

Evaluation of the Ownership of Maine's Power Delivery System

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London Economics International LLC (“LEI”) was retained by the Maine Public Utilities Commission to evaluate the costs and benefits associated with the creation of the Maine Power Delivery Authority as presented in LD 1646. LEI was assisted on legal and regulatory issues by Peter Brown, Esq. with support from Preti Flaherty Beliveau & Pachios, LLP (together, the “Legal Consultants”). LEI has made the qualifications noted below with respect to the information contained in this report and the circumstances under which the analysis was prepared.

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List of Acronyms

ATTR	ISO-NE's Annual Transmission Revenue Requirement
BHE	Bangor Hydro-Electric Company
BOT	Build, operate, transfer
CAPEX	Capital expenditure
CMP	Central Maine Power
COU	Consumer-owned utility
DNO	Distribution Network Operator
EIA	US Energy Information Administration
FERC	Federal Energy Regulatory Commission
IDNO	Independent Distribution Network Operator
IOU	Investor-owned utility
ISO	Independent System Operator
ISO-NE	ISO New England
LEI	London Economics International
LIPA	Long Island Power Authority
LNS	ISO-NE's Local Network Services
MPDA	Maine Power Delivery Authority
MPS	Maine Public Service Company
MTA	Maine Turnpike Authority
MTO	Municipal Transmission Owners
NBV	Net Book Value
NEPOOL	New England Power Pool
NERC	National Electric Reliability Corporation
NMISA	Northern Maine Independent System Administrator
NPV	Net Present Value
OATT	ISO-NE's Open Access Transmission Tariff
PTO	ISO-NE's Pooled Transmission Owners
RNS	ISO-NE's Regional Network Service
T&D	Transmission and distribution

1 Executive summary

LD 1646 was introduced in the First Regular Session of the 129th State of Maine Legislature and calls for the creation of a “consumer-owned public utility” called the Maine Power Delivery Authority (“MPDA”).¹ As written in LD 1646, the MPDA would acquire, and subsequently operate, the transmission and distribution assets in Maine that are currently owned and operated by the two investor-owned utilities (“IOUs”), namely Central Maine Power Company (“CMP”) and Emera Maine (“Emera”). On July 2, 2019, the Governor of Maine approved a resolve² adopted by the Legislature that directed the Maine Public Utilities Commission (the “MPUC” or the “Commission”) to retain a consultant to further evaluate LD 1646, and specifically consider:

- the short- and long-term costs and benefits of the proposal as presented in LD 1646;
- the legal, regulatory, technical, financial and operational issues related to the LD 1646 proposal and its implementation;
- the anticipated impacts of electricity rates, utility employees and ratepayers; and
- alternatives or amendments to the LD 1646 proposal to address any identified obstacles to its implementation.

LEI was selected through a competitive solicitation process by the Commission to conduct an independent expert analysis as required by the resolve.³ The “Project Team” that worked on this report consisted of LEI and Peter Brown, Esq. who assisted in the legal and regulatory analysis.⁴ This report summarizes the Project Team’s independent review of the proposal to create the MPDA as presented in LD 1646 and issues that may arise in its implementation.

It is important to note that the purpose of this report is not to dissuade the Legislature from moving forward with the MPDA or to persuade the Legislature that the MPDA is in the public

¹ *An Act To Restore Local Ownership and Control of Maine’s Power Delivery Systems.*

² Resolves 2019, ch. 107.

<http://www.mainelegislature.org/legis/bills/getPDF.asp?paper=HP1315&item=5&snum=129>.

³ In 2018, LEI had prepared an independent study of the economics of certain biomass power plants located in Northern Maine that were seeking a temporary discount on the transmission rates charged by Emera Maine. LEI’s independent assessment was prepared for the purpose of informing the Maine Public Transmission System Planning Advisory Group (“PAG”) in its decision-making around the request for a transmission discount. The study was paid for by Emera Maine, but represented less than 0.57% of LEI’s 2018 revenues. A summary description of that project was inadvertently omitted from LEI’s proposal to the MPUC. Notwithstanding that clerical omission, LEI’s independent study from 2018 was public and had been broadly disseminated to PAG and Maine stakeholders. Furthermore, the analysis in that study has no bearing on the scope and findings of the current engagement.

⁴ A short summary of the Project Team’s qualifications can be found in Appendix A.

interest. Rather, the objective of this report is to independently and thoughtfully evaluate the expected costs and benefits that would arise upon the implementation of LD 1646, to identify the accompanying tradeoffs between those expected costs and benefits, and to make recommendations for further refining the legislation and/or reducing any uncertainties and challenges in the implementation of LD 1646.

1.1 Layout of the report

The report begins in Section 2 with a short overview of the history of Maine’s electric sector and current regulatory structure. A brief description of LD 1646 is presented in Section 3. Section 4 evaluates the issues related to the formation, governance, and regulation of the MPDA, followed by the legal and financial ramifications of the acquisition of the transmission and distribution (“T&D”) assets from the IOUs in Section 5. Then, Section 6 qualitatively discusses operational issues, including local employment impacts and retention of an independent contractor. LEI’s quantitative assessment of the possible impacts of the MPDA on Maine electric ratepayers is presented in Section 7, which fulfills the resolve’s mandate for analysis of short- and long-term costs and benefits. Finally, in Section 8, recommendations are presented for the Maine Legislature’s further consideration. These recommendations take the form of potential legislative amendments and additional studies that address identified challenges with the implementation of LD 1646 and the formation of the MPDA.

