

MPA Morrison Park Advisors



Presentation to Manitoba PUB

**Re: Manitoba Hydro GRA
2017/18 & 2018/19**

15 January 2018

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Introduction

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Morrison Park Advisors:

- Independent, partner-owned investment bank based in Toronto
- Deep expertise in utility and power industry transactions and corporate finance
- All opinions are opinions of the Firm; we work as a team and rely on our combined knowledge and experience

Pelino Colaiacovo, Managing Director:

- With Morrison Park since 2005
- Numerous engagements to buy, sell, and raise capital for power industry clients
- Appearances before regulators in Manitoba (NFAT) and Nova Scotia (Maritime Link), advice to governments and agencies in Ontario, Saskatchewan, BC
- Prior to Morrison Park, Chief of Staff to the Ontario Minister of Energy, during a period of significant industry restructuring
- Degrees in law, economics, political science/International relations

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- **Review and analysis of Manitoba Hydro's financial targets and recent financial performance as they relate to the rate application and the utility's future financial health**
- **Consideration of the relationship between the financial targets, the rate application, and potential Capital Markets reaction**
- **Consideration of potential impacts on the Province of Manitoba's access to and cost of capital that may arise from rate decisions and Manitoba Hydro financial performance**
- **Consideration of potential intergenerational impacts on customers of choices about financial targets and timing goals to achieve them**
- **Consideration of technical financial issues, such as debt management practices and relative sensitivity to additional cost overruns on capital projects**

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The Big Picture

- A.** The Problem: Manitoba Hydro is significantly over budget and behind schedule on two major projects, it also overestimated export prices, and overestimated growth in domestic demand (but luckily was wrong in expecting higher interest rates), which is driving debt higher and faster than expected...

Manitoba Hydro Proposed Solution: Raise customer rates dramatically, requiring customers to immediately provide more cash flow from operations

- B.** The Alleged Problem: The previously agreed upon “go-slow” approach to reducing Manitoba Hydro debt after the end of its current period of major capital investment creates unacceptable risk

Manitoba Hydro Proposed Solution: Raise customer rates dramatically over seven years, so self-imposed targets can be achieved by March 31, 2027

Is the proposed solution to Problem A actually necessary? There are other options which are more balanced and fair.

B is simply not a real problem. It is a choice in search of a justification.

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Some Key Points

- Manitoba Hydro “Equity” is just a Customer Contribution: it should be treated as an expensive commodity whose use should be minimized
- Some level of Customer Contribution/“Equity” is required, especially to serve as “reserves” against hydrological risks, but Manitoba Hydro’s justification for at least 25% of total capital (i.e., no more than 75% Debt) is distinctly lacking
 - The arbitrary selection of a 10-year timeline for achievement of the target, especially in the face of massive investment in new projects, is particularly insupportable
- S&P’s position on “self-supporting” is a red-herring which should not distract the PUB in its rate-setting deliberations
 - It is logically inconsistent to demand that a government-guaranteed entity satisfy the standards of a non-government-guaranteed entity: they are different for a reason
- Managing the message to Capital Markets is important, and should be a consideration for the PUB
- Manitoba Hydro’s proposed rate path is NOT a balanced response to the current circumstances, and is not necessary to satisfy Capital Markets

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Manitoba Hydro: Yes, It is Different



Manitoba Hydro: Yes, It Is Different

- Manitoba Hydro is now unique in Canada as a pure cost recovery, publicly-owned, vertically integrated electricity utility (*see MPA Report, pp. 22-27*)
 - Most comparable provincial utilities have been restructured and pay dividends to government (unless not economically feasible)
 - › BC Hydro, SaskPower, Hydro Quebec, NB Power, Nalcor, OPG (OPG is generation only)
 - Pure cost recovery utilities in the US have more complex financial arrangements
 - › BPA, TVA, LIPA, NYPA, Santee Cooper, etc.: varying arrangements with the US Federal Government or with State governments
 - › But many of these are more similar to Manitoba Hydro than Canadian utilities
- Manitoba Hydro appears to be the only pure cost recovery utility with an explicit mandate to pursue exports
 - Manitoba Ratepayers are in effect bearing the burden of entrepreneurial risk associated with projects developed for export purposes
 - In Quebec and Newfoundland, government/taxpayers bear the risks associated with export mandates

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Manitoba Hydro “Equity” is Customer Money

- Manitoba Hydro “Equity” is just a Customer Contribution, held in trust
 - “Equity” does not appear in the legislation, only “reserves” (*see MPA Report, pp. 14-16*)
 - Some public utilities use different names for these Customer Contributions/“Equity”, such as “Accumulated Net Revenues”, “Net Investment in Capital Assets”, and “Proprietary Capital”; use of any of these terms helps clarify that public utilities do not have “equity” in the private sector sense
 - “Reserves” can refer to different things, including cash on hand, short-term liquidity resources, sinking funds, the ability to issue long-term debt at need, etc.
 - In the Manitoba Hydro case, “Reserves” refers to the excess book value of the company after deducting its outstanding Debt and other liabilities: theoretically, in a time of need, the company could issue more debt up to its book value (i.e., 100% Debt) or more
- “Reserves” should be sufficient to manage the risks facing the company, in conjunction with the ability to raise rates
 - Different public utilities choose different balances between the level of reserves maintained and their willingness to raise rates as required

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Debt to Utility Assets Comparisons

- Long-term Debt to utility assets (PPE and intangibles) comparison
 - This ratio avoids issues of GAAP vs. IFRS, and other accounting adjustments
- Higher Debt usually means less Reserves (caution due to existence of significant non-debt liabilities, such as nuclear and environmental)

	Ratio
Manitoba Hydro	82%
Nalcor	52%
NB Power	102%
Hydro Quebec	72%
OPG	28%
SaskPower	58%
BC Hydro	85%

	Ratio
Manitoba Hydro	82%
Bonneville Power	93%
Tennessee Valley	65%
New York Power	23%
Long Island Power	102%
Santee Cooper	101%
Basin Electric	94%

Note: see MPA Report, pp. 24 – 25; sources are Bloomberg and Company Annual Reports



What is the Cost of “Equity”?

