Additional firm capacity by 2030 to meet increased system peak requirements:
  - 150MW of additional firm imports
  - Additional 300MW of new installed gas capacity
- Renewable buildout is generally similar to that seen in CE1-E1-R1

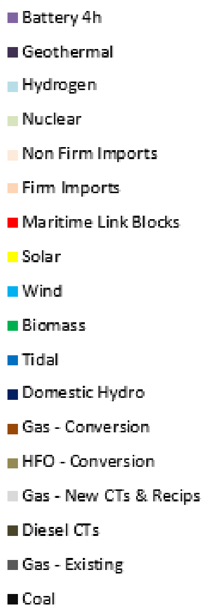
Other

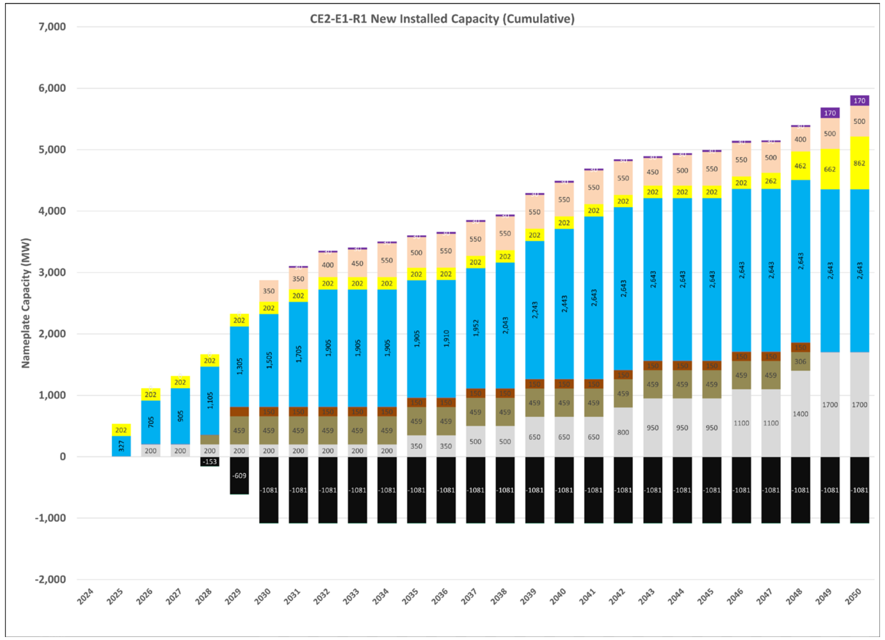
- $540MM higher NPV w/end effects than CE1-E1-R1; $360MM lower NPV than the corresponding No Atlantic Loop scenario CE1-E3-R2
- Higher CO_2 emissions relative to CE1-E1-R1 (3.3MT cumulative over the period)

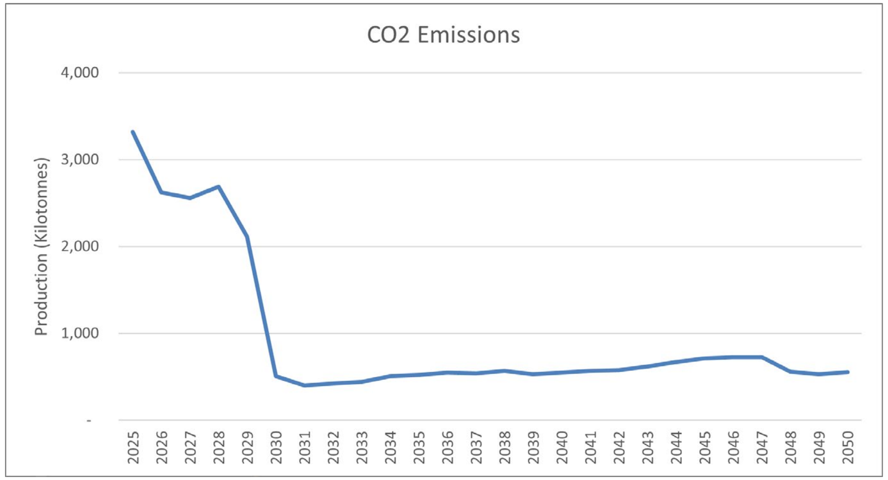
CE2-E1-R1

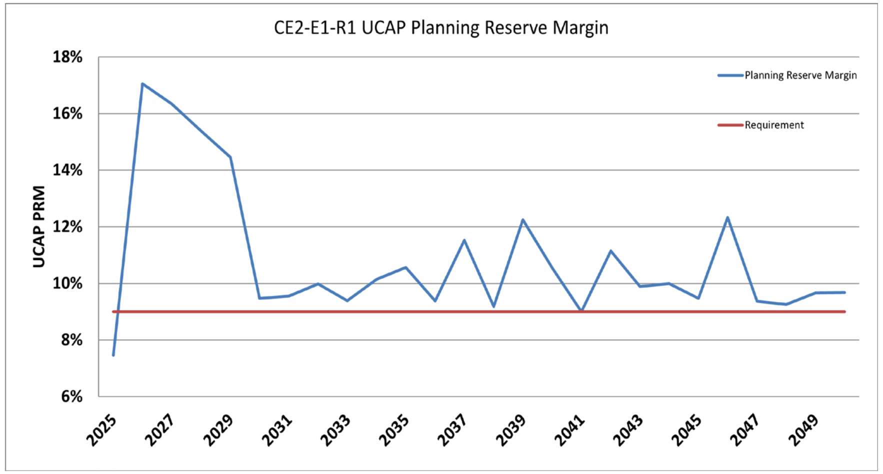
NZ 2050-CURRENT POLICY AND TRENDS- ATLANTIC LOOP











CE2-E1-R1

NZ 2050-CURRENT POLICY AND TRENDS-ATLANTIC LOOP

Scenario Metrics and Evaluation

26 Year NPVRR ($MM) 2025$	$18,830
26 Year NPVRR with End Effects ($MM 2025$)	$25,910
11 Year NPVRR ($MM) 2025$	$9,510
Total CO_2 Emissions 2025-2030 (kT)	13,777
Total CO_2 Emissions 2031-2035 (kT)	2,095
Total CO_2 Emissions 2035-2050 (kT)	8,695
Total CO_2 Emissions 2025-2050 (kT)	24,074

Assumptions and Observations

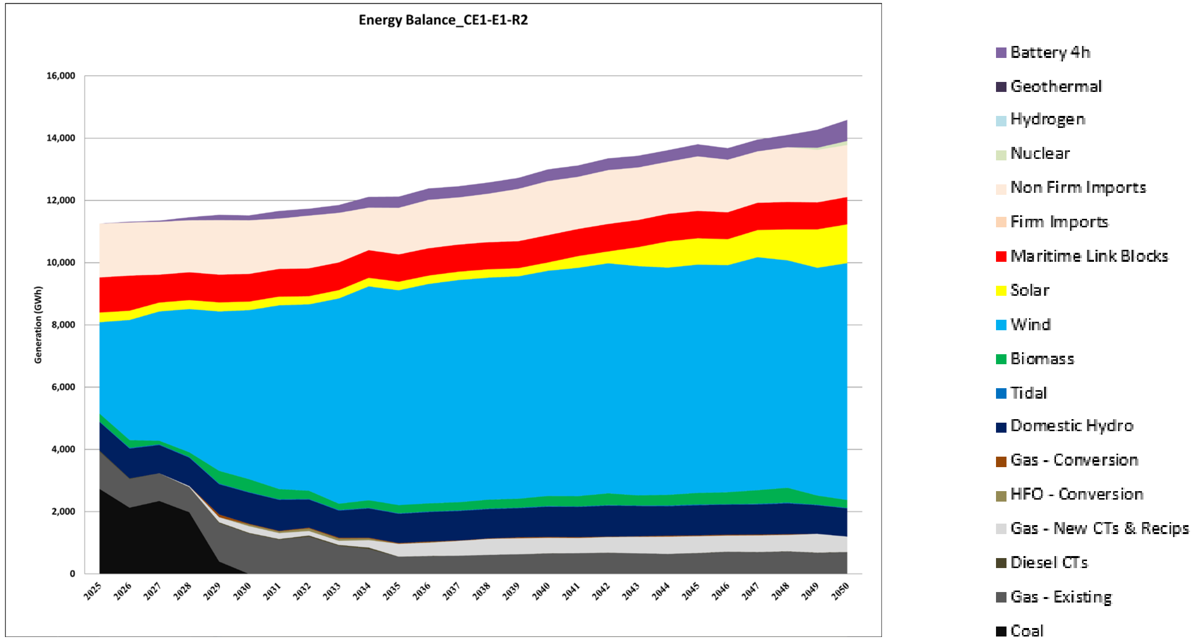
Capacity Expansion

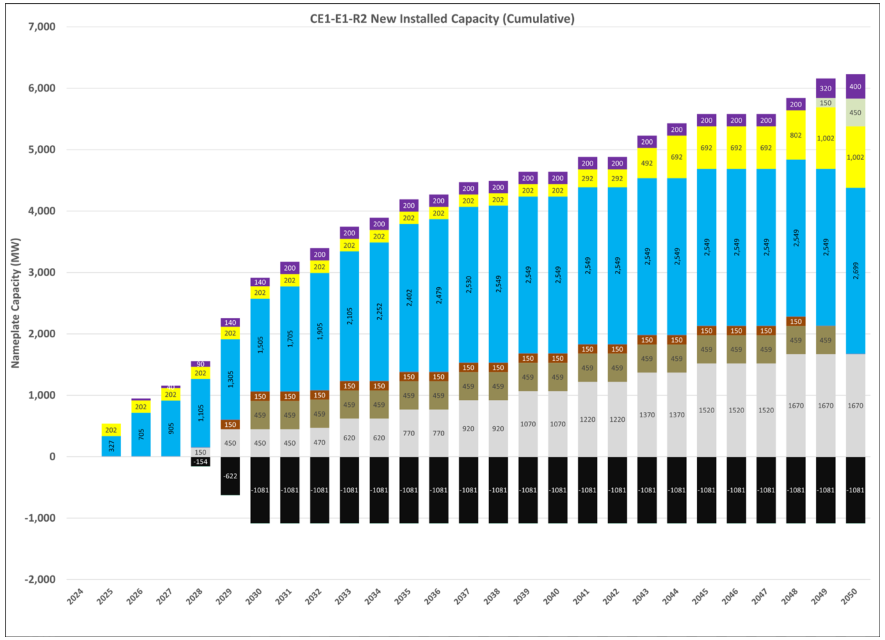
- Reliability Tie added in 2030
- 2600MW of wind capacity installed by 2050; trajectory to 2030 similar to other scenarios; incremental builds (~200MW) between 2035 and end of modeling horizon
- Lower BESS expansion over most of the modeling horizon than CE1-E1-R1 (70MW); 60MW higher expansion by the end of the horizon

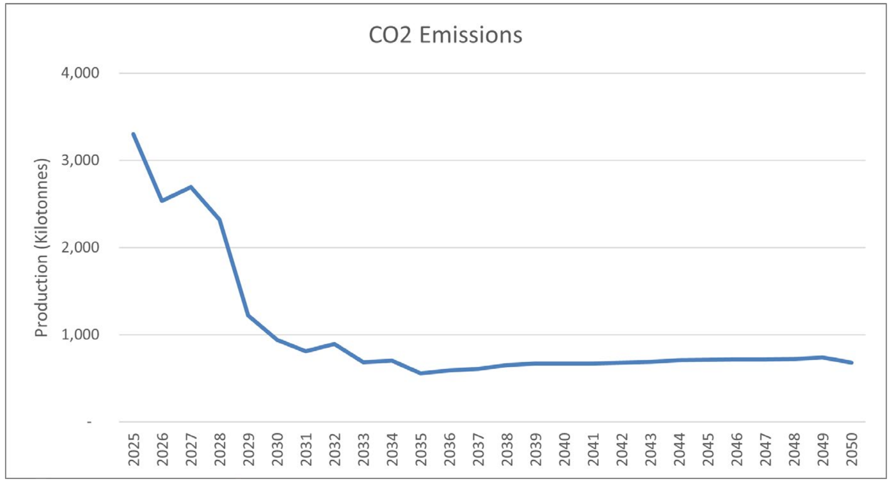
- Other
- $50MM lower NPV w/end effects than CE1-E1-R1
- ~4.5MT higher emissions compared to CE1-E1-R1