1.2 Information gathering process

In preparation of this report, the Project Team began with a review of various primary source materials, including a thorough examination of LD 1646 and review of the records from the legislative session. The Project Team also requested factual materials from the IOUs, and conducted interviews and requested information from other stakeholders in Maine.⁵ The MPUC also opened up an inquiry (Docket 2019-00280), with the opportunity for public participation and comment – Emera, CMP, and ENMAX⁶ submitted public comments in this Docket, which LEI reviewed. Finally, LEI and the Legal Consultants also supplemented the information gathering process with independent research and data compilation, including legal research into pertinent case law, collection of various US utility (financial) data, and review of other studies on municipalization efforts across the US. The resources reviewed and relied upon are listed in Appendix B.

⁵ In the course of the preparation of this report, LEI spoke with Representative Seth Berry (who was a sponsor of LD 1646), Gordon Weil (key pro bono architect of LD 1646), Dan Burgess (Director at the Maine Governor’s Energy Office), and Barry Hobbins (Maine Public Advocate). LEI staff also interviewed industry experts in the area of financing, credit analysis, and securitization.

⁶ ENMAX Corporation is a vertically integrated utility that, through its subsidiaries, generates and distributes electricity to residential, small business and large commercial customers and is headquartered in Calgary, Alberta. ENMAX and Emera are currently seeking approval from the MPUC for ENMAX to acquire Emera Maine. *Emera Maine, Maine Electric Power Co., and Chester SVC Partnership, Request for Approval of Reorganization*, Docket No. 2019-00097.

1.3 Analytical techniques employed

This report's approach to studying the short- and long-term costs and benefits of LD 1646 was both qualitative and quantitative. For the qualitative analysis, the members of the Project Team, based on their extensive professional experience and knowledge, reviewed case studies and precedent cases, considered potential outcomes, and investigated challenges that could emerge around the formation and going-forward operations of the MPDA. The quantitative analysis involved a projection of T&D rate impacts on Maine electric consumers.⁷ In this regard, the objective was not to precisely forecast future electric (T&D) rates that the MPDA would charge, but to comparatively evaluate the direction and magnitude of potential *changes* in the annual revenue requirements over time (2020-2050), under a scenario where the IOUs continue to exist and operate their assets (the "Status Quo" Scenario) versus a scenario where the MPDA is formed, acquires the T&D assets of the IOUs, and oversees the operation of the electric T&D utility business in Maine in the future (the "MPDA Scenario"). Certain factors were expressly assumed to be the same between both scenarios – such as load growth, operating costs, and the investment plan. In this way, this scenario-based framework allowed LEI to identify the possibility of expected benefits (lower T&D rates) or costs (higher T&D rates), understand the tradeoffs, and analyze the key drivers behind the expected benefits and costs only as they relate to ownership and the conditions presented in LD 1646 for MPDA formation.

1.4 Summary of the key elements of LD 1646

LD 1646 proposes to form a not-for-profit, tax-exempt state authority - the MPDA - that would acquire and then own the T&D assets of CMP and Emera. The MPDA's debt would not be guaranteed by the State of Maine. Some of the other essential elements of the legislation include:

- appointment of the MPDA Board by the Governor according to a prescribed representation of key stakeholders;
- acquisition of the T&D assets based on a negotiated process that starts at an acquisition price based on current net book value ("NBV"); if the negotiation fails after a certain period, the MPDA would use eminent domain to take over the assets;
- MPDA must retain a for-profit contractor that will assist it in operating the T&D assets; the contractor will be selected through a competitive tender process;
- the contractor will be required to hire all qualified unionized employees working for the IOUs at the time of the asset acquisition and the contractor will offer these employees the highest rates of compensation that may exist between the unions and the IOUs at the time of the acquisition of assets by the MPDA; the unionized labor will be guaranteed jobs for at least five years; and

⁷ In this report, the terms "consumers", "customers", and "ratepayers" are used interchangeably.

- the MPDA will make payments in lieu of local property taxes to the extent it has collected sufficient revenues, but it will not have to pay taxes on its income.

1.5 Key findings

The Project Team identified important tradeoffs between the MPDA and the Status Quo scenarios, where benefits and costs depend on whose perspective is being considered.

- There are important time-based tradeoffs for the electric *ratepayers* over time. LEI's quantitative analysis shows that it is possible that Maine electric ratepayers in the near future may face higher T&D rates under the MPDA Scenario (as compared to the Status Quo Scenario), while Maine electric ratepayers many years from today will reap the benefits of lower T&D rates (under the MPDA Scenario as compared to the Status Quo Scenario), after the financing advantage of a tax-exempt entity sufficiently grows in size to offset other effects. In other words, LD 1646 may create an intergenerational trade-off where current ratepayers may perceive the value of LD 1646 differently from future ratepayers.
- Tradeoffs also exist between Maine electric *ratepayers* and Maine *residents* and *taxpayers*. Although there is some overlap between a Maine ratepayer, resident and taxpayer, there are also some distinctions. For example, a commercial or industrial ratepayer may not be a Maine resident. The tradeoffs are easy to see if the incentives around rate minimization versus tax revenue collection are considered. Maine electric ratepayers would like to take full advantage of MPDA's tax-exempt status and forego paying local, state, and federal taxes, to the maximum allowable extent, as that would reduce T&D rates. On the other hand, Maine taxpayers would like to see electric utility service continue to contribute to the tax base in the State (so that the State does not have to raise taxes through other means or reduce public services).
- Finally, inherent trade-offs exist between Maine electric *ratepayers* and Maine-based unionized *employees* of the IOUs: Maine ratepayers would want to see cost reductions, including optimized use of labor, so that electric delivery rates go down, while Maine-based unionized employees of the T&D operations would prefer to have job security (and higher compensation). For reference, changes in labor costs due to LD 1646 account for less than 3% of the total labor cost of CMP and Emera Maine combined.