- Manitoba Hydro rates do not include a “Return on Equity”, and no “cost of Equity” appears in any Manitoba Hydro’s financial statements or plans
 - The temptation is to treat Customer Contributions/“Equity” as “free”
- Customer Contributions/“Equity” does have a “cost”, which is the cost of capital faced by customers, who could otherwise use that money for their own purposes
 - Different customers have different costs of capital, and individual customers may also have costs of capital which change over time
 - Since Manitoba Hydro serves an entire population, they should be using some sort of average or “typical” rate for the purposes of analysis
- US and Canadian governments have developed a “Social Cost of Capital” concept for use in long-term planning/decision-making (such as climate change studies, infrastructure plans, etc.) *(see MPA Report, p. 48)*
 - Most recent calculation is 3% + Inflation
 - Using this rate would at least be a starting point for analysis of Manitoba Hydro applications and long-term planning

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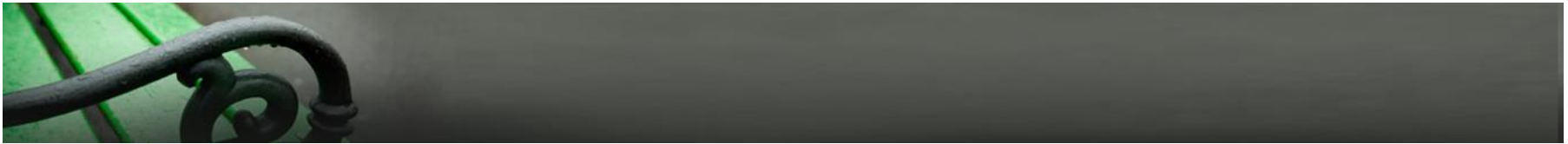
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Manitoba Hydro & Major Investments



Managing Major Investments

- Utility economics are easiest to manage when the asset base consists of many small and similar assets, accumulated and replaced smoothly over time
 - Parts of the electricity utility business have this characteristic: e.g., distribution
 - Generation in particular is characterized by infrequent, very large investments
- Accounting treatment of large assets
 - Accumulated in CWIP during construction, including “Accumulated Funds Used During Construction” (AFUDC)
 - When placed in-service, the whole amount is moved to PPE as “used and useful”
 - Depreciated over the full useful life of the asset, usually on a straight-line basis
- Financial treatment
 - Many options for payment of capital cost
 - › Can be faster or slower, which alters total cost over time
 - › Financial risk (and usually cost of funds) is higher with delayed repayment
 - Financial metrics of the utility are affected as soon as the first dollar is spent (i.e., no distinction on balance sheet between CWIP and used and useful PPE assets)

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Managing Major Investments (cont)

- Regulators have developed options for treatment of large assets
- Default treatment:
 - Include in ratebase only upon in-service
 - Revenue Requirement = Depreciation + Cost of Capital (based on book value)
 - High ratepayer burden initially, declining over time with book value
 - Not a challenge for assets that are small and replaced frequently (spreads burdens equitably over time), but problematic for large assets replaced infrequently
- Sinking Funds
 - Ratepayers before or during construction contribute funds to reduce later burdens
 - Theory is that ratepayers will benefit from new assets when in-service, and would prefer to “spread” the burden that would otherwise be severe initially
- Prepayment of AFUDC (not consistent with accounting treatment: this is a form of “cash accounting” for regulatory purposes)
 - Ratepayers during construction pay some or all of the cost of construction financing
 - Similar effect to sinking funds, but reduces the book value of the asset at in-service

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Major Investments for Manitoba Hydro

- Unique circumstances for Pure Cost Recovery Utility like Manitoba Hydro
- Customers face a double burden for large assets:
 - Normal challenge of adding a large asset to the ratebase, with very high revenue requirement upon in-service
 - ALSO: Which customers will contribute funds so that the new asset is not totally financed through Debt, and how much will they contribute? When?
- Company Debt Ratio must rise during construction
 - Capex is so much bigger than depreciation that customers could not possibly contribute enough to maintain the pre-construction Debt Ratio
- “Cashflow to Debt” and “Cashflow to Interest” metrics suffer dramatically
 - If asset is financed with 100% Debt, then Debt grows quickly while Cashflow is flat
 - Interest grows with Debt, while Cashflow remains flat until in-service of the new asset
- [Note that for an investor-owned utility, equity is contributed with debt, so the equity ratio does not change. However, cashflow metrics still deteriorate until in-service, but not as much as for Manitoba Hydro, since less debt is accumulated]

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Considering Recent Performance

- As of March 31, 2012, Manitoba Hydro Electric Operations had achieved a Debt Ratio of 74% *(see PUB/MH I - 33)*
 - Despite significant spending on Wuskwatim, domestic rates were high enough that the Debt Ratio was actually falling during project construction
- Since then, \$6,483 M has been capitalized for Bipole III and Keeyask *et al*, so far
 - March 31, 2017: Bipole III (\$3,152 M), Keeyask (\$3,276), MMTP (\$30) *(see MFR 90)*
 - March 31, 2016: GNTL (\$25 M) *(see MFR 49)* [Note: 2017 is N/A apparently due to confidentiality]
- Changed from CGAAP to IFRS, with figures reported from 2015 onwards
 - Most significant balance sheet change is pension treatment in AOCI (non-cash item) *(see MIPUG/MH I - 2o, and MHEB Annual Report 2015/16 Note 5)*
 - › Impact on AOCI
 - 2014/15, -\$559 M
 - 2015/16. -\$567
 - 2016/17, -\$473
- Debt Ratio under IFRS as of March 31, 2017 is 82% *(see PUB/MH I - 33)*

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Considering Recent Performance (cont)