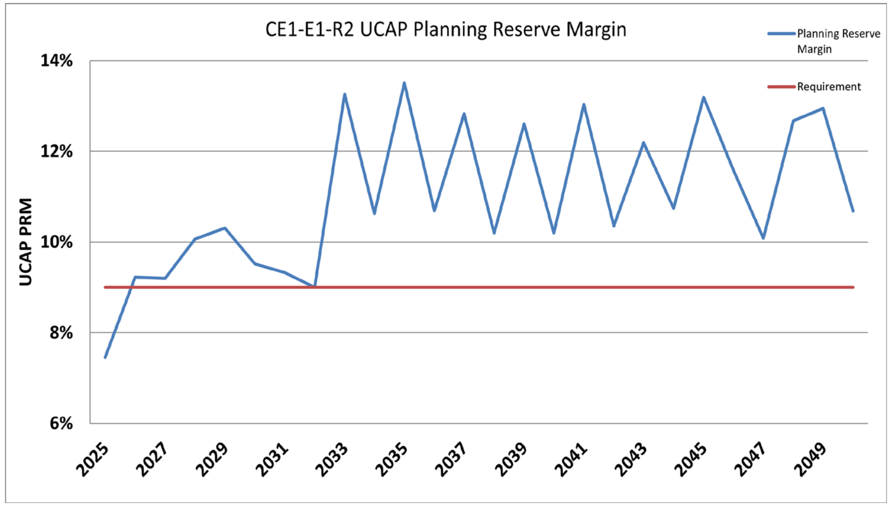
CE1-E1-R2

NZ 2035-CURRENT POLICY AND TRENDS-NO ATLANTIC LOOP









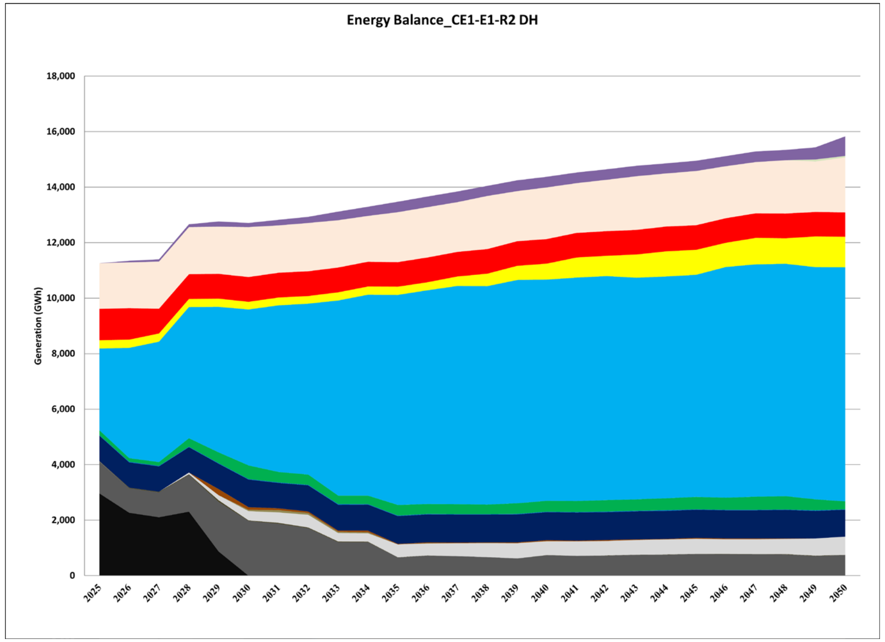
CE1-E1-R2

NZ 2035-CURRENT POLICY AND TRENDS-NO ATLANTIC LOOP

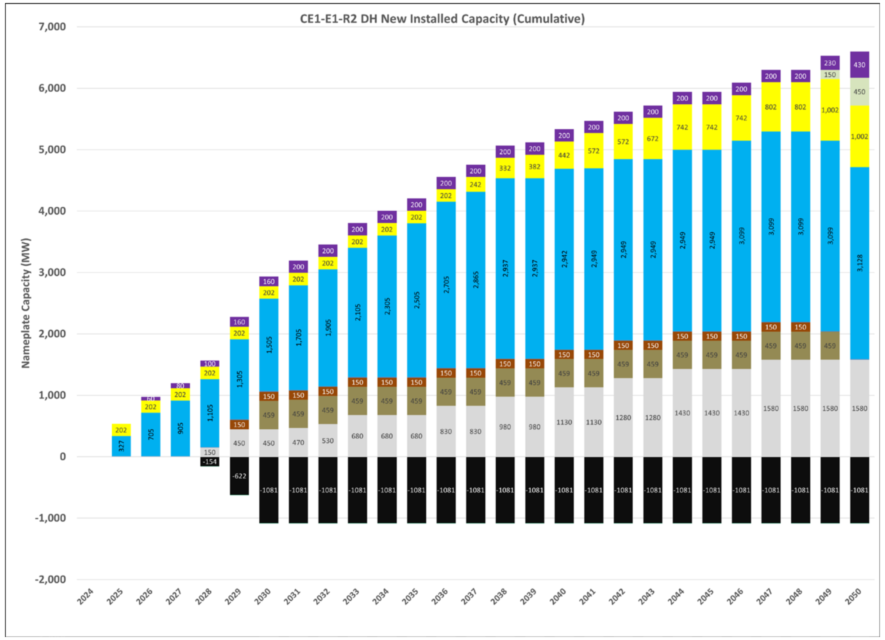
Scenario Metrics and Evaluation		
26 Year NPVRR ($MM) 2025$	$17,190	Assumptions and Observations Capacity Expansion • Atlantic Loop is not available in “R2” scenarios • Incremental new gas CTs are built relative to R1 over the planning horizon (300 - 600MW) • 450MW of SMR resources added in the last 5 years of the modeling horizon • Incremental BESS added over the modeling period (30-100MW); • Larger expansion of wind and solar; with an incremental 200MW and 270MW each by the end of the horizon • Reliability Tie economically selected in 2033 Other • $130MM lower NPV w/end effects than CE1-E1-R1 • Cumulative emissions are 7.3MT higher by 2050 vs. comparable CE1-E1-R1 scenario
26 Year NPVRR with End Effects ($MM 2025$)	$25,830	
11 Year NPVRR ($MM) 2025$	$8,550	
Total CO_2 Emissions 2025-2030 (kT)	13,010	
Total CO_2 Emissions 2031-2035 (kT)	3,645	
Total CO_2 Emissions 2035-2050 (kT)	10,768	
Total CO_2 Emissions 2025-2050 (kT)	26,865	

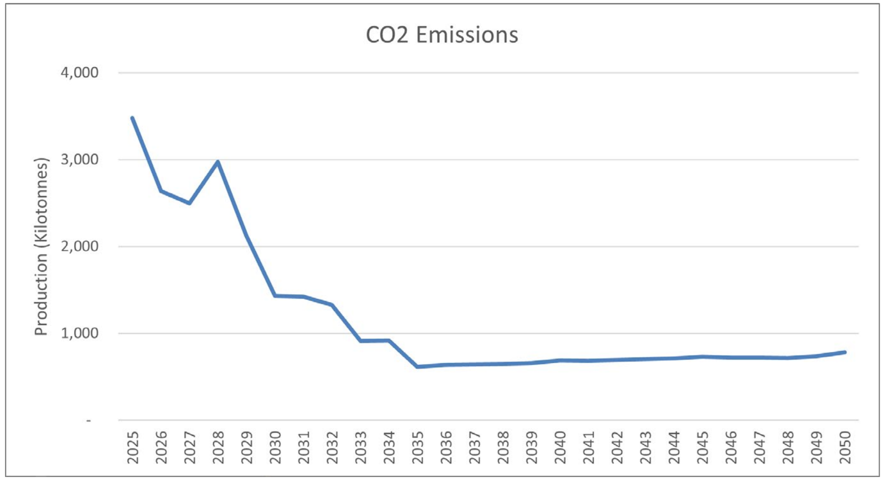
CE1-E1-R2 DH (DOMESTIC HYDROGEN)

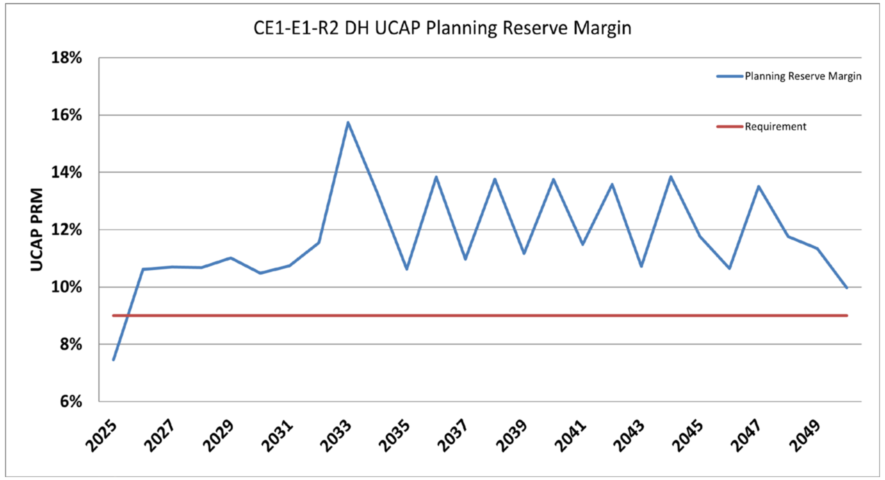
NZ 2035-CURRENT POLICY AND TRENDS-NO ATLANTIC LOOP



- Battery 4h
- Geothermal
- Hydrogen
- Nuclear
- Non Firm Imports
- Firm Imports
- Maritime Link Blocks
- Solar
- Wind
- Biomass
- Tidal
- Domestic Hydro
- Gas - Conversion
- HFO - Conversion
- Gas - New CTs & Recips
- Diesel CTs
- Gas - Existing
- Coal







CE1-E1-R2 DH (DOMESTIC HYDROGEN)

NZ 2035-CURRENT POLICY AND TRENDS-NO ATLANTIC LOOP

Scenario Metrics and Evaluation

26 Year NPVRR ($MM) 2025$	$18,640
26 Year NPVRR with End Effects ($MM 2025$)	$27,870
11 Year NPVRR ($MM) 2025$	$9,230
Total CO_2 Emissions 2025-2030 (kT)	15,145
Total CO_2 Emissions 2031-2035 (kT)	5,195
Total CO_2 Emissions 2035-2050 (kT)	11,095
Total CO_2 Emissions 2025-2050 (kT)	30,822

Assumptions and Observations

Capacity Expansion – as compared to CE1-E1-R2

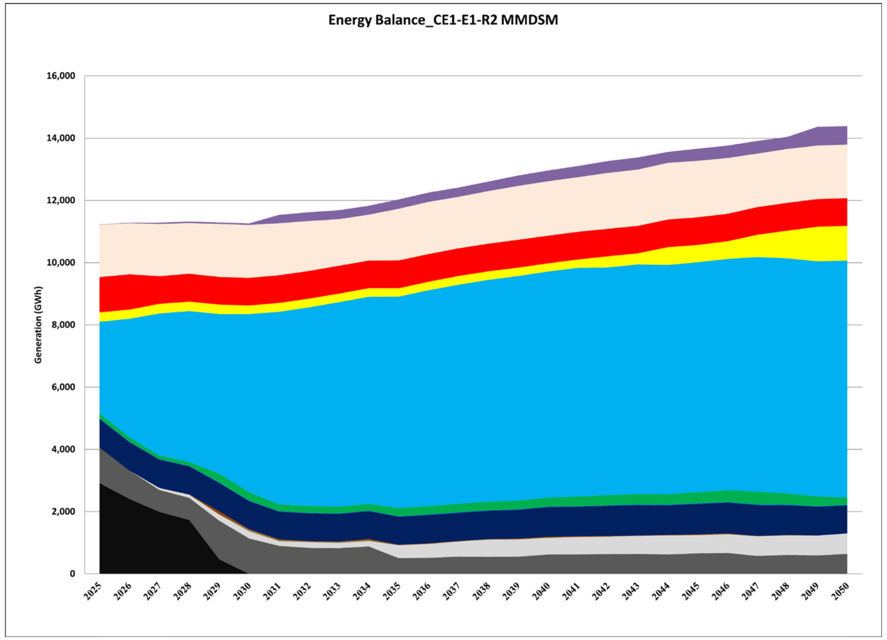
- Materially higher expansion of wind: 100MW in the early period to ~ 400MW over the mid to late modeling period, required to serve hydrogen load
- Greater solar expansion over the mid-modeling horizon period; same solar capacity as CE1-E1-R2 by the end of the modeling horizon
- Reliability Tie economically chosen in 2033
- Similar BESS expansion – appears the absence of the Atlantic Loop requires BESS even with flexible H_2 load