The findings discussed in this report are made in light of these tradeoffs and perspectives. Although the Project Team does not take a view as to the validity (or priority) of any specific perspective, the Legislature will have to reconcile opposing perspectives. This report provides the facts to allow the Legislature to come to an informed decision.

In order to assist in the reader's review of this report, three categories of findings have been collated on the next page, specifically to reflect the study requirements in the resolve.

LD 1646 is expected to create the following short-term costs and benefits, where short-term is defined as approximately the first ten years of MPDA operations:

- Given the transaction costs for setting up the MPDA and the acquisition price for the T&D assets may be a premium over current NBV, electric ratepayers may see an increase in electric rates for some period of time;
- If the level of compensation (and specifically, the pre-tax profits) earned by the contractor are less than the pre-tax return on equity that the IOUs are allowed to receive for T&D operations, ratepayers will benefit (although the effect may not be substantial enough to result in a lower rates given the issue around financing costs noted above). However, this situation will also lead to a loss in state tax revenues from T&D utility operations, necessitating adjustments in state budgets (e.g., reduction in public services paid for out of the state budget) or tax rate hikes on other state taxpayers;
- Qualified local unionized employees of the IOUs' T&D businesses will benefit as they are provided job security, and some may even see an increase in compensation under LD 1646;
- Electric ratepayers may face rates slightly higher than they otherwise would be due to the labor arrangements in LD 1646 - the equivalency requirement for wages and benefits as well as the pledge to retain all qualified union works will cause a slightly higher revenue requirement (and therefore rates); the labor union retention requirement will also constrain the contractor's capacity to reduce labor costs for some time;
- Finally, LD 1646 also conditions the continuity of local tax payments on MPDA having "revenues [that] exceed current expenditure and necessary reserves." Therefore, there is a risk that local communities may see a loss in tax revenues. Such an outcome may require tax rate increases for residents or a reduction in local public services.

LD 1646 is expected to result in the following long-term costs and benefits, where long-term is defined as the first thirty years of operation:

- With a tax-exempt status for the MPDA, financing of new investments for Maine's T&D systems is expected to occur at a lower financing cost than the Status Quo Scenario, which is projected to lead to lower electric rates in the longer term;
- If the management fee earned by the contractor is lower than the IOUs' pre-tax return on equity, there would be a loss in state tax revenues under the MPDA Scenario as compared to the Status Quo Scenario, but it will also mean lower ratepayer costs relative to the Status Quo. That loss in state tax revenue could be made up either by increasing taxes or decreasing public services.

Finally, the Project Team finds that LD 1646 does not:

- provide direct control of the electric T&D operations to the ratepayers of the IOUs (the governance of the MPDA Board is based on appointment by the Governor of Maine, rather than selection by the ratepayers). Additionally, the MPDA Board represents a wide range of stakeholders and would not represent solely the interests of ratepayers;
- preserve the same level of independent, regulatory oversight of electric T&D operations in the State by the MPUC (MPDA is a consumer-owned utility and, for example, its proposed rate increases would not be subject to the same MPUC suspension/investigation powers in advance of the effective date that apply currently to the IOUs. While the MPUC will retain its overall authority over rates, the mechanisms for reviewing rate increases affecting former IOU customers will be changed);
- eliminate the costs of administration and management of the T&D electric utility business (the MPDA will still need to either directly hire a professional management team or contract out for executive management services; and, the contractor retained to operate the T&D assets will also want to earn a profit on its services;
- guarantee that there will be improvements in reliability and customer service at no additional cost (improvements in reliability will be a function of the contractual agreements, the expertise of management, and the spending budgets approved for operations, maintenance and capital investment);
- ensure financial benefits to local residents. Maine taxpayers may experience reduced public services or higher taxes if (state or local) tax revenues decline due to MPDA's tax-exempt status and depending on the compensation of the contractor. Higher electric rates in the short term may also detrimentally impact some commercial and industrial electric customers, which can lead to negative ramifications for Maine residents employed by these companies.

1.6 Summary of the quantitative analysis of ratepayer impacts

LEI constructed a ratepayer impact assessment model for purposes of analyzing the ratepayer impacts of LD 1646. Naturally, the assessment was forward-looking in nature and required inputs and assumptions. LEI began with a set of assumptions, collectively referred to as the "Reference Case". However, as there is uncertainty around some of the assumptions, LEI also tested a range of alternative values for the most critical assumptions. This analytical approach led to the identification of key drivers, recognition of tradeoffs, and supported the estimation of expected ratepayer savings or dis-savings over time.

Using the Reference Case assumptions,⁸ which are documented in Section 7, MPDA's ratepayers could expect to start seeing lower rates (as compared to the Status Quo Scenario) 10 years after MPDA's first year of operations. The Reference Case assumptions project that, based on LEI's understanding of the Federal tax code, CMP's and Emera Maine's credit condition, and observations from other municipal power authority's debt issuance cost, the initial acquisition is not made with tax-exempt debt (but at relatively low, highly-investment grade costs of debt), and new capital investment is financed on a tax-exempt basis. LEI also took into account upfront costs for set up of the MPDA, which were rolled into the financing of the initial asset acquisition.