Please refer to Attachment: Calculation of Manitoba Hydro Debt Ratios

- Since pension adjustment to AOCI is the largest component of the difference between CGAAP and IFRS with respect to the Debt Ratio, and it is a non-cash item, removing it helps to clarify the impact of actual cash flows on the balance sheet over time
 - Pension adjustment to AOCI alone moves the ratio by 2% to 3%, depending on the year
- Assuming that Bipole III and Keeyask et al have been 100% debt funded clarifies cash contributions by customers to the rest of the business
 - Subtracting \$6483 M from balance sheet debt shifts the Debt Ratio by an additional 9%

One way to think about recent performance:

Two major projects have been 100% debt-funded over the past five years, while all other incremental capital spending (whether “major” or not) has been funded with approximately 73% Debt and 27% Customer Contributions

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Manitoba Hydro & Capital Markets



Manitoba Hydro & Capital Markets

- **Manitoba Hydro receives its debt funding from the Province, and does not directly address Capital Markets**
 - But the relationship is transparent to all concerned
- **There is NO practical risk that Manitoba Hydro would ever have trouble raising debt funding**
 - Unless the “world ends” (e.g., another global financial crisis freezing Capital Markets), the Province of Manitoba will be able to issue debt as required
 - In addition to its own investment grade rating, the Province of Manitoba, like all provinces in Canada, benefits from an implicit guarantee from the Government of Canada (as noted in all of the credit rating agency reports)
- **The only real question is the cost of Manitoba debt**
 - Cost of debt changes constantly, based on global, national and specifically local factors
 - Manitoba Hydro contributes to the overall picture of the Province of Manitoba and its credit quality

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- **Capital Markets for Canadian provincial debt are large, deep and sophisticated**
 - More than 150 institutions are on the typical marketing list for “provincials”
 - Some institutions have \$Billions of provincial debt in their portfolios, and entire departments assigned to manage their holdings
 - Issues of Canadian provinces in foreign currencies may be targeting smaller, less familiar markets, but the bulk of issues are in Canada
- **Credit Rating Agencies provide a valuable service, but generally do not drive market opinions about provincial debt**
 - Investors make real-time decisions about their portfolios of provincial debt as events occur (e.g., budgets, elections, economic updates, etc.)
 - Annual or semi-annual Credit Rating Agency reviews typically lag market opinion
 - Agency reports are publicly available, and reflect the kind of analysis that investors undertake, which can be instructive
 - Each Agency has their own methodology and point of view (and peculiarities), and they often provide varying ratings of the same issuer (both in absolute terms, and relative to peers) *(please see MPA Report, p. 30)*

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Managing Capital Markets

- **It's all about confidence and expectations**
- **Manitoba Hydro Resources**
 - Government Debt Guarantee
 - Regulatory regime, its transparency and the priority it places on protecting investors
 - Ability to raise rates/increase Cashflow when required
 - Financial Reserves/“Equity”
- **Manitoba Hydro Challenges**
 - Project cost overruns (“political” risk that investors will be called on to shoulder costs, directly or indirectly)
 - Drought
 - Everything else: export prices, interest rates, inflation, operating costs, etc.
- **Not Relevant: Intergenerational equity, cost causality, rate stability, etc.**
 - Markets don't care which ratepayers pay the bills over time, as long as they get paid at their full rate

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Impact on Provincial Credit Rating

- DBRS and Moody's: as long as Manitoba Hydro is reasonably certain to pay all of its own bills through rates over time, there should be no practical impact on the province's credit
 - “Self-supporting” effectively means: As long as there is a positive assessment of the regulatory regime, ability to raise rates, and financial reserves, as compared to cost overruns, droughts and other risks...
- S&P: changed their methodology in 2016 (*please see MIPUG/MH I - 8*)
 - Provincial utilities will only be considered “self-supporting” if they could pass the test of being “investment grade” without access to a government guarantee
 - › *What is the point of having a government guarantee in this case?*
 - The debt of a non-self-supporting utility will be added to the provincial debt
 - › *Essentially erasing the distinction between a “contingent liability” and a “liability”*
 - But they did NOT add Manitoba Hydro's revenues to government general revenues
- There appeared to be little to no impact in the markets from the change in S&P's methodology

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Importance of Guidance

- Capital markets prefer clear guidance, and issuers that meet expectations
- PUB contributes to the expectations about how Manitoba Hydro rates will be managed in the future, taking into account risks and financial circumstances
 - The legislation requires that rates be high enough for Manitoba Hydro to recover costs, but rate policy should make clear how this will be practically implemented
 - It is understood that there is flexibility in the legislation, and full recovery will not necessarily happen every year
- How exactly will “full recovery” of costs happen over time?
 - This leads to a discussion of financial targets, reserves, long-term rate policy, risk scenarios, changing conditions, etc.

There is no single solution to managing expectations: “Art, Not Science”

It is important to consider the options; but having made a choice, stick to it

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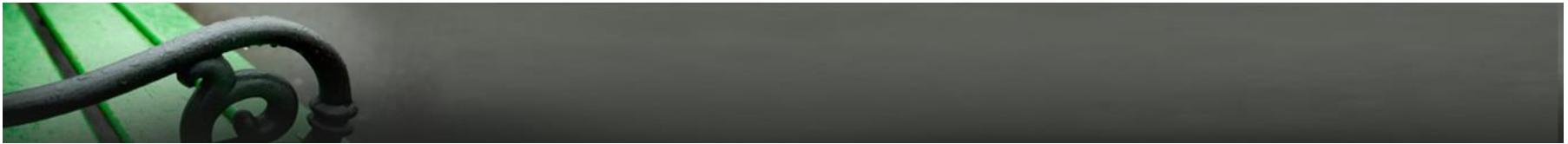
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Targets & Timing

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Manitoba Hydro's Debt Ratio Target

- Manitoba Hydro: 75% Debt Ratio target to be achieved by March 31, 2027
- Effectively requires Customers to Contribute, in less than 10 years, 25% of the total of the following:
 - The \$6,483 M spent to date on Bipole III, Keeyask, and related projects; PLUS
 - All remaining spending on these projects until they are completed; PLUS
 - All other incremental ratebase growth over the remainder of the 10-year period (i.e., Capex – Depreciation, not including Capex on the above two projects)
- Two immediate questions arising from the application:
 1. Is a 75% Debt Ratio target necessary and/or desirable for Manitoba Hydro?
 2. Regardless of the Debt Ratio target chosen, what is the necessary and/or desirable timeframe for its achievement?
- On a more conceptual level:
 - A. Is a Debt Ratio target the right kind of target for a pure cost recovery utility like Manitoba Hydro?
 - B. In the context of this GRA, how should the PUB manage what amounts to issues of capital structure and long-term revenue requirement management?