Other

- $2,040MM higher NPV w/end effects than CE1-E1-R2
- Increase in wind generation to support hydrogen load
- Lower cost delta to CE1-E1-R2 than in With Atlantic Loop scenarios (R1/R1DH) indicates With Atlantic Loop scenario can accommodate incrementalFload more economically than No Atlantic Loop scenario
- Materially higher emissions in the period 2028-2035; similar emissions post 2035. Cumulatively, 3.9MT more emission over the modeling horizon than CE1-E1-R2

CE1-E1-R2 MMDSM (MODIFIED-MID DSM)

NZ 2035-CURRENT POLICY AND TRENDS-NO ATLANTIC LOOP



Battery 4h
Geothermal
Hydrogen
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Non Firm Imports
Firm Imports
Maritime Link Blocks
Solar
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Tidal
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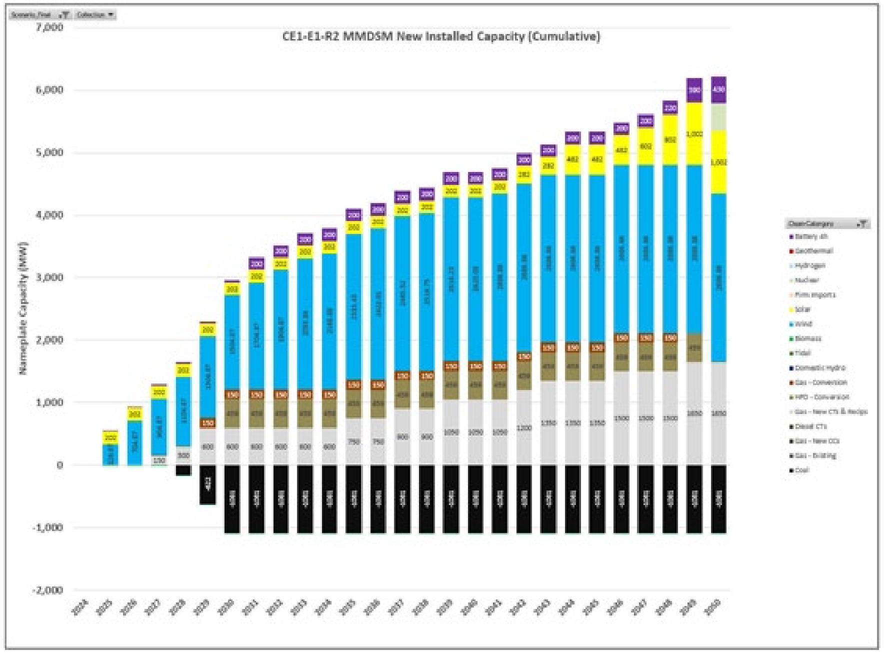
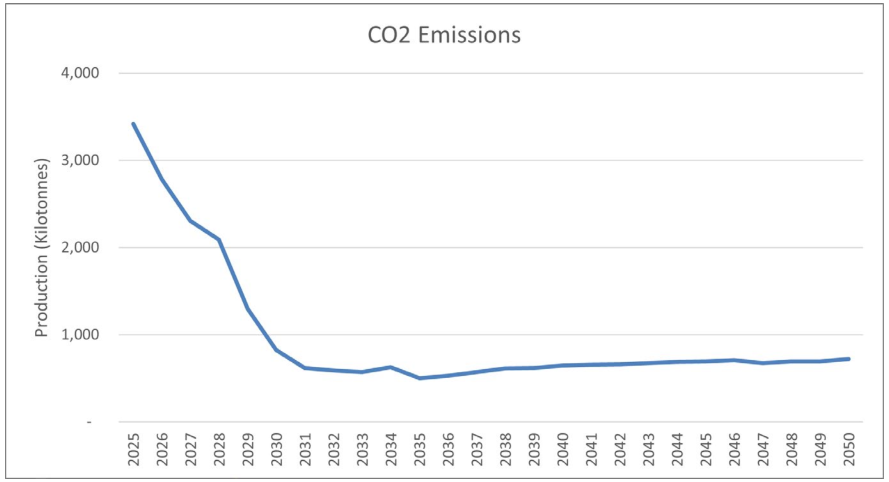
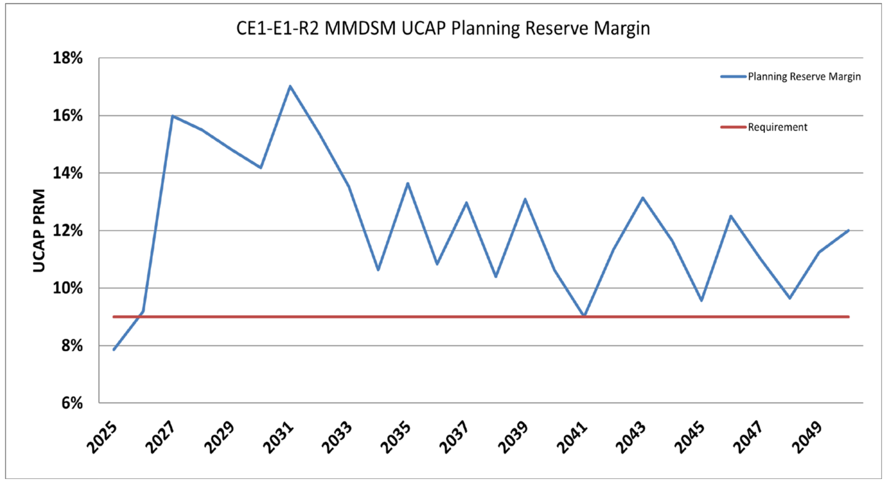
HFO - Conversion
Gas - New CTs & Recips
Diesel CTs
Gas - Existing
Coal







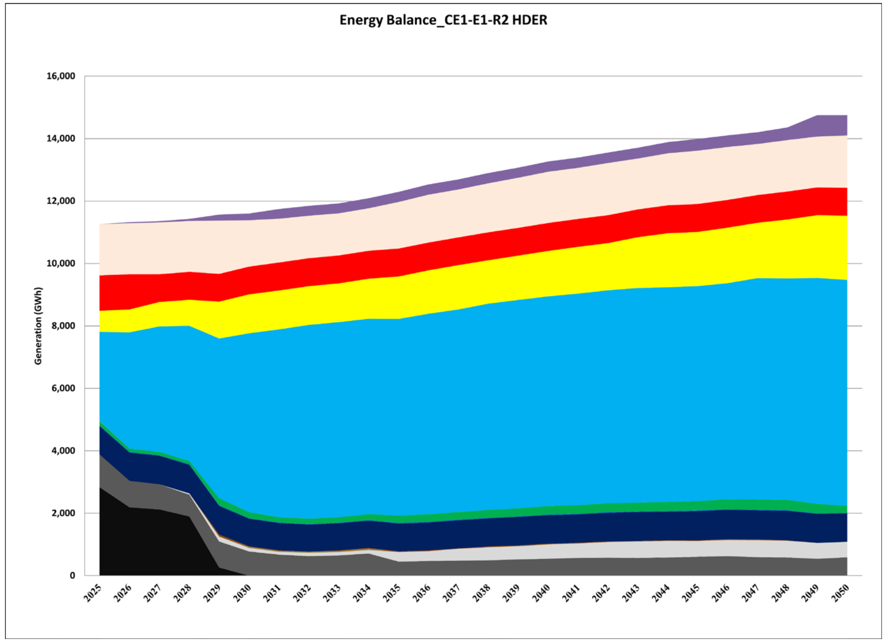
CE1-E1-R2 MMDSM (MODIFIED-MID DSM)

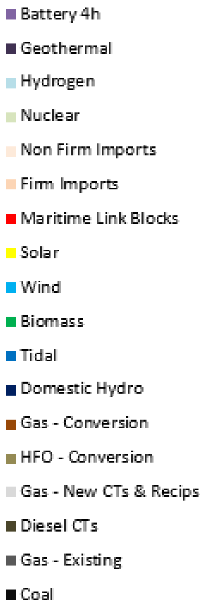
NZ 2035-CURRENT POLICY AND TRENDS-NO ATLANTIC LOOP

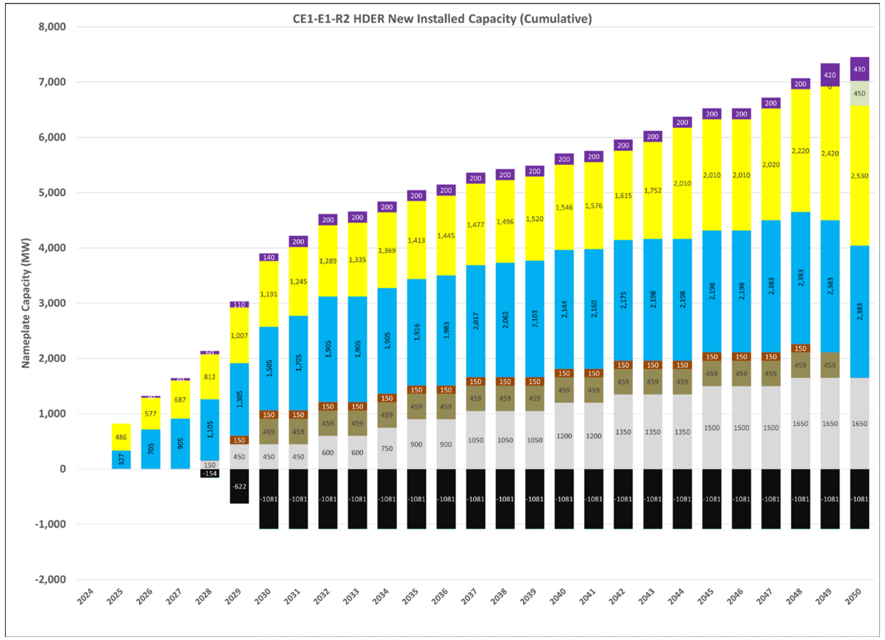
Scenario Metrics and Evaluation		
26 Year NPVRR ($MM) 2025$	$17,580	Assumptions and Observations Capacity Expansion – as compared to CE1-E1-R2 • Reliability Tie economically chosen in 2027 • Slightly reduced firm capacity expansion over the period resulting from lower peak loads • Similar expansion plan as CE1-E1-R2 with timing differences Other • $390MM higher NPV w/end effects than CE1-E1-R2 • Lower emission as compared to CE1-E1-R2 (1MT cumulative over horizon)
26 Year NPVRR with End Effects ($MM 2025$)	$26,220	
11 Year NPVRR ($MM) 2025$	$8,830	
Total CO_2 Emissions 2025-2030 (kT)	12,715	
Total CO_2 Emissions 2031-2035 (kT)	2,912	
Total CO_2 Emissions 2035-2050 (kT)	10,341	
Total CO_2 Emissions 2025-2050 (kT)	25,464	

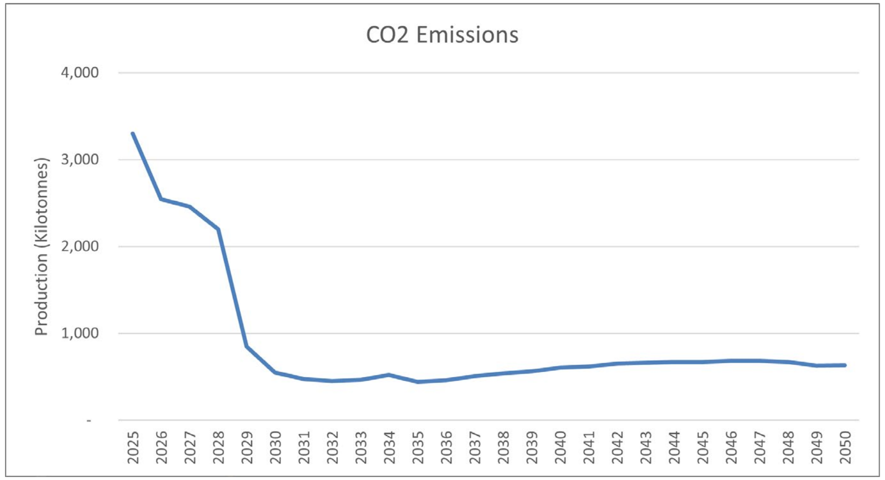
CE1-E1-R2 HDER (HIGH DER)