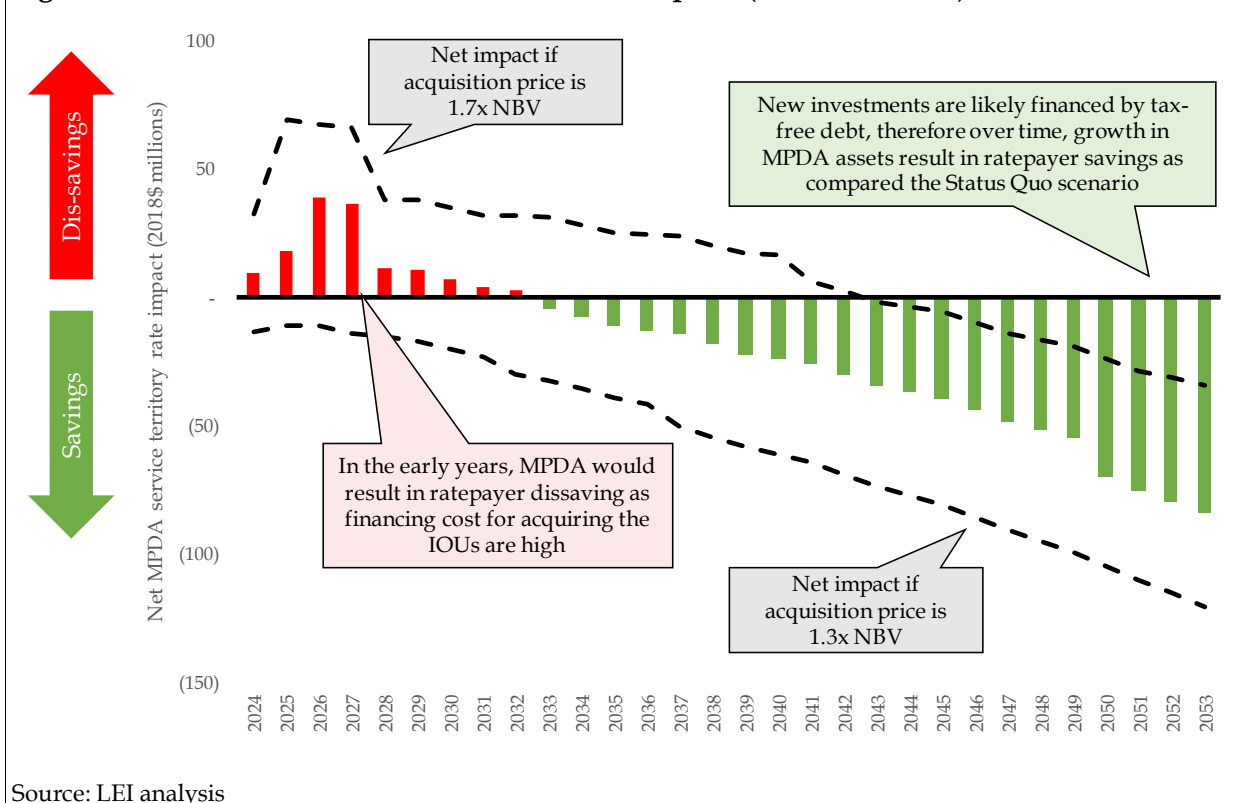
LEI considered the same capital investment under both scenarios. However, over time, as additional capital investment is financed on a tax-exempt basis under the MPDA Scenario, electric ratepayers start to see a lower rate than they would have otherwise under the Status Quo Scenario. This creates ratepayer savings (this is illustrated by the green bars in Figure 1 below).

The Reference Case assumptions assume an acquisition price of 1.5x NBV, an average rate base growth rate of around 3.5% per year, management fee of 1.5% of rate base (excluding the acquisition price premium), and tax-exempt debt for new investments. The acquisition price assumption is roughly based on recent acquisition multiples of T&D company transactions, and the implied acquisition multiples from publicly traded US T&D companies (other outcomes are possible). Additional details around the Reference Case assumptions and their implications are provided in Section 7.3.

While a 1.5x NBV assumption for the acquisition price is a starting point for analysis, LEI also considered a range of NBV multiples and analyzed how that assumption impacts the results. In Figure 1, the two dotted lines above and below the red and green bars represent the ratepayer savings or dis-savings if an acquisition price of 1.7x NBV (for the upper dotted line) and 1.3x NBV (for the lower dotted line) is used. As indicated by the lower dotted line, at a sufficiently low multiple of NBV for the acquisition price combined with other assumptions represented by the Reference Case, short-term ratepayer savings could be achieved.

⁸ The acquisition price assumption (1.5x NBV) is similar to the proposed acquisition price negotiated by ENMAX for Emera Maine, and the implied acquisition multiples from publicly traded US T&D companies (other outcomes are possible). Additional details around the Reference Case assumptions and their implications are provided in Section 7.3.

Figure 1. Forecast of annual MPDA electric rate impacts (Reference Case), 2018 \$ millions



For the sake of clarity, when discussing the annual ratepayer impact (savings/benefit or dis-savings/cost), LEI is referring to a comparison of rates between the forward-looking MPDA Scenario versus the Status Quo Scenario. The ratepayer impacts are not relative to current rates. Therefore, a “benefit” or savings as described in this report is not to be interpreted as a rate reduction from current levels.