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What is the Target and Timing Goal, Really?

- Manitoba Hydro claims the proposed rate path will provide it with a 50% chance of achieving its target Debt Ratio in its chosen timeframe
 - The probability is based on a specific analysis of risks for the next 10 years
 - › Is this 50% estimate credible?
 - › Even if true, it also means there is a 50% chance of exceeding targets: is this a good use of Customer Contributions?
- There has been no clarity about tradeoffs between the target, the timeframe, and actual conditions over time
 - As conditions change, and they will, will Manitoba Hydro just allow financial results to “happen”, or will they come back and ask for “adjusted” rates to continue to drive to their target and timing goal?
 - Under which conditions would it be OK to not achieve the target by 2027?
 - › If water levels are low? By how much? If interest rates rise? By how much? Etc.
- In reality, rates will be reviewed every two years: the rate path is nothing more than a conceptual picture of how the target equity ratio could be achieved in the chosen time, under a certain set of “average” forecasted conditions

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Why 75% Debt?

- “Comfort in familiarity”
 - BC Hydro, SaskPower, Hydro Quebec, NB Power, and Nalcor have equity targets of varying levels mandated by government (between 20% and 40%)
 - › *BUT none of these are pure cost recovery utilities*
 - OPG’s capital structure for rate purposes is determined by the regulator, based on each of its generation technologies (principally nuclear and hydroelectric); rates also include the regulated return on equity
- Management of risks
 - Claim: A “healthy” equity cushion would allow the utility to operate without sudden rate shocks in the event of financial challenges due to the realization of risks
 - › *Does a 70.5% increase over 8 years (2017/18 to 2024/25) itself count as a “rate shock”? Imposing a rate shock now to prevent a rate shock in the future?*
 - Claim: Lack of a “healthy” equity cushion would create risks for the Province of Manitoba and its access to and cost of credit
 - › *Is this a real risk? If so, can it be managed in other ways, rather than a large rate increase over the next 7 years?*

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Hydrological Risk Should be Managed

- Hydrological risk is real, but can be estimated within ranges
 - Over 100 years of experience allows for some understanding of the quantum of risk
 - Individual years are unpredictable and highly volatile, but over longer periods an “averaging” effect takes over
 - Manitoba Hydro has provided many estimates of 5 and 7-year droughts at various times, under various conditions and scenarios; even longer dry periods are possible
- “Equity”/Reserves should be at a level sufficient at any given time to manage a defined level of hydrological risk
 - Bonneville Power Authority focuses on a two-year time horizon, and requires reserves to be sufficient to manage 95% of all potential scenarios without rate intervention
 - › *This is an example of an extremely short time horizon*
 - The PUB could test the level of equity reserves against droughts of 5 or 7 or 10 years, at some defined level of historical severity
 - › *Beyond a certain level of drought conditions, rate increases will always be required: rates are the ultimate tool to guarantee financial health*

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Should Other Risks be Managed by Reserves?

- In the long term, export prices, interest rates, inflation, etc., are not predictable
 - Short to medium-term forecasts for interest rates and inflation are readily available; long-term forecasts are basically meaningless
 - › E.g., economists in the 1990s had no way of predicting that the world would exhibit the lowest interest rates in history in the following decades
 - Export prices in the short term are subject to supply and demand based on relatively fixed infrastructure; but in the longer term, technology drives unpredictable change on both sides of the market (this applies to domestic demand as well)
 - › Will electric cars increase overall demand, or will greater efficiency reduce it?
 - › Will solar, wind and battery prices drive supply costs down or up over time?
- Reserves should not be used to “smooth” these kind of risks, especially over the long term (e.g., 20 years)
 - Rates need to respond to conditions
 - Smoothing all variables would require enormous Reserves, which would be economically inefficient ... *is this what Manitoba Hydro is asking for?*
 - Estimating these risks is important for planning choices, not to preempt rate adjustments

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Reserves for Hydrology Risk Only?

- **Are 25% Customer Contributions/“Equity” required to manage hydrology risk?**
 - If rate-setting every two years responds to changes in interest rates, export price expectations and other variables, then Reserves are required only for droughts
- **PUB/MH II – 40 provides analysis of 5 and 7-year droughts beginning at two different times, under both 7.9% and 3.95% rate paths (reference interest rates and export prices, as well as domestic demand, inflation, etc.)**
 - Most significant decline in retained earnings is for the 3.95% path, with a 7-year drought beginning in 2022/23
 - › Retained earnings begin at \$3,375, and fall to \$888 by the end of the drought
 - › Equity was far less than 25% at the beginning, but was still sufficient by the end
- **During the drought, rates would still be reviewed every two years**
 - When in a drought, no one knows when it will end, so rates are always constructed in conditions of uncertainty
- **A “rule” would help to determine whether to raise rates under given conditions**
 - E.g., “Reserves must be sufficient to withstand drought at 85% of average water for the next five years at forecasted rates”

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Meaning of Capital Coverage Target?