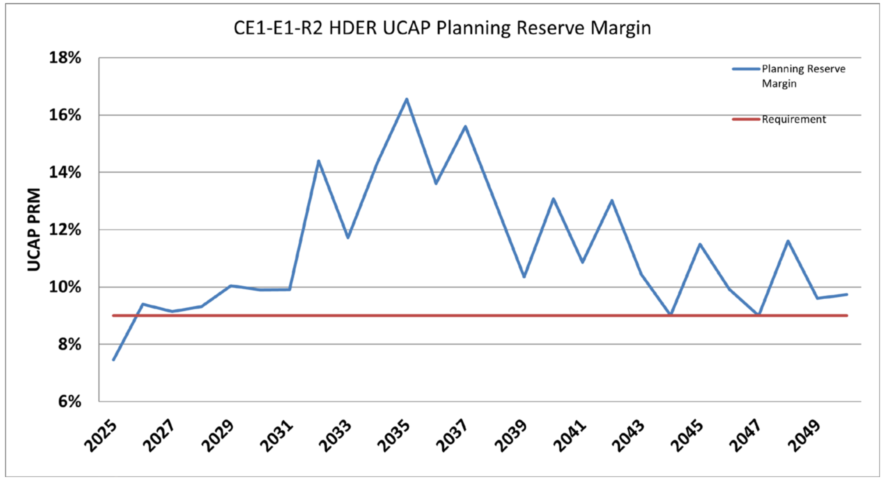
NZ 2035-CURRENT POLICY AND TRENDS-NO ATLANTIC LOOP











CE1-E1-R2 HDER (HIGH DER)

NZ 2035-CURRENT POLICY AND TRENDS-NO ATLANTIC LOOP

Scenario Metrics and Evaluation

26 Year NPVRR ($MM) 2025$	$15,870
NPV Capital Cost Solar (2025$)	$3,100
Total NPV Cost (NPVRR + NPV Solar)	$18,970
26 Year NPVRR with End Effects ($MM 2025$)	$24,020
NPV Capital Cost – Solar with End Effects	$3,800
Total 26 Year NPVRR + NPV Solar	$27,820
11 Year NPVRR ($MM) 2025$	$7,960
11 Year NPV Capital Cost Solar (2025$)	$2,500
Total 11Yr NPV Cost (NPVRR + NPV Solar)	$10,460
Total CO_2 Emissions 2025-2030 (kT)	11,895
Total CO_2 Emissions 2031-2035 (kT)	2,348
Total CO_2 Emissions 2035-2050 (kT)	9,679
Total CO_2 Emissions 2025-2050 (kT)	23,480

Assumptions and Observations

Capacity Expansion – as compared to CE1-E1-R2

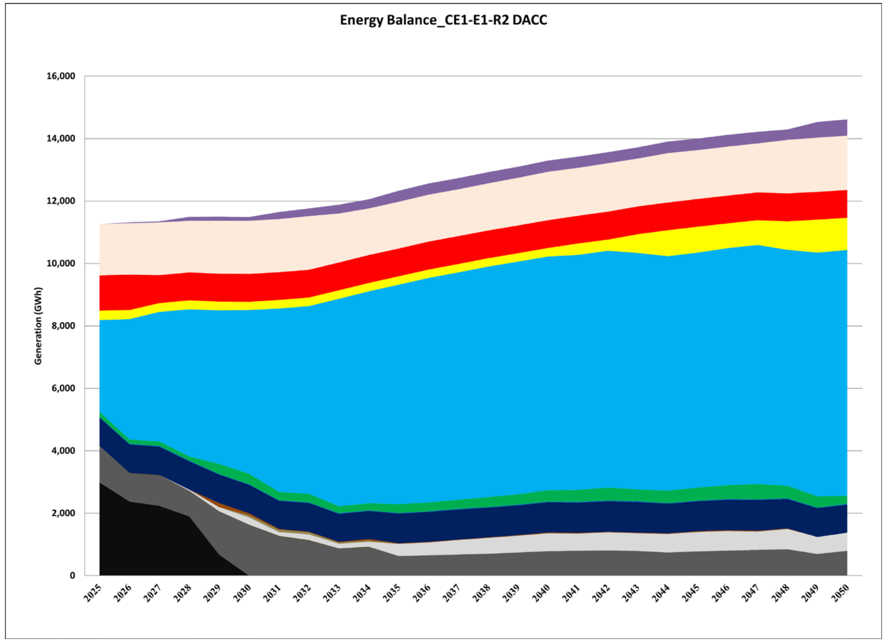
- 1500MW of rooftop solar by 2050 assumed in HDER scenarios
- Reliability Tie economically chosen by 2029
- ~300-490MW less of wind capacity additions over the horizon (~300MW by end of period) with the high rooftop solar assumed
- Equivalent SMRs as compared to CE1-E1-R2
- Similar BESS and gas expansion as CE1-E1-R2 with timing differences

Other

- $1,962MM higher NPV w/end effects than CE1-E1-R2
- ~3.4MT lower cumulative emissions over the period than CE1-E1-R2

CE1-E1-R2 DACC (DIRECT AIR CARBON CAPTURE)

NZ 2035-CURRENT POLICY AND TRENDS-NO ATLANTIC LOOP



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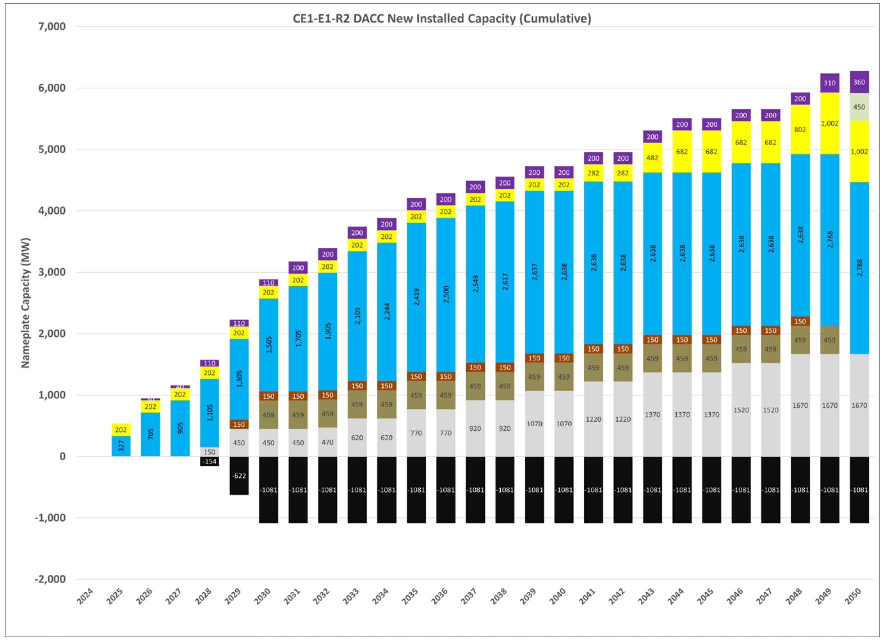
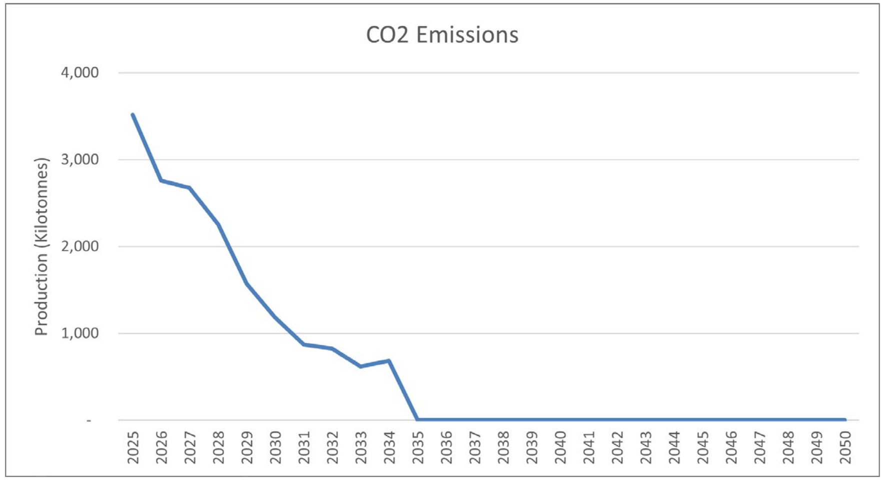
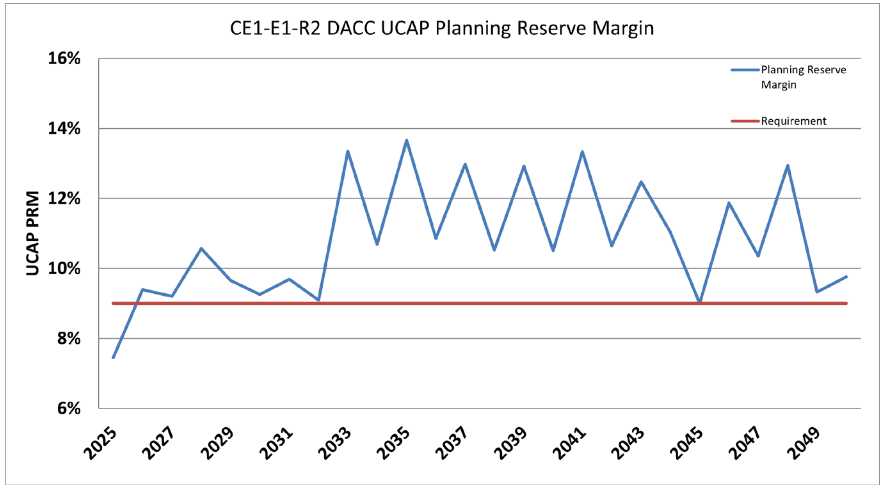






CE1-E1-R2 DACC (DIRECT AIR CARBON CAPTURE)

NZ 2035-CURRENT POLICY AND TRENDS-NO ATLANTIC LOOP

Scenario Metrics and Evaluation

26 Year NPVRR ($MM) 2025$	$18,680
26 Year NPVRR with End Effects ($MM 2025$)	$28,190
11 Year NPVRR ($MM) 2025$	$8,700
Total CO_2 Emissions 2025-2030 (kT)	13,958
**Total CO_2 Emissions and removed Emissions 2031-2035 (kT)	3,580
Total **removed** CO_2 Emissions 2035-2050 (kT)	12,162
Total CO_2 Emissions and removed Emissions 2025-2050 (kT)	29,183

Assumptions and Observations

- Emissions can be removed at a cost of $500/t (flat) – proxying the cost of physical CO_2 removal from the atmosphere

Capacity Expansion – as compared to CE1-E1-R2

- Slightly higher (~100MW) wind capacity additions by 2050
- Reliability Tie economically selected by 2033
- Similar expansion plan with timing differences