To put the magnitude of ratepayer impacts into perspective, under the Reference Case assumptions in the short term, the ratepayer dis-savings of \$40 million in 2026 accounts for less than a 5% increase of the total IOU revenue requirement under the Status Quo. Similarly, in the long term, the estimated \$80 million ratepayer savings in 2053 is also less than 5% of the IOUs’ revenue requirement that year.⁹ The relative magnitude of this savings is affected by the fact that by year 2053, the total revenue requirement would also have increased due to capital investment. On average, in the Reference Case, the annual ratepayer savings or dis-savings does not impact the overall T&D rate by more than 5% in any modeled year.

⁹ While the ratepayer impact in dollar terms grow over time, the revenue requirement of the utility also grows because the rate base and operating expenses grow faster than inflation under the Reference Case.

If the initial acquisition could be structured and financed with tax-exempt debt, and future capital investment is also financed on a tax-exempt basis, then the savings to ratepayers could start as early as the first year of MPDA's first year of operations.

On the other end of possibilities, if the MPDA cannot obtain any tax-exempt financing, ratepayer benefits may not appear at all over 30 years of the analytical timeframe. This possibility could occur if the rate increase associated with an acquisition price greater than NBV (along with other upfront "transaction" costs) would be greater than the rate reduction from MPDA's lower (but not tax-exempt) cost of financing than the IOUs' weighted average cost of capital.

It is also important to keep in mind that in all these potential scenarios, the tax-exempt status of the MPDA may also cause changes in tax revenues collected by the State (and Federal Government).

When analyzing the trade-offs between near-term higher rates and long-term rate reductions, it is also useful to look at the cumulative effect over time, in net present value ("NPV") terms. There is a range of opinions on what an appropriate discount rate should be to calculate the NPV. Some practitioners would favor a social discount rate, commonly used to evaluate social projects and policies, while others would recommend a project-based discount rate reflective of the risk of T&D operations. In order to capture a diversity of views, LEI presents the NPV of ratepayer benefits over a 10-year (short-term) and 30-year term (long-term) using two different real discount rates (3.5% and 5.5%). The forward-looking calculations of annual revenue requirements under the Status Quo and MPDA scenarios were completed on the basis of real (2018) dollars,¹⁰ which is why LEI used a real discount rate (e.g., net of inflation).

The NPV analysis using the Reference Case assumptions is shown in Figure 2: a *negative* value implies a *net benefit* to ratepayers because it is showing cost savings under the MPDA Scenario against the Status Quo Scenario over a specific period of time. By contrast a *positive* number implies a *net cost* to ratepayers because it is saying that MPDA's rates will be higher than those of the IOUs over a specific period of time.

The results in Figure 2 shows that under the Reference case, over the first ten years of MPDA's operations, ratepayers should expect higher rates (or an annualized dis-savings of \$11 million to \$12 million per year) as compared to a Status Quo Scenario.¹¹

¹⁰ Real 2018 dollars are used for the quantitative analysis in this report because the starting values for rate base (NBV) and operating expenses are based on CMP and Emera Maine's year end 2018 FERC filings. LEI intentionally did not include any inflation adjustments going forward, as inflation would similarly impact the IOUs and the MPDA.

¹¹ However, there are uncertainties surrounding the ratepayer impact. If the actual acquisition multiple turns out to be 1.7x NBV instead of the 1.5x assumed in the reference case, then over the first ten years of MPDA's operations, ratepayer should expect dis-savings (or cost) of approximately \$37 million per year. In contrast, if the actual acquisition multiple turns out to be 1.3x NBV, rate payers should expect a savings (benefit) of \$15 million per year.

If the analysis period is extended to a 30-year time horizon, under the Reference Case, creating MPDA would result in levelized ratepayer savings (benefit) of \$4 million to \$8 million per year.¹²

Over a 10-year period, the results of the analysis suggest a net negative value (or dis-savings) to ratepayers between \$110 million (using 5.5% discount rate) and \$118 million (using 3.5% discount rate) in 2018 dollar terms over the first ten years. However, over a 30-year period, the cumulative impact on ratepayers is a saving of \$119 million (using 5.5% discount rate) to \$236 million (using 3.5% discount rate) in 2018 dollar terms. A matrix showing the cumulative impacts under different discount rates and time horizons is presented in Figure 3.¹³

Figure 2. Annual savings (negative) and dis-savings (positive) values for ratepayers under Reference Case assumptions based on an annualized NPV analysis over the short term and long term

\$million per year in 2018\$ (negative is savings)		Real discount rate	
		3.5%	5.5%
Time horizon	Short term (10 years)	\$12	\$11
	Long term (30 years)	(\$8)	(\$4)

¹² If the acquisition price is 1.7x NBV, the 30-year annualized ratepayer impact would be a dis-saving (or cost) of approximately \$13 million per year. With a 1.3x NBV acquisition multiple, the ratepayer impact would result in a saving (benefit) of \$29 million per year.

¹³ As one can ascertain, the higher the discount rate, the smaller the net ratepayer impact under the Reference Case. If the discount rate used is 9.8%, then the 30-year NPV of the ratepayer impact would be net zero.