- Manitoba Hydro Capital Coverage target is 1.2x, not including “major projects”
 - Definition of “major projects” is somewhat arbitrary
- A major component of Cashflow is Depreciation, which includes both depreciation of “major projects” of the past, and all other assets
 - If “major projects” are being separated from the calculation, then why is the Depreciation/Cashflow associated with past “major projects” not separated also?
- Ignoring the distinction of “major projects”, if Capex > Depreciation, then Capital Coverage Ratio < 1, unless Debt Ratio is being deliberately reduced
 - Once the target Debt Ratio is achieved, why should it continue to fall?
 - › Leads to the 20-year projections showing < 50% Debt..., or a major rate decrease after the 10th year
- The only conditions under which 1.2x target makes permanent sense is if major growth projects are repeated ad infinitum
 - Every “generation” of ratepayers would be making Contributions to fund “their” major project of the day...

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Interest Coverage Target

- Manitoba Hydro “EBITDA to Interest” target is 1.8x
 - Implies: $(\text{Depreciation} + \text{CustEqContr}) > 0.8 * \text{Interest} (\text{Current} + \text{Capitalized})$
- Too many variables underlying this formula to tease apart any detailed relationships (e.g., Interest Rates, Debt Ratio, Average Life of Assets, etc.)
- 1.8x is a “healthy” margin that gives comfort that under “normal” conditions, Manitoba Hydro will have plenty of Cashflow to satisfy obligations
 - For a standalone, non-supported utility, this level of interest coverage would not be investment grade
 - Manitoba Hydro has government-guaranteed debt, so it should be considered using different standards
 - Moody’s in the US applies different criteria to Investor-owned vs. Public Power utilities
 - › For Public Power Utilities 1.5-2.0x interest coverage is consistent with an “A” rating, while for Investor-owned utilities it would be a sub-investment grade “B”
(please see Moody’s Criteria for Regulated Electric & Gas Utilities, and for US Public Power Utilities with Generation Ownership, available at www.moodys.com)

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Balance in All Things

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Capital Structure Issues in a GRA?

- Manitoba Hydro has emphasized its Debt Ratio target and timing goal in its application
 - The previous timing goal (mid-2030s) for achievement of the target has been explicitly repudiated, and the PUB is being asked to endorse the new position through its rate decision
- In many jurisdictions, issues related to capital structure (and regulated return on equity) are addressed in separate hearing processes
 - The issues raised are long-term in nature, and are qualitatively different from typical shorter-term rate-setting questions
- PUB has been placed in a difficult position, with respect to setting expectations for Capital Markets and other external audiences
 - Changing long-term rate-setting methodology should be the subject of thorough and careful consideration
 - By applying for rates that depend on it, Manitoba Hydro has created some expectations about the validity of its 2027 timing goal
- PUB has options, and there should be another GRA before 2019/20 begins

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Balancing Regulatory Principles

- Regulatory principles often lead in opposite directions on any given question: Decisions require a balancing of multiple considerations
- Manitoba Hydro is suffering from budget and schedule failures on its construction projects, and is seeking a way to manage the financial impacts
 - One solution is to dramatically increase Cashflow: this improves financial metrics, and would satisfy observers that the problem is “solved”
 - This approach is all about the principle of “Access to Capital”
- But customers are legitimately concerned about rates
 - They don’t want to pay more than their “fair share” for what they use (cost causality)
 - They want rates to be as low as reasonably possible (efficiency)
 - They want rates to be stable, or if not stable/flat, then predictable, but not at the expense of being higher than is reasonably necessary
 - › Consider the comparison of mortgages: a majority of people choose fixed five year mortgages even though they are more expensive than floating mortgages, but they don’t choose the even more expensive fixed 10-year mortgages...

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Balancing Regulatory Principles (cont)

- Is Manitoba Hydro's rate increase solution the right balancing of principles?
- In effect, the 7.9% rate path sacrifices cost causality in favour of predictability
 - Customers in the near term would be contributing ALL of the non-debt capital associated with major new projects that have many decades of useful life
 - Customers in the near term would be creating a Reserve fund more than large enough to manage hydrology risks + interest rate risk + export risk + other risks
 - Yes, the rate path would be predictable, but VERY, VERY, high
 - *According to their own claim, there is a 50% chance results will be even better...*
- Capital markets don't NEED the 7.9% rate path (but wouldn't say "no" ...)
 - As a government-guaranteed entity, Manitoba Hydro just has to pay its bills
 - Those bills could be paid through Cashflow, or Reserves, or some combination
 - If there is a clear signal that rates will respond to requirements, then that would be sufficient (but if there is doubt about rates/Cashflow, then more reserves are required to give debt providers comfort)
 - › Markets like rules and track records, and are deeply suspicious of "judgement" and "adjustments"

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Appendices

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Financing of Typical Utilities

- **Traditional Rate-setting formula for regulated utilities:**
 - Revenue Requirement = OpEx + Depreciation + Interest + RetEq + Income Tax
- Interest and the Return on Equity are paid on the “used and useful” ratebase of the company, which is financed through a combination of Debt and Equity, in proportion according to the regulated ratio (e.g., 70/30, 60/40, etc.)
- New capital spending (CapEx) is paid for using the cash flow that arises from the inclusion of Depreciation in the Revenue Requirement
 - Depreciation is a non-cash item, so including it in the calculation of the Revenue Requirement generates net cash flow that is available to fund CapEx
 - If rates perfectly predict outcomes, then Cashflow = Dep + RetEq
- If CapEx is greater than Dep, then additional funding is required: the incremental difference (CapEx – Dep) is paid for by a combination of Debt and shareholder Equity at the regulated ratio (e.g., 60/40)
 - In most cases, shareholder equity is contributed through earnings held back (retained) from the Return on Equity, but in the case of very expensive projects, shareholders will have to contribute new equity (usually through a public offering)

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Financing of Pure Cost Recovery Utilities

- Pure Cost Recovery Utility rate-setting formula:

$$\text{Revenue Requirement} = \text{OpEx} + \text{Dep} + \text{Int} + \text{Customer Contribution ("Equity")}$$