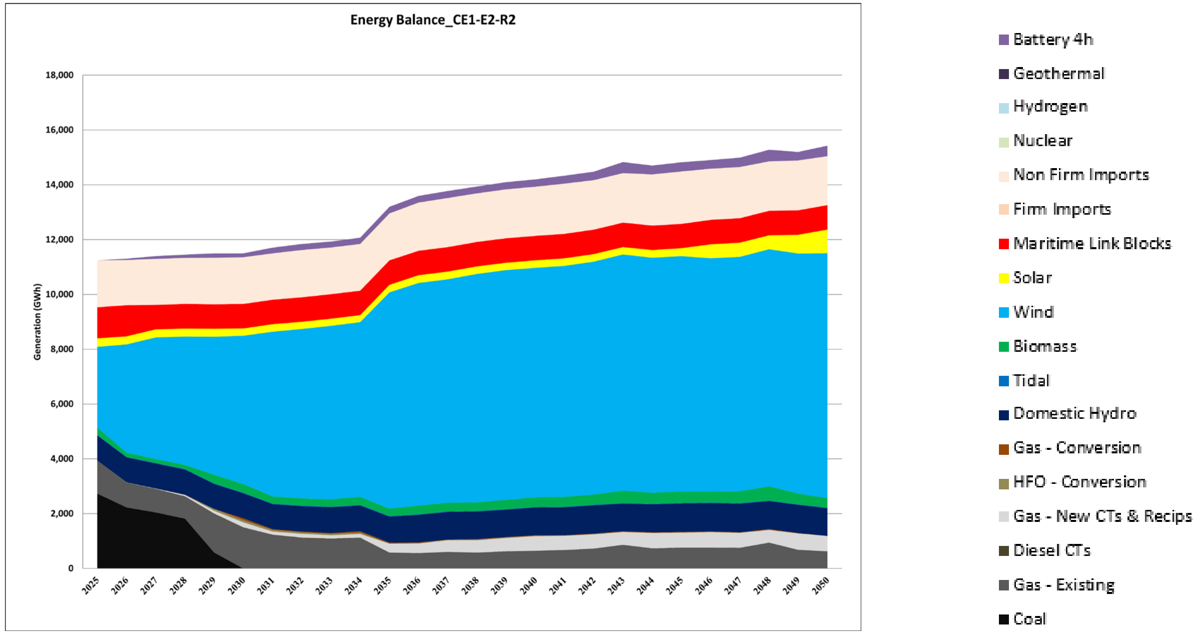
Other

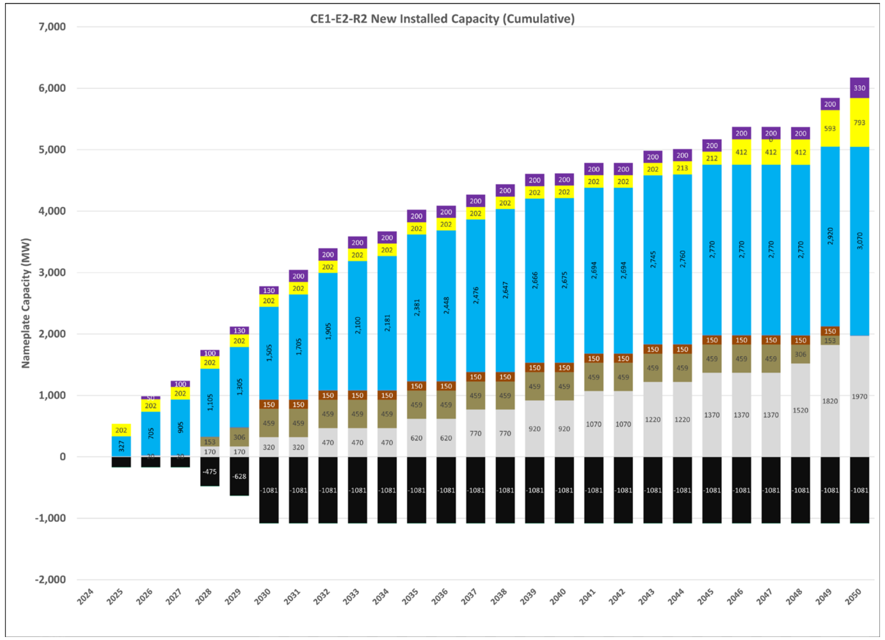
- $2,040MM higher NPV w/end effects than CE1-E1-R2
- Cost difference includes the cost to remove the CO_2 emissions post-2035

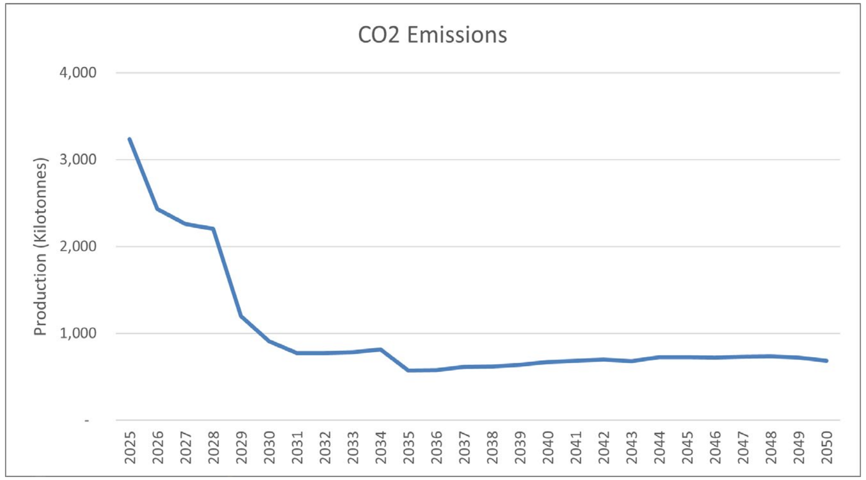
** Removed emissions apply to year 2035 and beyond

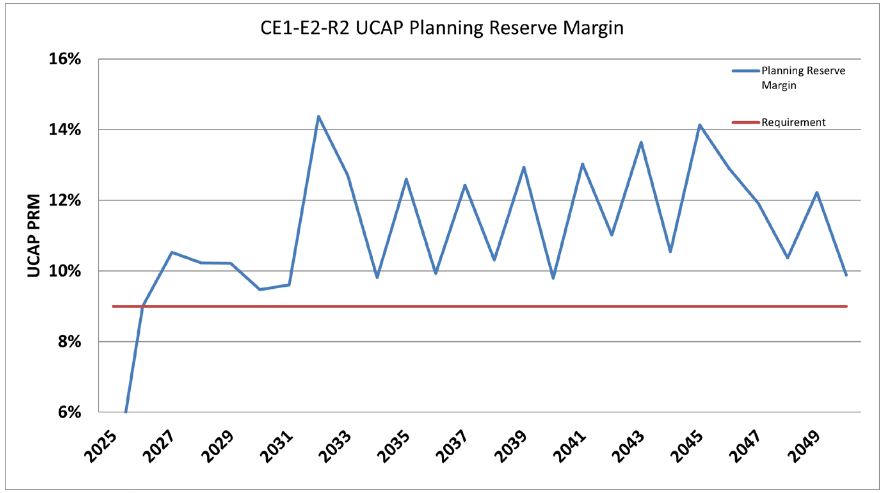
CE1-E2-R2

NZ 2035-HYBRID PEAK-NO ATLANTIC LOOP







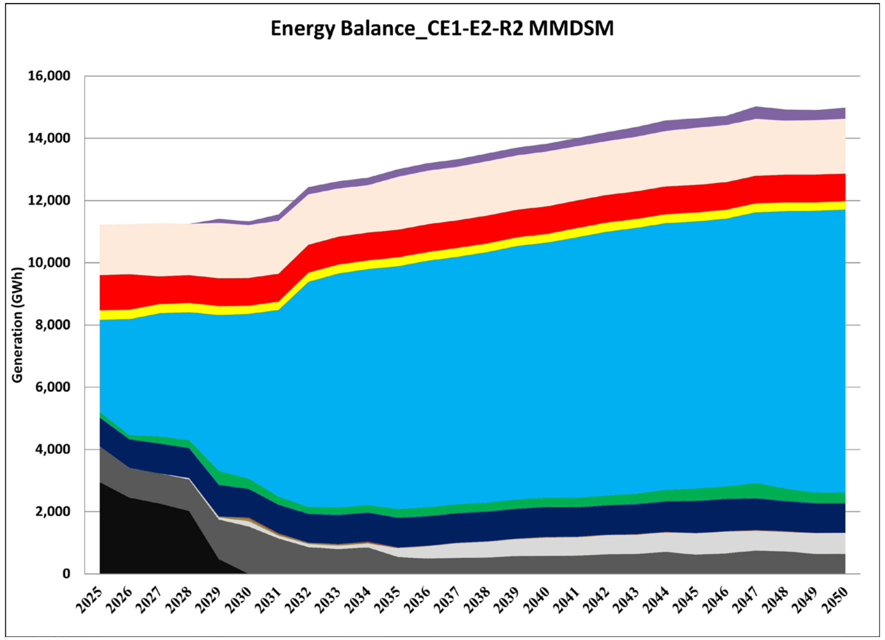


CE1-E2-R2
NZ 2035-HYBRID PEAK-NO ATLANTIC LOOP

Scenario Metrics and Evaluation		
26 Year NPVRR ($MM) 2025$	$16,710	Assumptions and Observations Capacity Expansion • Reliability Tie economically chosen by 2035 • Similar renewable expansion plan to 2035; incrementally large expansion of wind from 2036 to 20250 (~120-370MW) • 130MW less of new CT additions by 2030 as compared to CE1-E1-R2 due to the hybrid peak mitigation; 300MW less installed capacity by 2050 Other • $2330MM lower NPV w/end effects than CE1-E1-R2 • Similar emissions profile
26 Year NPVRR with End Effects ($MM 2025$)	$23,500	
11 Year NPVRR ($MM) 2025$	$8,340	
Total CO_2 Emissions 2025-2030 (kT)	12,231	
Total CO_2 Emissions 2031-2035 (kT)	3,713	
Total CO_2 Emissions 2035-2050 (kT)	10,787	
Total CO_2 Emissions 2025-2050 (kT)	26,158	

CE1-E2-R2 MMDSM (MODIFIED-MID DSM)

NZ 2035-HYBRID PEAK-NO ATLANTIC LOOP



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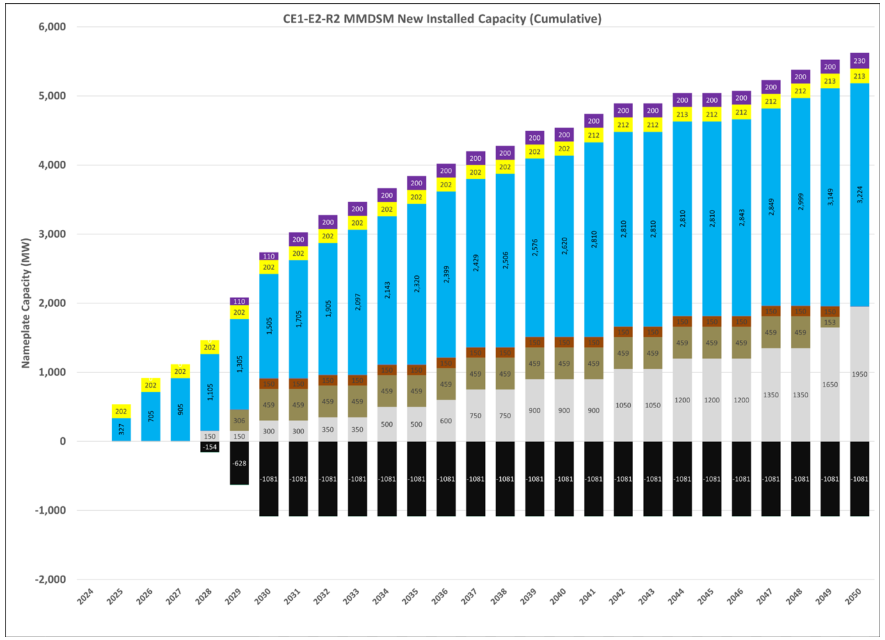
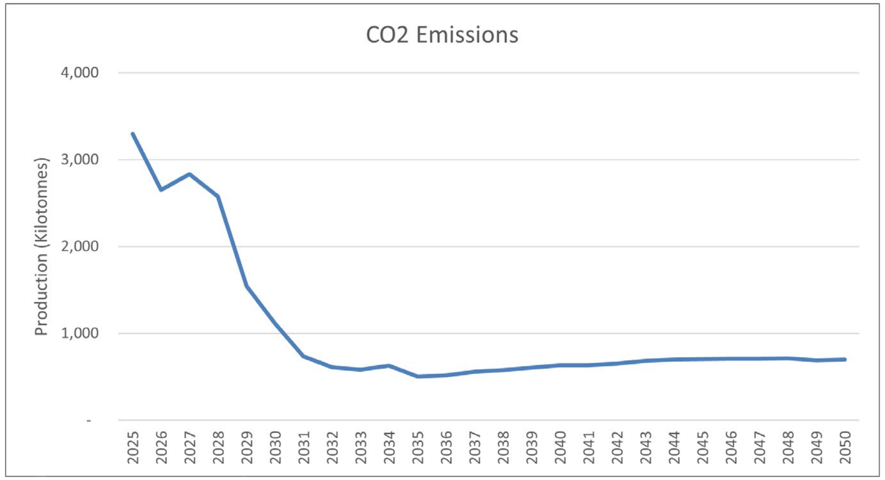
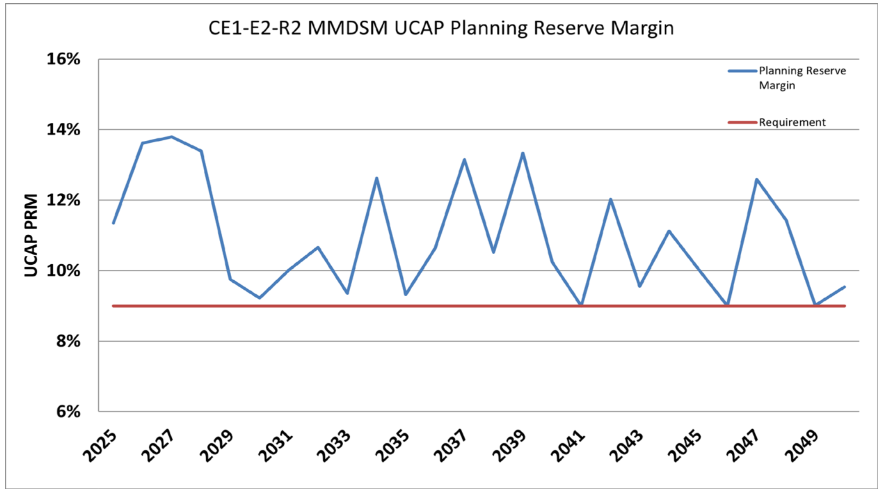
- HFO - Conversion
- Gas - New CTs & Recips
- Diesel CTs
- Gas - Existing
- Coal







