



JUNE 4, 2014

IRP Process Update & Intervenor Feedback

Agenda

1. Project schedule
2. Intervenor Submissions & NS Power Responses
3. Candidate resource plan development
4. Early modeling results

Project Schedule – Completed Milestones

- TOR finalized - February 7
- Stakeholder Technical Conference - March 7
- Draft Assumptions issued - March 14
- Stakeholder Comments on Draft Assumptions - March 28
- Assumptions finalized - April 11
- Wind Capacity Value & Integration Cost Assumptions Released – April 23 & May 1
- Regulatory Stakeholder questions - Ongoing

Project Schedule – Upcoming Milestones

- Model Database & Candidate Resource Plan Development – underway
- Regulatory Stakeholder Technical Conf. – June 25
- Base scenarios for alternative plans established and sensitivities identified – July 24
- Release Draft Results – September 5
- Regulatory Stakeholder Technical Conf. – Sept 12
- Draft Report & Action Plan Filed – September 30
- Regulatory Stakeholder Comments – October 7
- Final Report & Action Plan Filed – October 15

Intervenor Submissions Recap

INTERVENOR SUBMISSIONS & MAIN THEMES:

- Submissions received from most intervenors (SBA, CA, PHP, Industrial Group, EAC, Environment Northeast, Scotian Windfields, Natural Forces Wind, NSE and NS DoE)
- Most common thread across submissions: Process timeline and “Analysis Plan” – desire for more intervenor involvement and feedback
- Diverse positions on the other main issues (DSM, Environment, Renewables, Retirements)

Intervenor Feedback – Analysis Plan

- Analysis Plan
 - Desire for greater stakeholder input
 - Desire for more detail respecting the “candidate resource plans” and evaluation criteria for the process to get to a reference plan
 - Request for the schedule for the Analysis Plan process
 - Several “candidate resource plans” have been recommended by intervenors for evaluation
- NS Power Response
 - Implementing additional “information sessions” for intervenors
 - Reaching out to key intervenors on a regular basis through the modelling period
 - Establishing detailed schedule with Synapse to share with stakeholders
 - Screening preferred resource plans so that they take into account stakeholder feedback
 - Will consider additional strategist runs based on time

Intervenor Feedback - DSM

- DSM Stakeholder Submissions
 - Request to consider an accelerated DSM implementation profile (above ENSC high potential)
 - Request for more detail on how DSM will be modelled
 - Consider Demand Response for peak reduction including DR from customers

- NS Power Response
 - The assumptions submitted are a reasonable range of DSM to be considered
 - More detail provided on DSM modeling in written response

Intervenor Feedback - Emissions

- Emissions Stakeholder Submissions
 - Consider more stringent emissions scenarios
 - The Scenario B – holding emissions at current legislated limits is not reasonable – govt targets will be lower
 - Higher and lower emissions scenarios should be run as sensitivities to assess the cost impact of constraints
- NS Power Response
 - There are a range of intervenor views on emissions levels, it is good IRP practice for NS Power to run a range of scenarios

Intervenor Feedback – Fuel forecast

- Fuel Stakeholder Submissions
 - Company should use other fuel forecasts
 - Compare historic actuals to the forecast
 - How is forecast accuracy considered

- NS Power Response
 - More information provided in written responses
 - Fuel forecast accuracy will be addressed in sensitivity analysis and World development

Intervenor Feedback - Renewables

- Renewables Stakeholder Submissions
 - More COMFIT should be considered
 - COMFIT should be assumed at 110 – 120 in 2016
 - Renewables beyond 40% should be considered
 - Capacity value of wind needs to consider availability of wind during peak periods
 - Supply side cost estimates for wind and solar are over stated

- NS Power Response
 - Renewables beyond 40% may be considered due to Emissions constrains
 - Wind and solar cost estimates adjusted in assumptions
 - NS Power produced a detailed study demonstrating that when examined using cumulative frequency analysis the CV for renewables was much lower than the Renewable Energy Integration Study value based on a loss of load expectation methodology (12% vs 27%)
 - Agreed with Synapse prior to use 17% for base assumption and will use both values as high and low bands for candidate resource plans

Intervenor Feedback - Load

- Load Stakeholder Submissions
 - The Company should fix load at 15% above and below the base case for the high and low scenarios
 - Industrial load should be assumed to be flat or declining