Figure 3. Cumulative ratepayer savings/dis-savings under Reference Case assumptions based on NPV analysis over the short term and long term

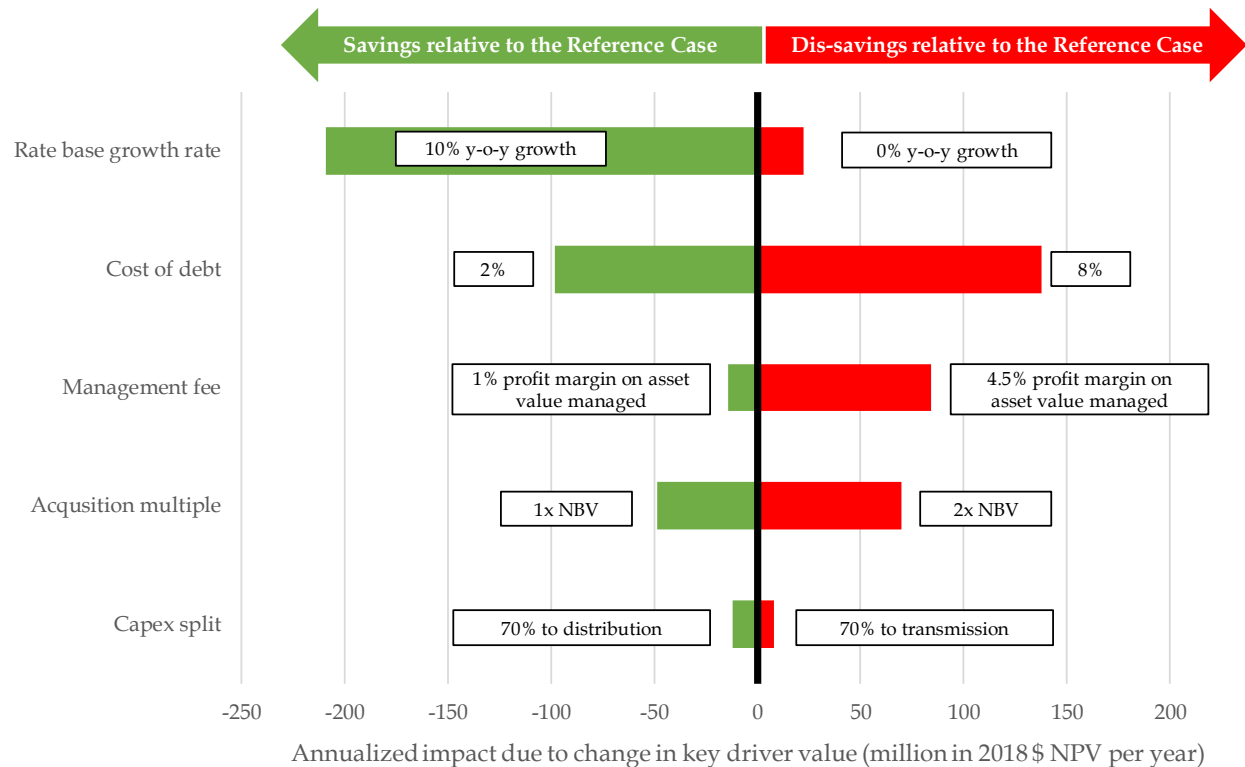
\$million in 2018\$ (negative is savings)		Real discount rate	
		3.5%	5.5%
Time horizon	Short term (10 years)	\$118	\$110
	Long term (30 years)	(\$236)	(\$119)

Ratepayer impacts from the electric distribution business of MPDA would contribute roughly three-quarters of ratepayer savings over the long-term, even though distribution assets are currently only around 40% of the IOUs' rate bases. The reason for this modeling outcome is the fact that the MPDA would not have as much control over the financing of the transmission investments that Maine electric ratepayers pay for under the socialized tariff design at ISO New England ("ISO-NE"). Transmission rates under ISO-NE are largely socialized across all the New England states. Based on the current share of Maine's load in New England and ISO-NE's transmission rate structure, only approximately 15% of MPDA's transmission revenue impact would flow to MPDA ratepayers. In other words, if LD 1646 results in \$10 million of transmission cost reductions, MPDA's ratepayers would only benefit from a transmission cost reduction of \$1.5 million, while the remaining \$8.5 million savings would be shared across other New England transmission customers.

In LEI's view, the two most impactful drivers of ratepayer benefits are the financing of the acquisition cost (acquisition premium above NBV) and the financing of future capital investment (primarily in distribution). In terms of financing the acquisition, the primary uncertainties are (i) whether the initial acquisition of the IOUs' T&D assets could be financed on a tax-exempt basis, and (ii) what the acquisition price will be. The higher the acquisition price, the lower the ratepayer benefits (it may even result in overall dis-savings). If debt raised to acquire the IOUs assets is tax-exempt, the financing costs of the acquisition will be lower, thereby increasing the ratepayer benefits. For the financing of future capital investment, the Reference Case assumption was to assume that financing of such additions to rate base would be tax-exempt. As existing assets are depreciated, the associated debt is retired and "refreshed" (or the new) rate base is financed at a lower rate (which is assumed to have the full benefit of tax-exempt debt in the Reference Case assumptions). The faster the rate base growth rate, the earlier the tax-exempt benefits could kick in.

Figure 4 presents a "tornado graph" that compares the scale of impact from different key drivers influencing ratepayer savings or dis-savings under the MPDA Scenario as compared to the Status Quo Scenario. Notably, these are single-factor sensitivities. Section 7 and Appendix C also present two-factor sensitivity results.

Figure 4. Comparative impact of different drivers on electric ratepayer net benefits or costs over the long term (30 years), annualized 2018 \$ millions



Source: LEI analysis

Note: The cost of debt includes both the nominal borrowing cost and the impact of tax-exempt financing.

1.7 Recommendations

Based on the findings summarized in Section 1.4 above and discussed throughout this report, the Project Team has prepared the following recommendations:

The current composition and selection process of the Board, and the regulatory provisions of a customer-owned utility, could make MPDA less effective at dealing with contentious issues, including rate-setting.