CE1-E2-R2 MMDSM (MODIFIED-MID DSM)

NZ2035-HYBRID PEAK-NO ATLANTIC LOOP

Scenario Metrics and Evaluation

26 Year NPVRR ($MM) 2025$	$17,040
26 Year NPVRR with End Effects ($MM 2025$)	$23,750
11 Year NPVRR ($MM) 2025$	$8,620
Total CO_2 Emissions 2025-2030 (kT)	14,009
Total CO_2 Emissions 2031-2035 (kT)	3,054
Total CO_2 Emissions 2035-2050 (kT)	10,268
Total CO_2 Emissions 2025-2050 (kT)	26,831

Assumptions and Observations

Capacity Expansion – as compared to CE1-E2-R2

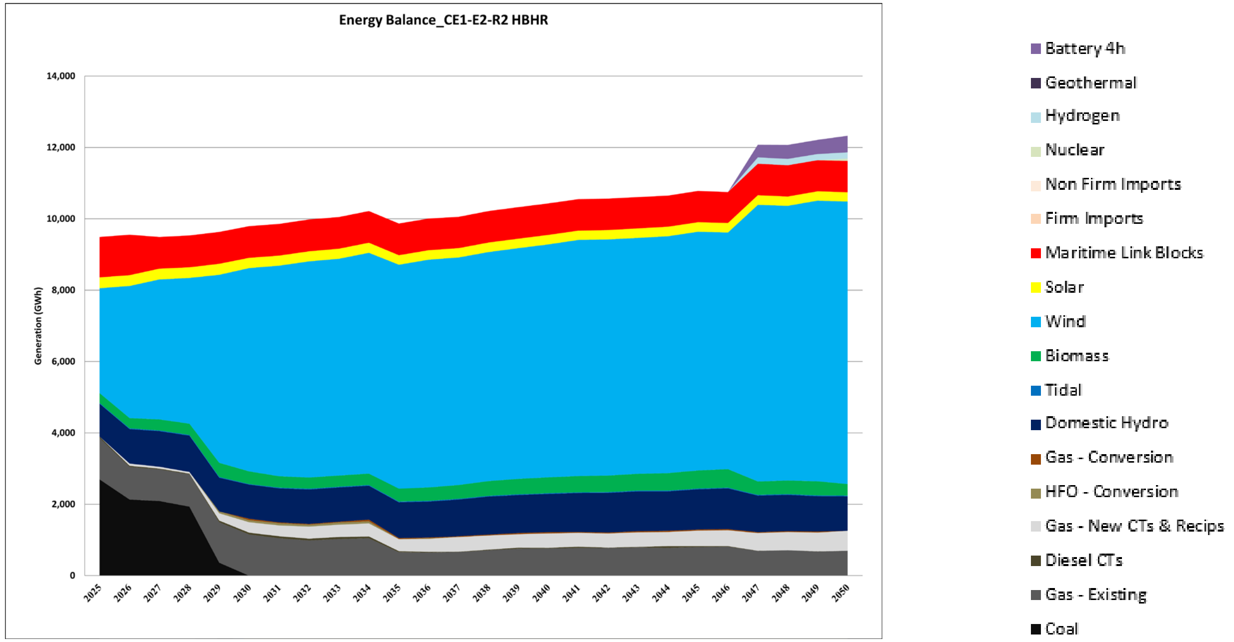
- Reliability Tie economically selected in 2032
- Lower gas expansion over the horizon (20-170MW), with similar expansion by end of horizon
- By the end of the horizon ~150MW incrementally more wind, ~580MW less solar and 100MW less BESS added to the system

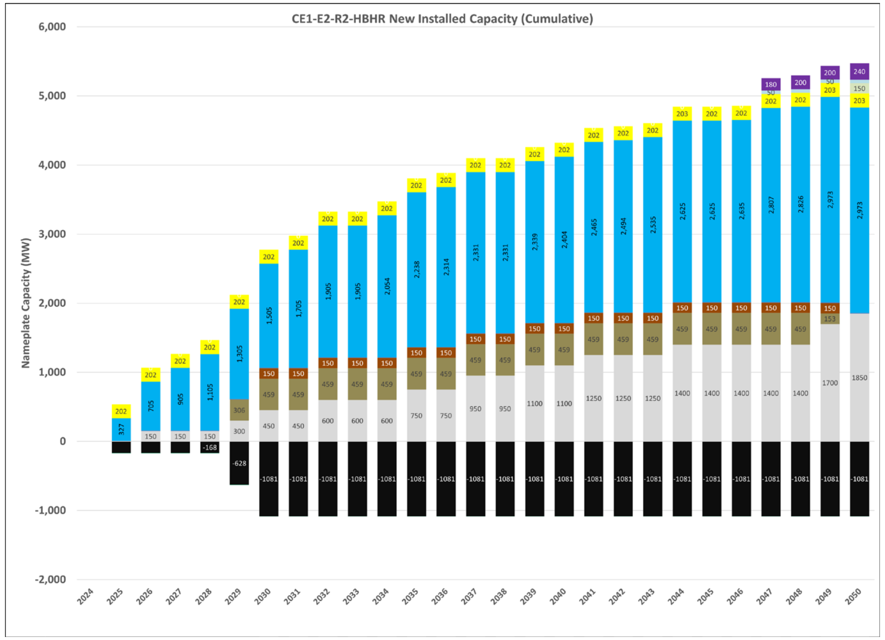
Other

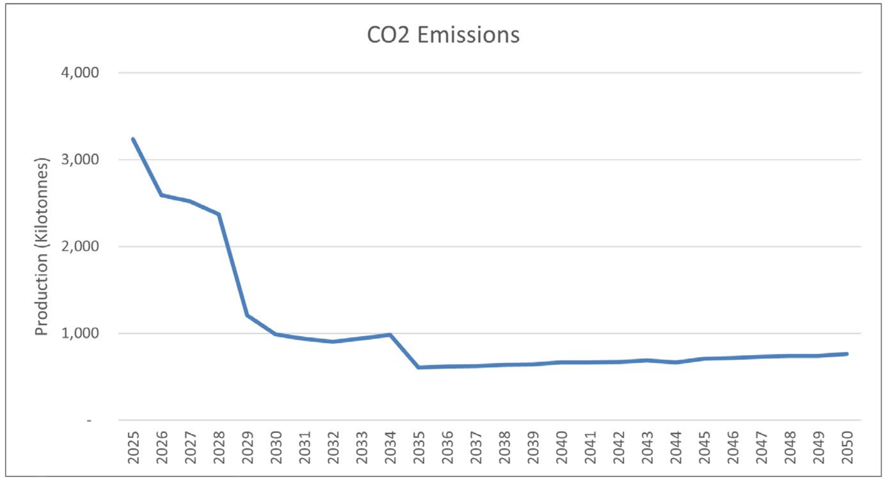
- $250MM higher NPV w/end effects than CE1-E2-R2

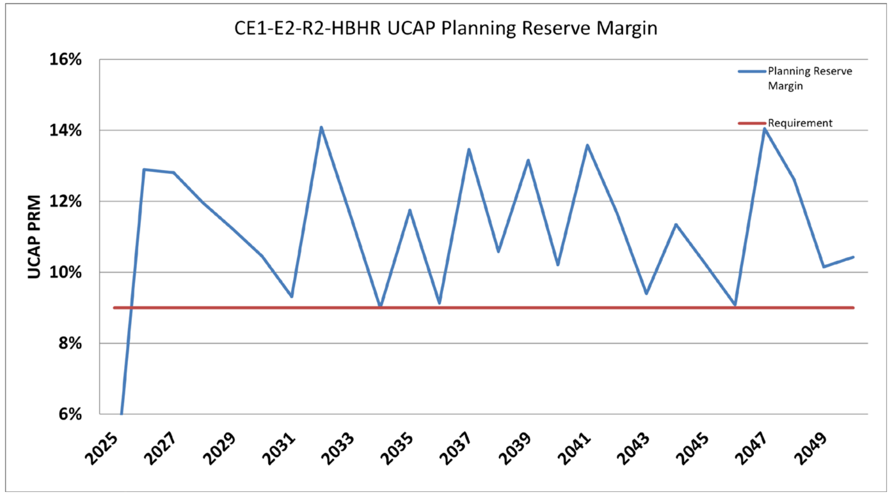
CE1-E2-R2 HBHR (HIGH BATTERY & RENEWABLES COST)

NZ 2035-HYBRID PEAK-NO ATLANTIC LOOP









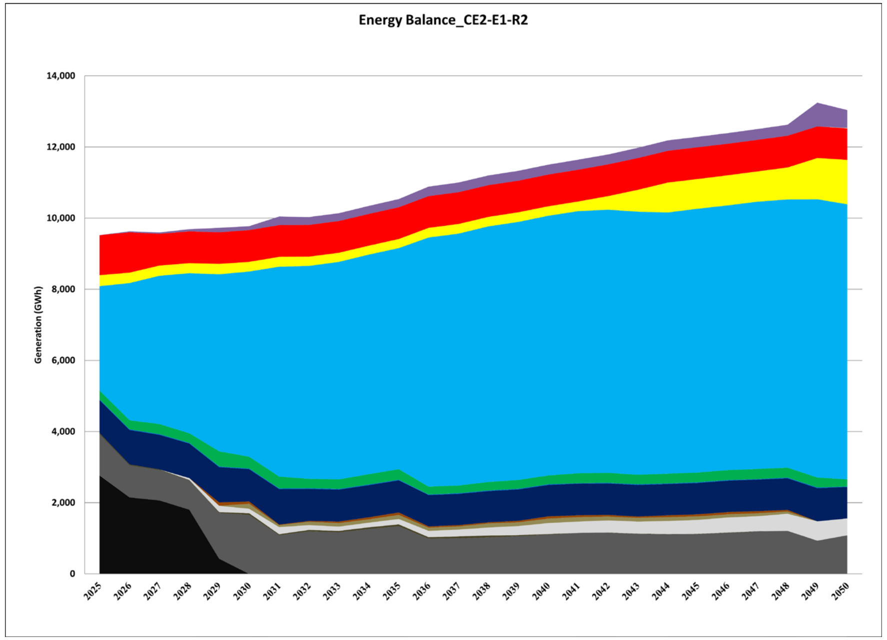
CE1-E2-R2 HBHR (HIGH BATTERY & RENEWABLES COST)