- NS Power Response
 - Proposed load “cone” using load and DSM case combinations

Candidate Resource Plan Development

NS POWER & SYNAPSE CONSIDERED STAKEHOLDER FEEDBACK TO DEVELOP CANDIDATE RESOURCE PLANS

- Key variables were identified as significantly capable of changing CRP outcomes
 - DSM, Variable generation levels, plant retirement dates and potential for a large PPA
- Using these variables over 30 CRPs were screened
- 6 initial CRPs will be optimized in strategist with others under consideration for the additional modelling

Candidate Resource Plan Development

THE FOLLOWING RESOURCE PLANS HAVE BEEN CHOSEN FOR INITIAL OPTIMIZATION RUNS

- Plan 1 (Base Run*): Case 1 (Low) DSM, 60 year coal plant retirements and base (currently planned) wind
- Plan 2: Case 2 (Base) DSM, 60 year coal plant retirements and base wind
- Plan 3: Case 2 (Base) DSM, 60 year coal plant retirements and high wind (up to 900 MW)
- Plan 4: Case 2 (Base) DSM, 50 year coal retirements and base wind
- Plan 5: Case 3 (High) DSM, 60 year coal retirements and base wind
- All plans to run under the Reference World, with assumed Scenario A emissions, 40% RES requirement by 2020 and Maritime Link + Economy energy purchases

Candidate Resource Plan Development

ONCE CANDIDATE RESOURCE PLANS HAVE BEEN OPTIMIZED SOME WILL BE SELECTED FOR ROBUSTNESS TESTING

- Plans will be evaluated under conditions where changes to load, fuel prices and environmental constraints (list non- exhaustive) are made to the assumptions
- The plan performance will be evaluated based on cost-effectiveness, system stability, environmental benefits, operational flexibility, etc.
- Developing resource plans this way allows for the broadest consideration of changes to assumptions and potential shifts in policy

Initial modelling results

THE COMPANY HAS COMPLETED ONE STRATEGIST RUN USING THE BASE ASSUMPTIONS (I.E. THE MOST LIKELY ASSUMPTIONS)

- Plan results in no new capacity additions until mid to late 2030's
- RES targets are met
- Plan is highly DSM dependent to meet reserve and environmental requirements (700 MW of peak reduction for the period)
- No robustness testing has been carried out on this plan

Run 1 (Preliminary)-Results

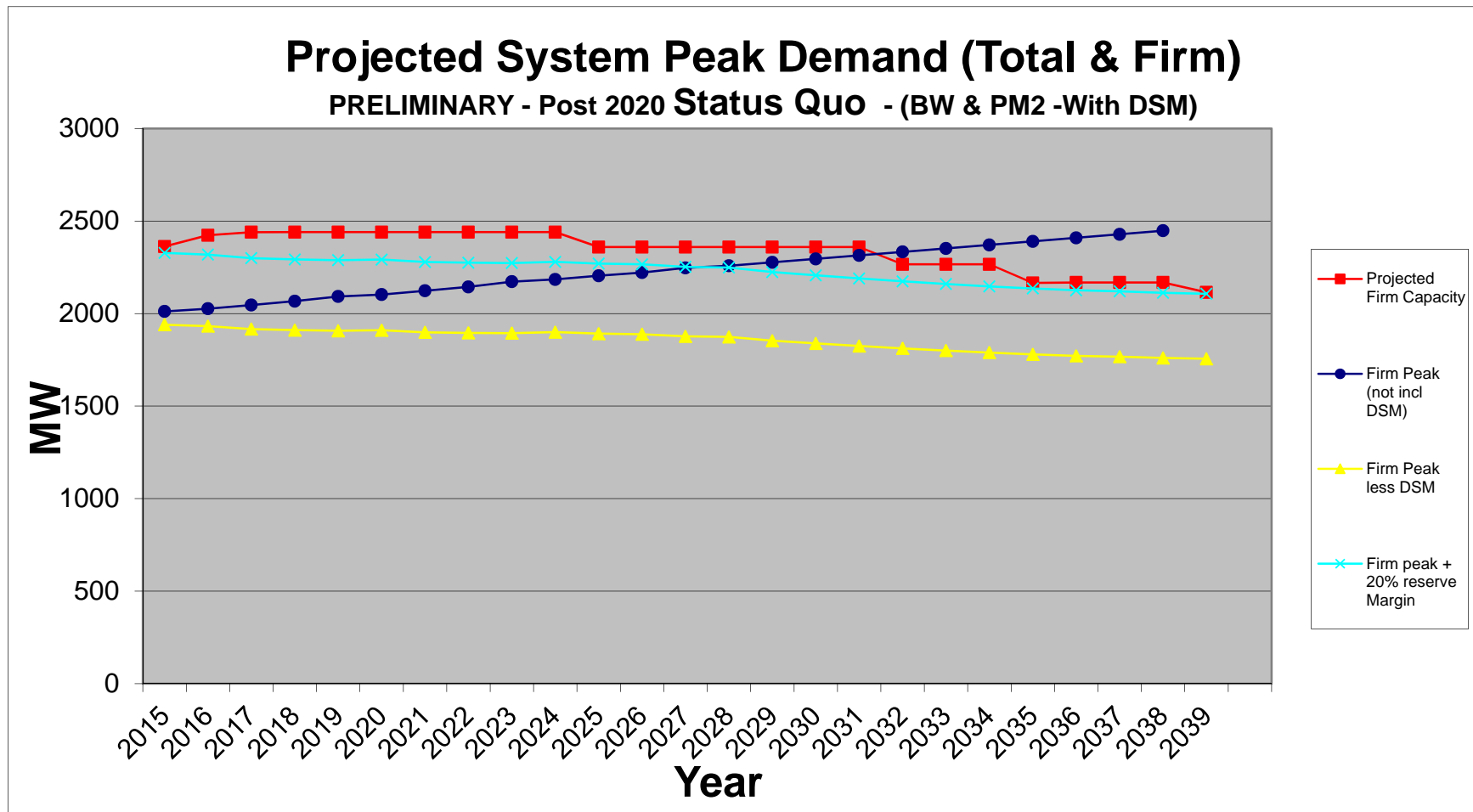
	Plan 1 (Base Run)
2015	
2016	
2017	ML Oct 2017 Lin 2 retire
2018	
2019	
2020	
2021	
2022	
2023	
2024	
2025	TUC 1 Retire
2026	
2027	
2028	
2029	