- Pure Cost Recovery utilities don't pay a return on equity, and also no income tax
- New CapEx is paid for by the Cashflow generated from inclusion of Dep in the revenue requirement formula. However, if $\text{CapEx} > \text{Dep}$, then additional financing is required, which must consist of a combination of Debt and Customer Contributions ("Equity") at *some* ratio
 - If the ratio of the incremental funding is different from the current Debt Ratio of the utility, then the new spending will change the ratio
 - › E.g., if the current Debt Ratio is 75%, but incremental spending ($\text{CapEx} - \text{Dep}$) is funded with 100% Debt, then the new Debt Ratio will move higher than 75%
 - Note that if OpEx and Int were perfectly estimated in rate-setting, then at the end of the year $\text{Cashflow} = \text{Depreciation} + \text{CustCont}$
- If CapEx is expected to be less than Dep, then the extra cash flow available should be used to *retire* debt AND customer contributions, in the same ratio as the current Debt Ratio (i.e., CustCont will be negative, and rates *lower*)

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Financing of Pure Cost Recovery Utilities (cont)

- Assuming that all results can be perfectly estimated in advance:

Revenue Requirement = OpEx + Dep + Int + CustCont (“Equity”), and

Cashflow = Dep + CustCont

- In order to keep the Debt Ratio steady:

CustCont = (CapEx – Dep) * (1 – Debt Ratio)

- The formula for the Capital Coverage Ratio:

CCR = Cashflow/CapEx

- Substituting from the formulas above into the CCR formula:

$$\text{CCR} = \frac{\text{Dep} + [(\text{CapEx} - \text{Dep}) * (1 - \text{Debt Ratio})]}{\text{Capex}}$$

- If CapEx > Dep, and the goal is to keep the Debt Ratio steady, then the resulting CCR is always < 1

- If the goal is to reduce the Debt Ratio, then more Customer Contributions will be required, and vice versa
- Also, if CapEx < Dep, the Net Income can be negative (and maybe should be...)

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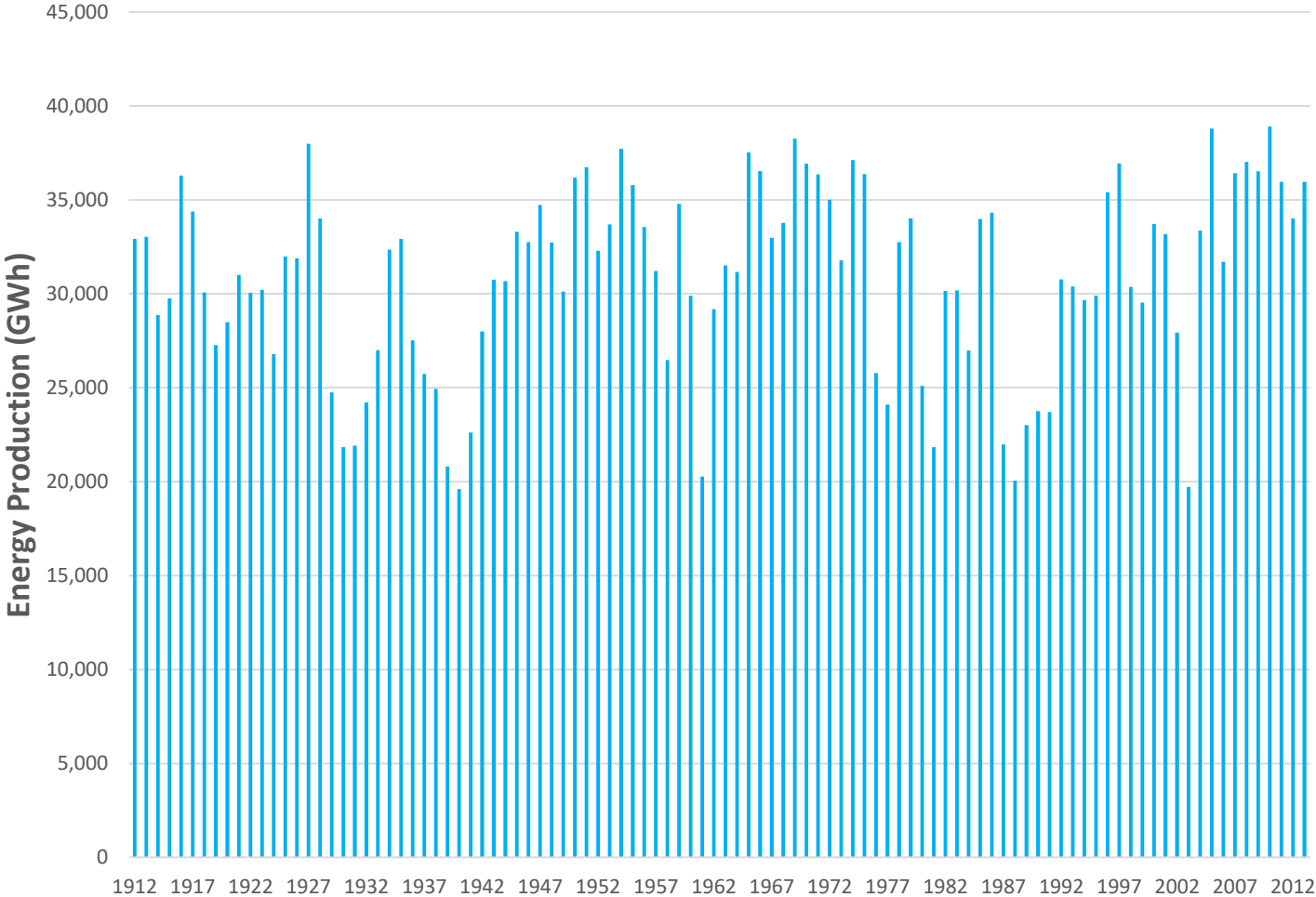
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Hydrological Risk