NZ 2035-HYBRID PEAK-NO ATLANTIC LOOP

Scenario Metrics and Evaluation		
26 Year NPVRR ($MM) 2025$	$17,790	Assumptions and Observations • This sensitivity adds a 40% increase in capital cost on wind, solar and battery storage-based on the 2022$ starting estimate from the *Final Assumptions*. Post 2022, these resources continue to follow the NREL cost trajectories. This sensitivity is designed to assess the sensitivity of the renewable expansion to a higher cost assumption. It is not intended to be an estimate of actual costs. Capacity Expansion – as compared to CE1-E2-R2 • Reliability Tie economically chosen in 2029 • No battery storage additions until 2047; total of 240MW by 2050 • Lower wind expansion over most of the horizon (~100-270MW) • ~500MW less solar capacity at the end of the hoizon • Earlier new gas builds (+~100-180MW) replaces batteries in CE1-E2-R2; ~100MW less of new gas capacity by 2050 • 150MW SMR built in 2050 (vs. 0MW in CE1-E2-R2) • 50 MW of hydrogen CT built in 2047 (vs. 0MW in CE1-E2-R2) Other • $1,820MM higher NPV w/end effects than CE1-E2-R2 • 1.4MT high emissions as compared to CE1-E2-R2
26 Year NPVRR with End Effects ($MM 2025$)	$25,320	
11 Year NPVRR ($MM) 2025$	$8,940	
Total CO_2 Emissions 2025-2030 (kT)	12,908	
Total CO_2 Emissions 2031-2035 (kT)	4,364	
Total CO_2 Emissions 2035-2050 (kT)	10,874	
Total CO_2 Emissions 2025-2050 (kT)	27,544	

CE2-E1-R2

NZ 2050-CURRENT POLICY AND TRENDS-NO ATLANTIC LOOP



- Battery 4h
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- Firm Imports
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- Gas - Existing
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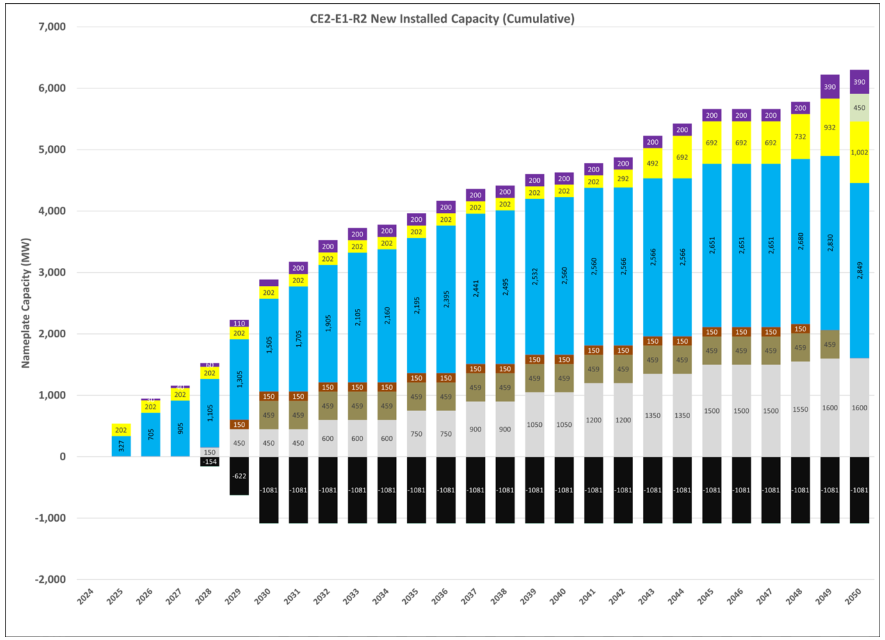
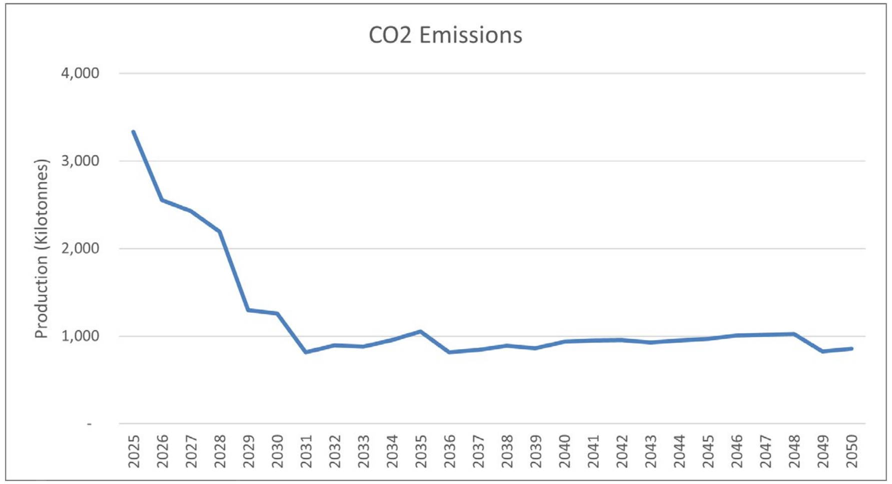
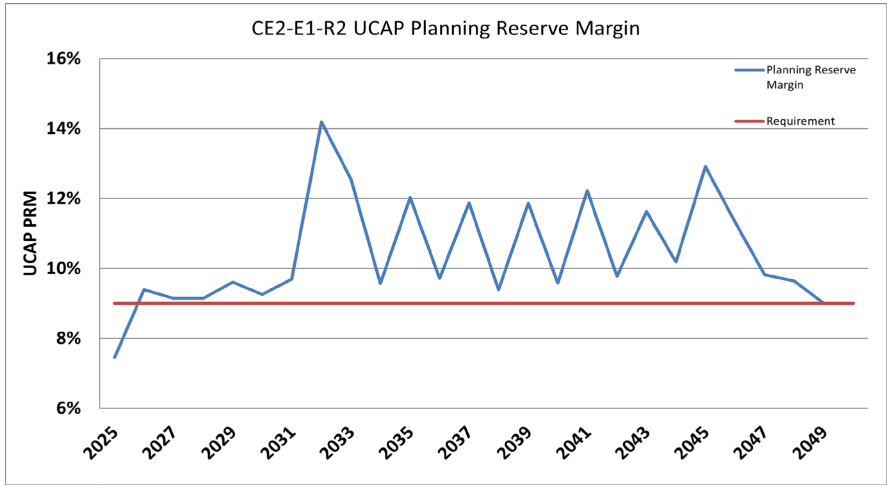






CE2-E1-R2

NZ 2050-CURRENT POLICY AND TRENDS-NO ATLANTIC LOOP

Scenario Metrics and Evaluation

26 Year NPVRR ($MM) 2025$	$17,300
26 Year NPVRR with End Effects ($MM 2025$)	$25,950
11 Year NPVRR ($MM) 2025$	$8,680
Total CO_2 Emissions 2025-2030 (kT)	13,062
Total CO_2 Emissions 2031-2035 (kT)	4,598
Total CO_2 Emissions 2035-2050 (kT)	14,884
Total CO_2 Emissions 2025-2050 (kT)	31,490

Assumptions and Observations

Capacity Expansion – as compared to CE2-E1-R1

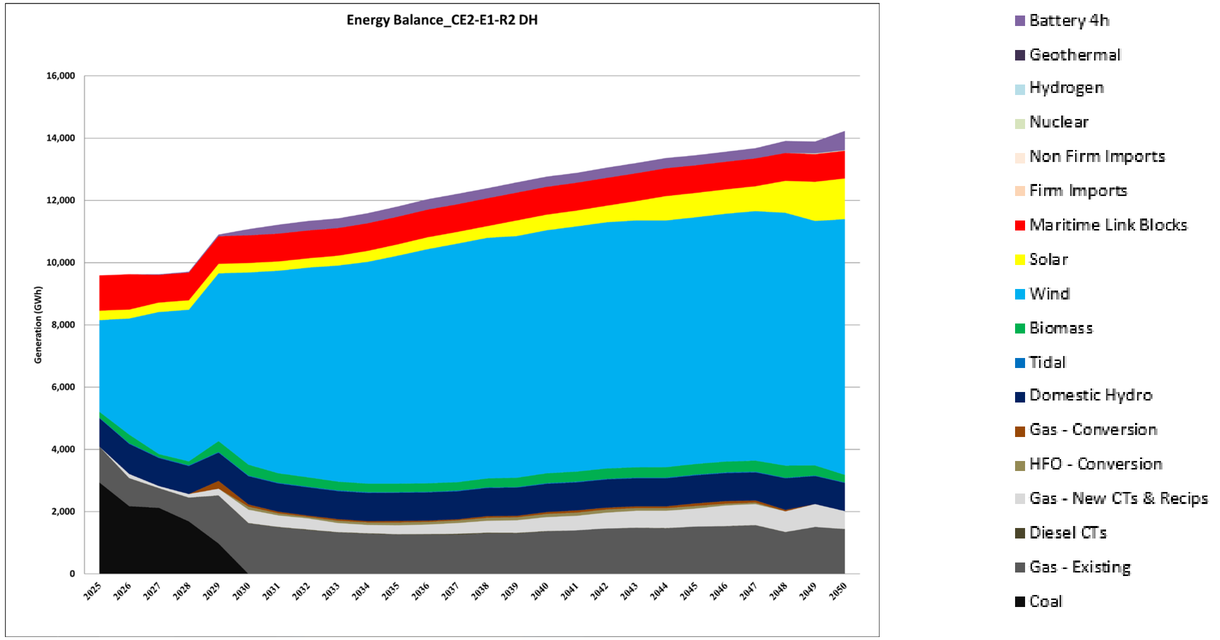
- Reliability Tie economically chosen in 2036
- Similar expansion to CE1-E1-R2 with timing differences; by period end, there is between 100-150MW more wind in this scenario

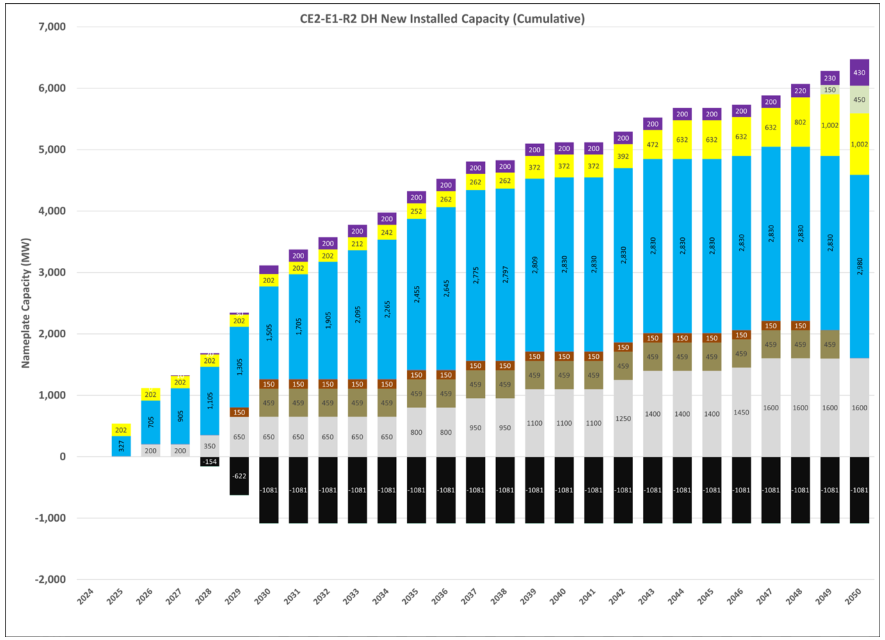
Other

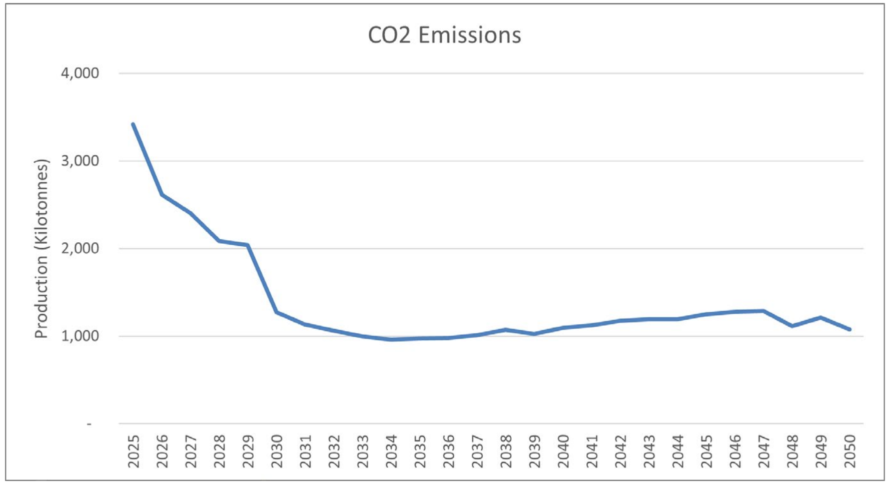
- $120MM higher NPV w/end effects than CE1-E1-R2
- Latest build timeline for reliability tie
- Cumulative CO_2 emissions ~4.6MT higher than CE1-E1-R2