2030	
2031	
2032	TUC 2 Retire
2033	
2034	
2035	CT 50MW Tre 5 Retire
2036	CT100 MW & CT50 MW TUC 3 Retire
2037	
2038	
2039	CT 100 MW Lin 1 Retire
Planning PV \$M	11,274
Study PV \$M	17,002

Run 1 (Preliminary)-Load and Resources

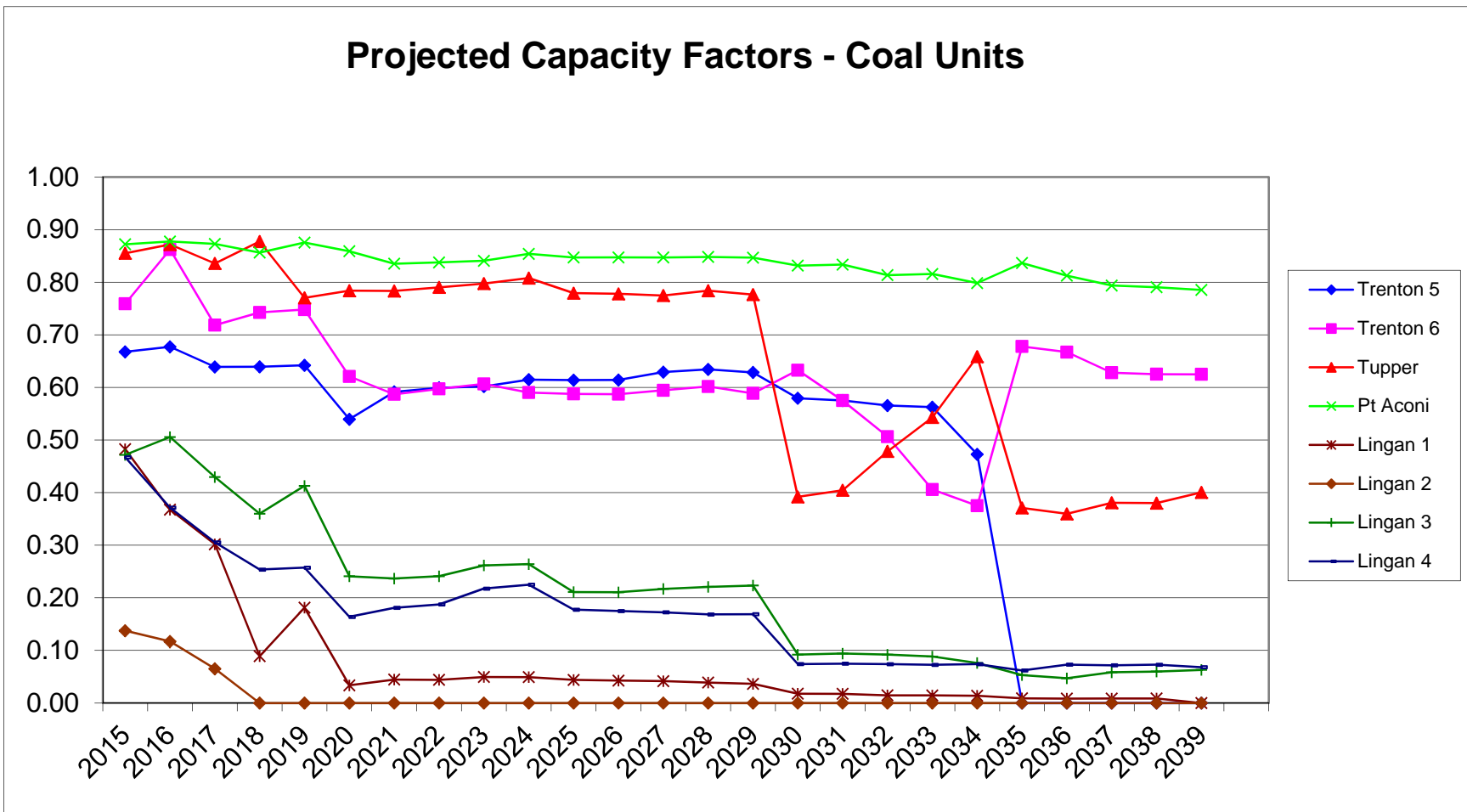
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Firm Peak	1,989	2,012	2,026	2,046	2,067	2,092	2,103	2,123	2,144	2,172	2,185	2,204	2,222	2,247	2,258	2,277	2,296	2,314	2,333	2,352	2,371	2,390	2,409	2,428	2,448
DSM	49	80	110	136	160	182	204	228	250	273	293	316	345	373	405	438	471	502	533	563	591	619	642	668	692
Firm Peak Less DSM	1,940	1,932	1,916	1,910	1,907	1,910	1,899	1,896	1,894	1,899	1,892	1,888	1,877	1,874	1,853	1,839	1,825	1,812	1,800	1,789	1,780	1,771	1,767	1,760	1,756
RM Required	388	386	383	382	381	382	380	379	379	380	378	378	375	375	371	368	365	362	360	358	356	354	353	352	351
Required MWs	2,328	2,319	2,299	2,293	2,288	2,292	2,278	2,275	2,273	2,279	2,270	2,266	2,252	2,249	2,224	2,206	2,190	2,174	2,160	2,147	2,136	2,126	2,120	2,112	2,107
Existing MWs	2341	2341	2341	2341	2341	2341	2341	2341	2341	2341	2341	2341	2341	2341	2341	2341	2341	2341	2341	2341	2341	2341	2341	2341	2341
Resource Additions (MW):																									
Burnside #4			33																						