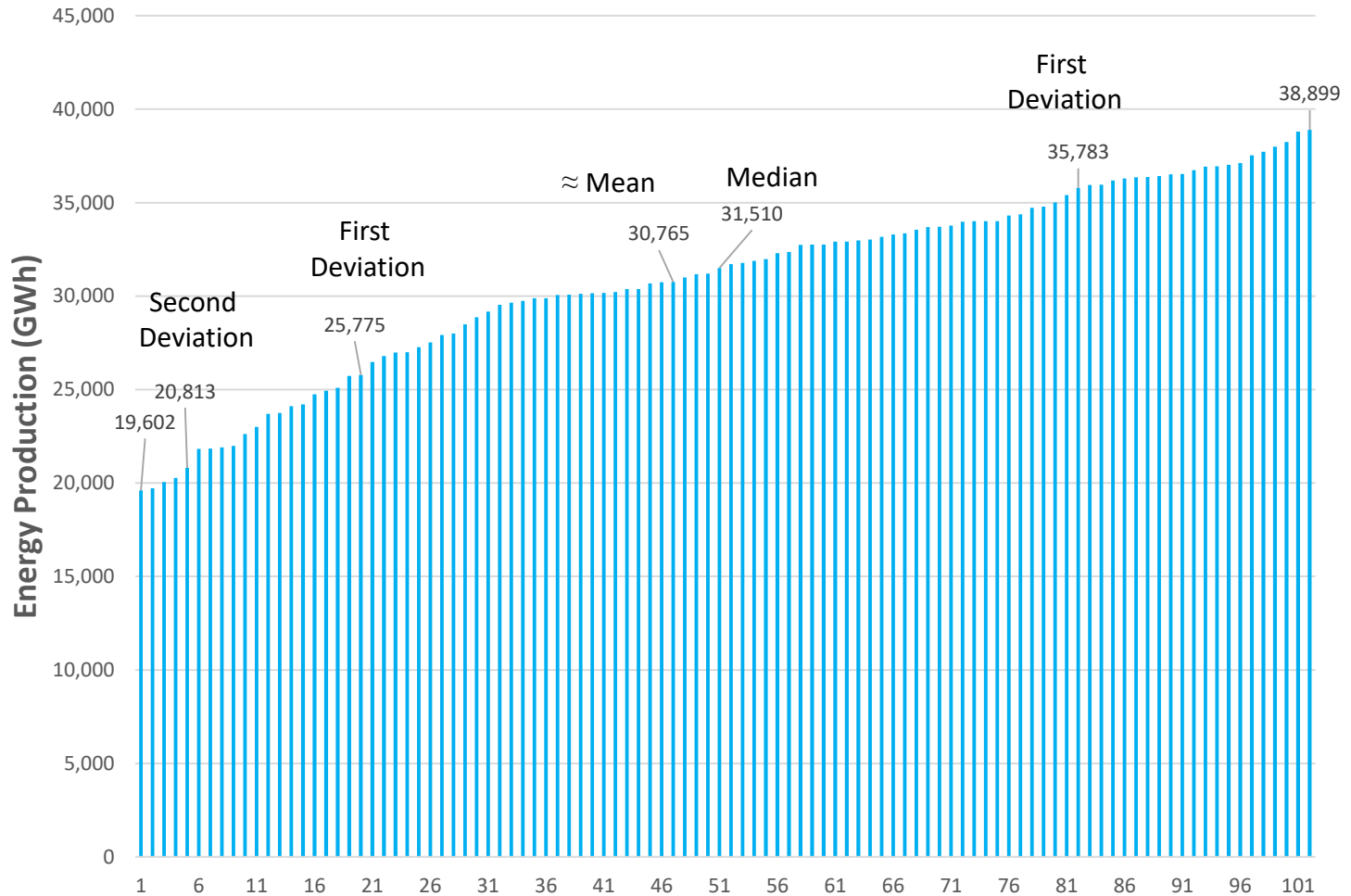
Hydroelectric Energy Flow Cases - 2018/19



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Hydrological Risk (cont)

Flow Cases In Order - 2018/19



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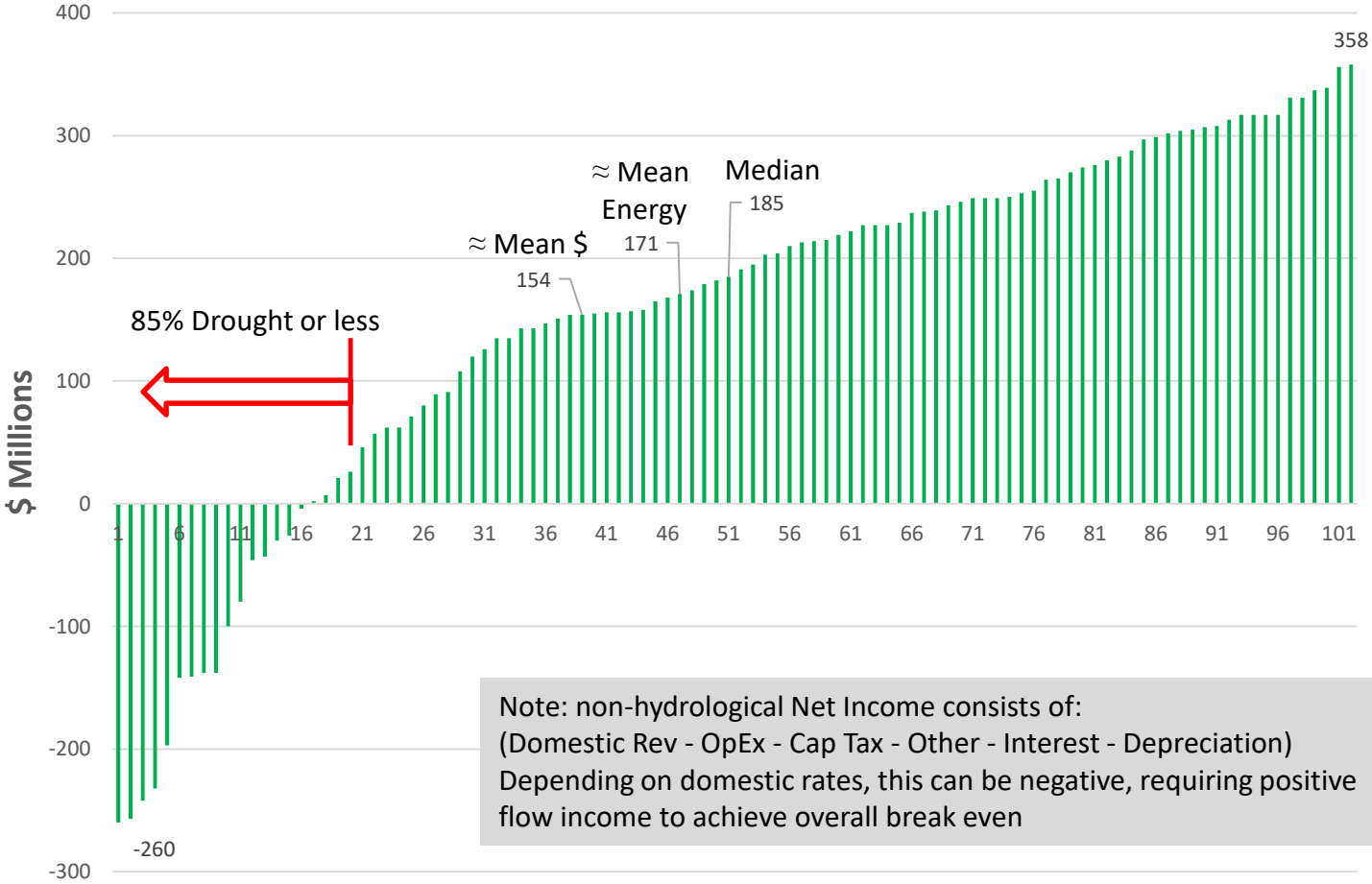
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Hydrological Risk (cont)