Recommendation #1: The Legislature may want to reconsider how Board members are selected (i.e. instead of being appointed, they could be elected by its members), what the minimum qualifications for Board members should be, and the establishment of standards of conduct for the Board (i.e. conflicts of interest).

Recommendation #2: The Legislature may want to consider applying the same level of independent regulatory oversight (by the MPUC) over the MPDA as currently exists for the IOUs, especially if not customer-selected.

The MPDA as described in LD 1646 is not a typical electric cooperative or customer-owned utility (in which board members are typically elected by its members), but more closely resembles a government-owned utility. This feature of the Board member selection, in isolation, does not signify that the performance or effectiveness of the MPDA may be compromised. However, the Project Team recognizes that the MPDA as described in LD 1646 does not entirely reflect the concept of “local” control, which was one of the enumerated objectives of the legislation. By having board members appointed by the Governor, the MPDA is subject to a greater degree of state control and government policy than if it was customer-elected.

The MPDA Board as envisioned in LD 1646 will also include various stakeholders in the State (in addition to MPDA ratepayers). While diversity in Board members can be viewed as a positive feature in some circumstances, it can also create contention about what is in the best interest of ratepayers and may even lead to conflicts of interest when deciding on issues related to rate-setting. Alternatives exist for Board composition – for example, something closer to the more conventional consumer-owned utility (“COU”) model adopted by cooperatives in Maine and elsewhere.

As a COU, the MPDA would be exempt from some regulatory requirements of IOUs such as the suspension and investigation of its rate increases in advance, in the case of rate changes filed by a COU under 35-A M.R.S.A. §3502. Given the size and scope of the impact of rate increases by the MPDA and because the profile of the MPDA Board may give rise to concerns of certain specific interests being represented or not represented, the Legislature may wish to consider applying to the MPDA the same regulatory oversight and obligations for rates and other matters as applied to the IOUs.

The legislation should include provisions to assist in resolving legal and regulatory obstacles to the transfer of assets from the IOUs to the MPDA.

Recommendation #3: LD 1646 should include a provision directing the IOUs to timely file and pursue any required approvals under the Federal Power Act, including Section 203.

Recommendation #4: LD 1646 should clarify whether the MPUC is required to decide if service by MPDA is required by the public convenience and necessity, or by some other standard.

The transfer or disposition of the assets of an IOU to the MPDA (whether by eminent domain or by negotiation) would likely require the approval of the Federal Energy Regulatory Commission (“FERC”) pursuant to Section 203 of the Federal Power Act (“FPA”). Under Section 203 of the FPA, an IOU transferring its assets must obtain approval from FERC notwithstanding the acquiring entity is a public sector entity (e.g. COU) that is not subject to pervasive federal regulation. Therefore, the Project Team recommends that any legislation creating the MPDA should include a provision directing the IOUs to timely file and pursue any required approvals under the FPA, including Section 203.

In addition, under existing law, if the MPDA is created, it would be required to file a petition with the MPUC for a certificate of public convenience and necessity to provide service in the area currently being served by the IOUs (which the IOUs would have the right to contest). The Project

Team suggests that LD 1646 clarify the applicability and relationship of Section 2102/2105 of 35-A of the Maine Statute – in particular, whether the MPUC is required to decide if service by MPDA is required by the public convenience and necessity, or by some other standard.

Acquisition of the IOUs' assets is likely to be controversial and complicated. The process proposed in LD 1646 is unlikely to result in a smooth transition due to the possibility of litigation, which casts uncertainty on T&D operations and costs for some time (which may have negative unintended consequences).

Recommendation #5: A decisive resolution of the acquisition price in advance of any taking of assets by eminent domain is preferable and a model for doing so has some precedence in Maine for water utilities. It is recommended that LD 1646 be amended to provide for a clear process in which the MPDA would first settle on an acquisition price for the IOUs assets before proceeding with the transfer and other startup arrangements.

What constitutes “just” compensation for the acquisition of utility facilities and the property of the existing IOUs will inevitably be an issue of serious debate between the IOUs and the negotiators representing the MPDA, and likely result in costly and lengthy litigation. As stated in LD 1646, the MPDA would take the property by eminent domain if the purchase of the assets is not accomplished within a one- or two-year period, but such a move is also likely to trigger further litigation and further delays.

The biggest problem with the process as described in LD 1646 is that the MPDA may be trying to take possession of property for which it does not yet know the final price. It could be years after the fact before the MPDA knows the final cost to acquire the IOU assets. The Project Team suggests an alternative process that involves settling the acquisition price prior to the taking of any assets, using an expert “referee” model that has been used before in Maine for water utilities. The advantage of this process is that (some) costly and lengthy litigation can be avoided in the takeover of the utility assets. This process could also be used as a risk-mitigating feature, in that the creation of the MPDA would not be triggered until the acquisition price is known and the expected benefits for electric ratepayers could be more accurately estimated.

Unionized labor currently employed by the IOUs is protected in LD 1646, benefiting local employment but inhibiting some of the expected benefits of holding a competitive tender for a contractor to take over operations.

Recommendation #6: Depending on which policy priority is more important to Maine - continuity of union employment or lower electric rates - the Legislature may want to consider amending the clauses in LD 1646 related to unionized labor. For example, if lowering electric delivery rates is the priority, then the unionized labor retention and equivalence clauses may need to be clarified by the Legislature. The Legislature may want to provide flexibility for the MPDA Board to determine what kind of union labor requirements it would impose on the contractor to serve the best interests of the ratepayers.