COMFIT - Biomass	4.2	6																							
COMFIT - Wind	14.14	4.56	5.1																						
REA Wind	2.35	17.34																							
Maritime Link				153.25																					
Small Biomass PPA			10																						
Hydro			1.8																						
FGD parasitic power																									
Additional Wind																									
Assumed Unit Retirement				-153							-81							-93			-150	-147			-153
Natural Gas Unit																					49.4	149.4			100
Total Annual Additions	20.7	60.9	16.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0	-81.0	0.0	0.0	0.0	0.0	0.0	0.0	-93.0	0.0	0.0	-100.6	2.4	0.0	0.0	-53.0
Total Cumulative Additions	20.7	81.6	98.5	98.7	98.7	98.7	98.7	98.7	98.7	98.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	-17.7	-75.3	-75.3	-75.3	-175.9	-173.5	-173.5	-226.5
Total Firm Capacity	2362.1	2423.0	2439.9	2440.1	2440.1	2440.1	2440.1	2440.1	2440.1	2440.1	2359.1	2359.1	2359.1	2359.1	2359.1	2359.1	2359.1	2266.1	2266.1	2266.1	2165.5	2167.9	2167.9	2167.9	2114.9
Surplus (Deficit) MWs above RM	34	104	141	148	152	148	162	165	167	161	89	93	107	110	135	153	169	92	106	119	30	42	48	56	8
Reserve Margin %	21.8%	25.4%	27.3%	27.7%	28.0%	27.8%	28.5%	28.7%	28.8%	28.5%	24.7%	24.9%	25.7%	25.9%	27.3%	28.3%	29.3%	25.1%	25.9%	26.7%	21.7%	22.4%	22.7%	23.2%	20.4%