Financial Impact of Flow Cases - 2018/19
 (Export Revenue - Water Rentals - Fuel & Purchased Power)



Note: non-hydrological Net Income consists of:
 (Domestic Rev - OpEx - Cap Tax - Other - Interest - Depreciation)
 Depending on domestic rates, this can be negative, requiring positive flow income to achieve overall break even

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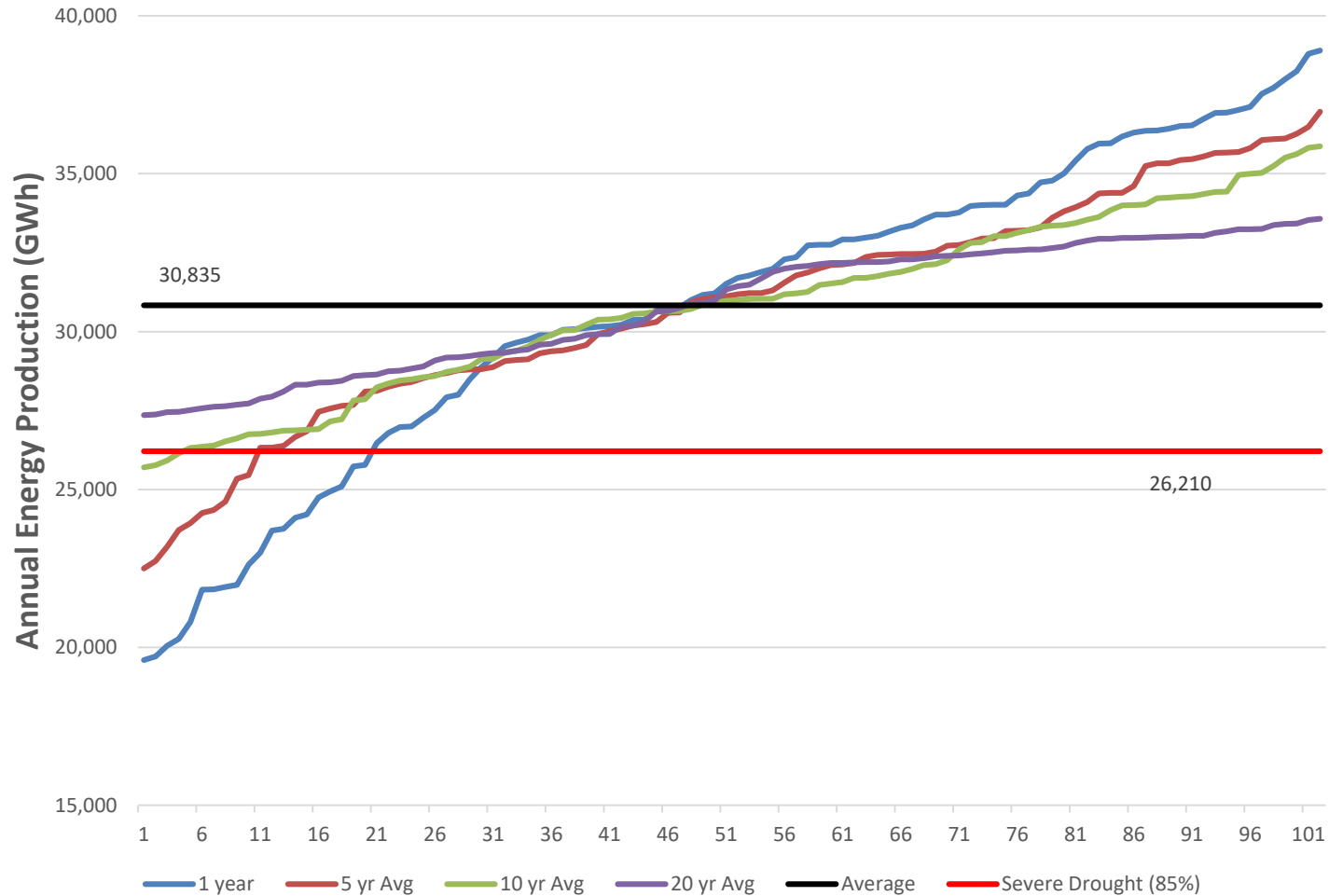
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Hydrological Risk (cont)

Flow Cases - Multi-year Averages - 2018/19



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