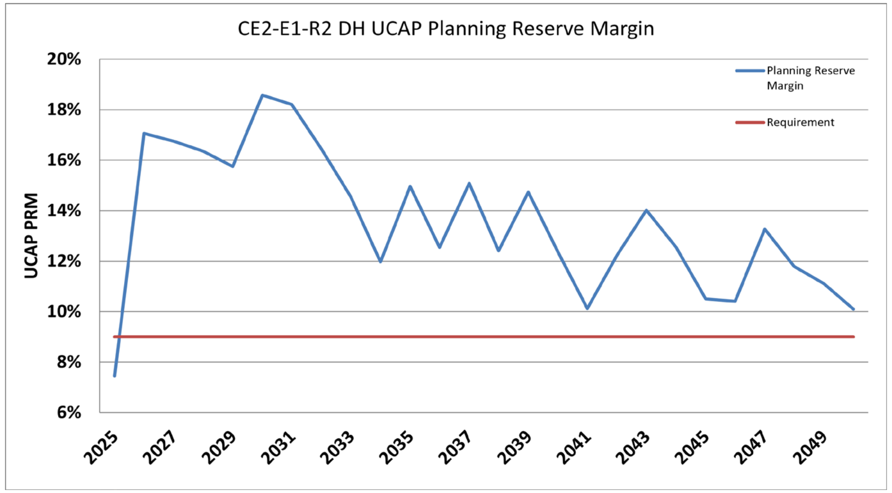
CE2-E1-R2 DH (DOMESTIC HYDROGEN)

NZ 2050-CURRENT POLICY AND TRENDS-NO ATLANTIC LOOP









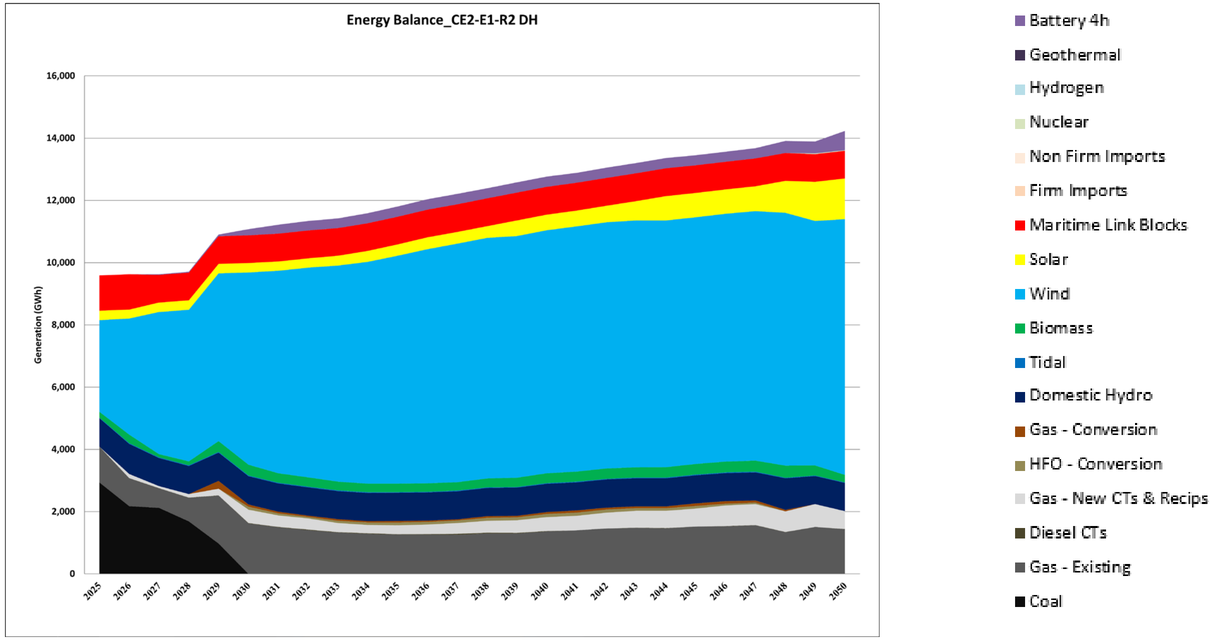
CE2-E1-R2 DH (DOMESTIC HYDROGEN)

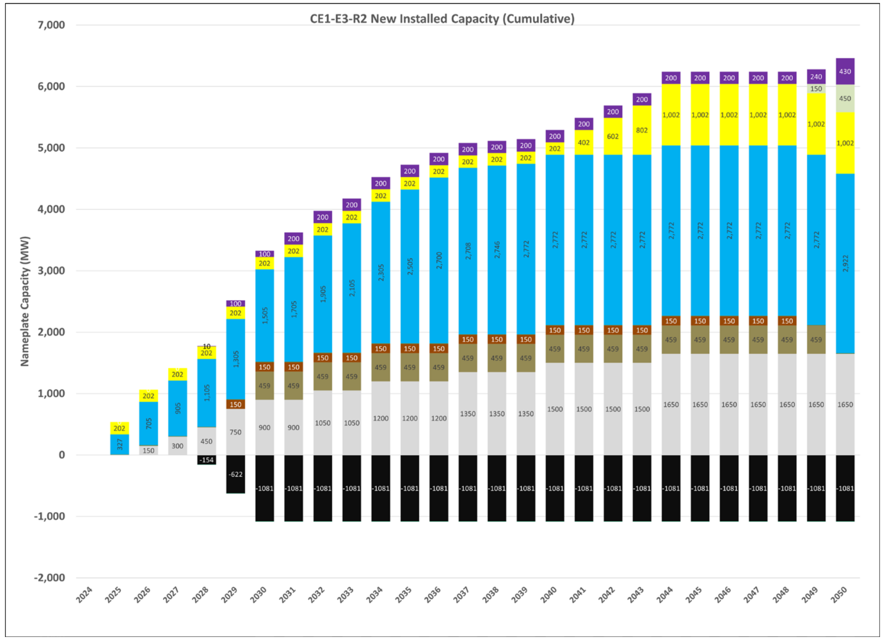
NZ 2050-CURRENT POLICY AND TRENDS-NO ATLANTIC LOOP

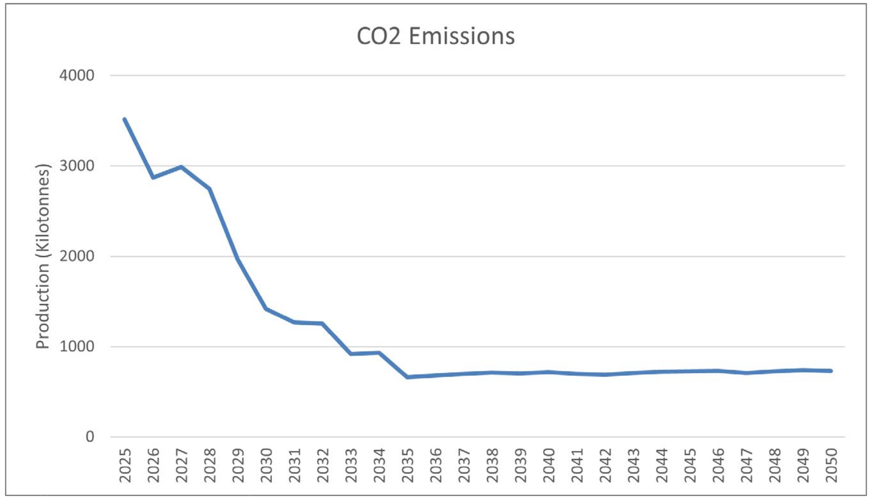
Scenario Metrics and Evaluation		
26 Year NPVRR ($MM) 2025$	$18,590	Assumptions and Observations Capacity Expansion – as compared to CE2-E1-R2 • Reliability Tie economically chosen in 2027 • Incremental wind expansion post 2030 compared to CE2-E1-R2 (~130-270MW) • Timing differences on new gas expansion – by end of the period it has the same expansion as CE2-E1-R2 Other • $1,710MM higher NPV w/end effects than CE2-E1-R2 • Higher wind generation to meet hydrogen load requirements • Cumulative emissions – 4.5MT higher as compared to CE2-E1-R2
26 Year NPVRR with End Effects ($MM 2025$)	$27,660	
11 Year NPVRR ($MM) 2025$	$9,280	
Total CO_2 Emissions 2025-2030 (kT)	13,832	
Total CO_2 Emissions 2031-2035 (kT)	5,124	
Total CO_2 Emissions 2035-2050 (kT)	18,054	
Total CO_2 Emissions 2025-2050 (kT)	36,037	

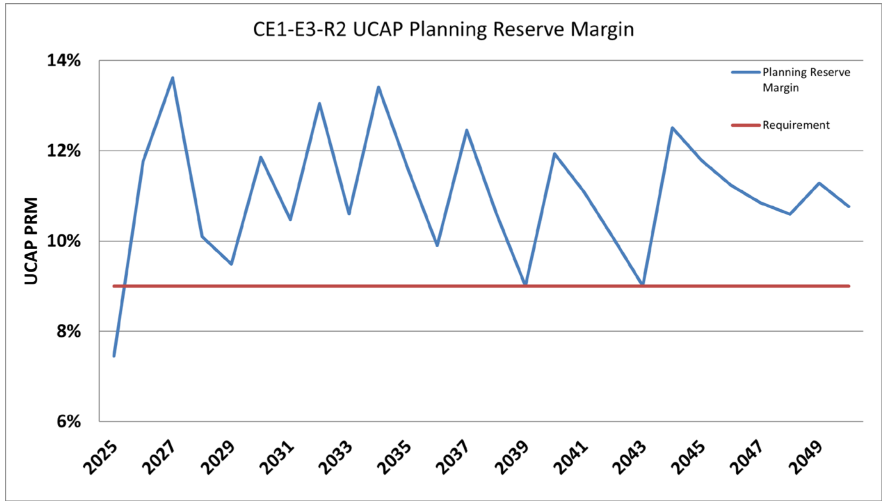
CE1-E3-R2 (ACCELERATED ELECTRIFICATION)

NZ 2035-CURRENT POLICY AND TRENDS-NO ATLANTIC LOOP









CE1-E3-R2 (ACCELERATED ELECTRIFICATION)

NZ 2035-CURRENT POLICY AND TRENDS-NO ATLANTIC LOOP

Scenario Metrics and Evaluation

26 Year NPVRR ($MM) 2025$	$18,180
26 Year NPVRR with End Effects ($MM 2025$)	$26,860
11 Year NPVRR ($MM) 2025$	$9,100
Total CO_2 Emissions 2025-2030 (kT)	15,502
Total CO_2 Emissions 2031-2035 (kT)	5,024
Total CO_2 Emissions 2035-2050 (kT)	11,336
Total CO_2 Emissions 2025-2050 (kT)	31,204

Assumptions and Observations

- Accelerated Electrification scenarios (E3) have been added in the Final Results to reflect peak and energy requirements that accelerate faster than in the base load (E1) scenario but generally reach the same level by the end of the horizon

Capacity Expansion – as compared to CE1-E1-R2

- Reliability Tie economically chosen in 2033
- Earlier new gas CT expansion vs CE1-E1-R2 driven by higher firm peak requirements; similar expansion by end of period
- Larger wind expansion post-2030 (100-200MW)

Other

- $360MM higher NPV than the corresponding with Atlantic Loop scenario CE1-E3-R1
- Cumulative emissions are 4.3MT higher as compared to CE1-E1-R2