Run 1 (Preliminary)-Demand and DSM

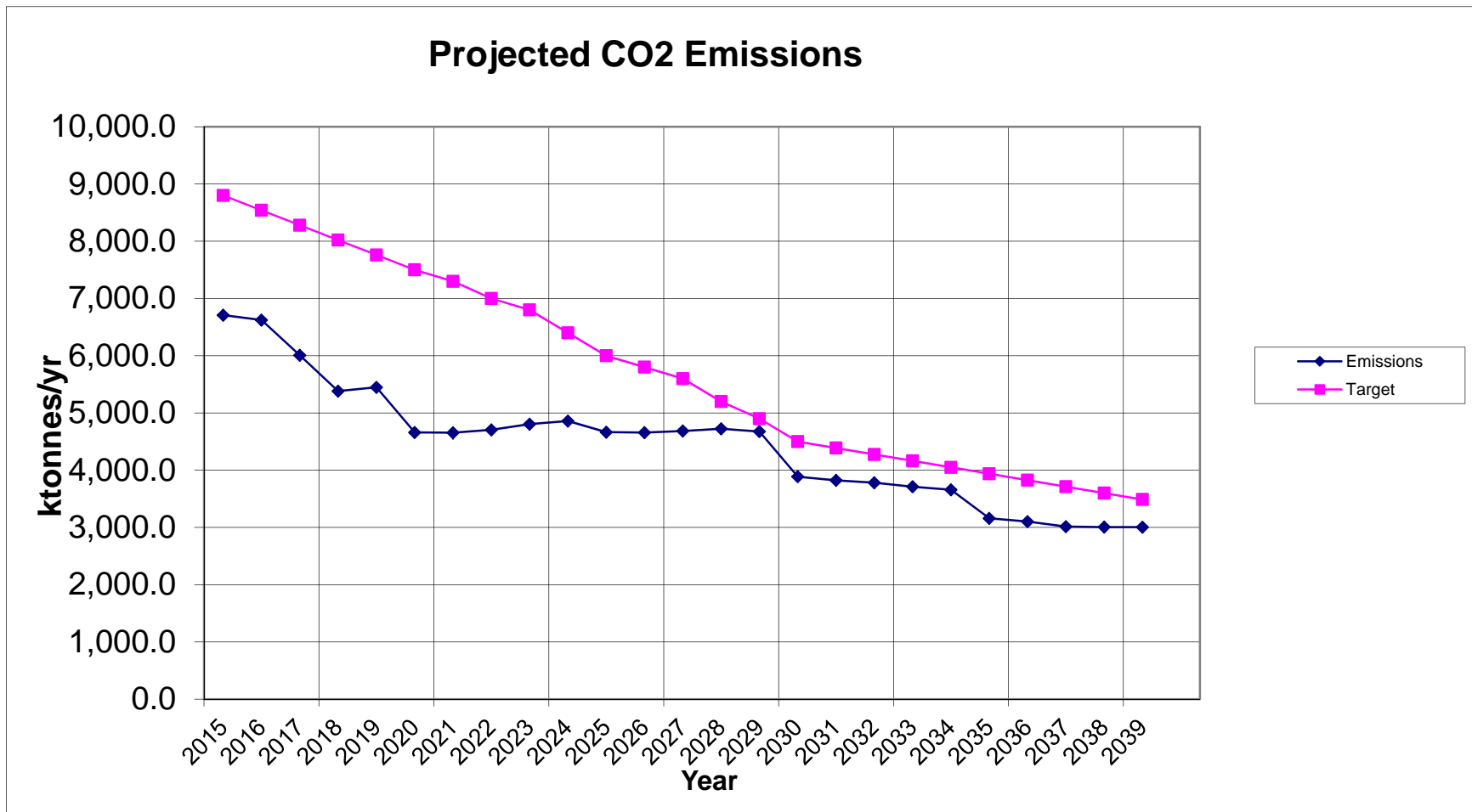


Run 1 (Preliminary)-Coal Capacity Factors

Projected Capacity Factors - Coal Units



Run 1(Preliminary)-CO₂ Emissions



Run 1(Preliminary) – SO₂ Emissions