The stipulations around unionized labor in LD 1646 will generally result in improvements in salaries and benefits for some existing union members. However, these stipulations will also mean higher labor costs for the contractor and less room for labor efficiency gains for a number of years (the contractor may still be able to achieve cost reductions through natural attrition). The labor-related stipulations will translate into slightly higher costs from the Status Quo Scenario (all else being equal). Perhaps more importantly on a conceptual basis, these labor-related stipulations dilute some of the intended benefits of hiring a contractor through a competitive solicitation (the union requirements will limit the contractor's ability to offer a lower cost of service; the contractor will consider thoroughly the labor costs it will incur as a consequence of these requirements and pass on those costs in the terms of their agreement with MPDA).

Most of the operating costs for the MPDA will be linked to the contract it signs with the contractor. LD 1646 directs the MPDA to hire a contractor through a competitive tender but leaves many details to be ironed out. The Project Team recognizes that the hiring of a contractor is intended to create an opportunity for operating cost savings and the possibility of performance improvements, but those outcomes are not guaranteed by the manifestation of the competitive tender alone.

Recommendation #7: The competitive tender for the contractor will be a critical step in the formation of the MPDA and achievement of the intended objectives of LD 1646. The Project Team suggests that additional studies be performed around the design of the competitive tender and contractual agreements that would dictate the terms of employment between the contractor and the MPDA.

O&M expenses and the profit (based on the IOUs' realized return on equity) represent about 65% of the total revenue requirement for T&D operations. Therefore, the arrangement with the contractor will be a significant determinant of electric T&D rates.¹⁴ LD 1646's intention of having an independent contractor that is selected through a competitive tender is clearly rooted in the premise that harnessing competitive forces to get the least costly qualified contractor would benefit ratepayers. It is reasonable to assume that the MPDA will find a third-party operator to fill the role of the contractor. There are examples of similar arrangements in the industry (for example, the Long Island Power Authority ("LIPA") has had a third-party operator since its inception) and more generally in the public-private partnership arena (such as 'build, operate, transfer' ("BOT") transactions involving infrastructure assets). However, given the complexity of the service being acquired and the likelihood that there is a relatively small universe of qualified parties, it will be important to think thoroughly about the design of the tender and to ensure that it can attract the widest group of qualified bidders and ensure that the benefits of competition can be realized.

¹⁴ Based on the average figures from 2014-2018 FERC Form 1/1-F, FERC Form 3/3-A or EIA 861 filings of CMP and Emera Maine, LEI summed reported net income and operating and maintenance expenses, and then divided that sub-total by total annual revenue.

Furthermore, it is important to recognize that no rational, for-profit entity would take on the contractor role without commercially reasonable compensation (and that compensation would be rolled into T&D rates). The total management fee that the contractor would charge MPDA would depend on legal conditions (like the union-related stipulations in LD 1646), the terms and obligations of the contract (including the contractor's identified responsibilities and performance requirements) and the risks that the contractor would take on.¹⁵ A contractor may require a larger profit if the contract had more risk (for example, if there were large penalties on non-performance, or if the contractor has to assume the risk of potential cost overruns). There is a myriad of ways that the contractual agreement could be structured, and the risks allocated. If the contract is structured properly, it can be a source of more efficient operations and/or higher quality of service.

It is beyond the scope of this report to consider and recommend a specific structure for the competitive tender and the design of the agreement between the MPDA and the contractor, but the Project Team recognizes that this is an important driver of future outcomes. It will be vital for the contract to have strong performance incentives. Therefore, the Project Team recommends that the Legislature undertake studies to better understand and evaluate the options around the competitive tender and the most appropriate contractual arrangements for the MPDA.

From the ratepayer perspective, a major source of benefits lies in the possibility that the tax-exempt status of MPDA could provide access to lower-cost debt. However, tax-advantaged financing may not materialize until the longer-term if the initial acquisition does not qualify for tax-exempt debt. On the other hand, if MPDA must make significant capital investments, that may accelerate and increase the benefits to ratepayers from tax-exempt financing. Securitization of the initial acquisition could also provide some financing benefits but would require further evaluation and consideration of necessary provisions.

Recommendation #8: Given that the magnitude and timing of ratepayer benefits depend on the tax treatment and the size of MPDA's debt, the Project Team recommends additional studies that (i) assess future capital investments needs for Maine's T&D systems, (ii) evaluate tax-related considerations for the MPDA, and (iii) consider financing alternatives (like securitization). These three studies will help refine the timing and estimate of ratepayer benefits in the short and long term. These studies will also map out additional legal and regulatory requirements (for example, securitization of the initial acquisition of assets by the MPDA may compel enabling legislation and regulatory commitments from the MPUC).

¹⁵ Theoretically, if the level of risk assumed by the contractor is similar to the risk assumed by the IOUs under the existing arrangements, then the contractor could ask for a similar level of compensation the IOUs are earning currently through their allowed return on equity. However, if the contractor is taking on lower risk compared to the IOUs - for example if it is not responsible for capital investment - then the expected profit for the contractor may not be as high as the returns earned by the IOUs. Since the contractor also pays state and federal taxes on its profit, the design of the contract could also affect tax revenues received by the taxation authorities (and offset some of the lost tax revenues from the IOUs' business. The for-profit contractor is discussed further in Section 6.1.

The MPDA's tax-exempt status is anticipated to lead to a lower cost of financing. However, it is uncertain whether that would apply to the debt associated with the initial acquisition of assets, as the US Federal Tax Code specifically says that tax-exempt private-activity bonds cannot be used to purchase existing properties. As such, the Reference Case assumptions have assumed that the tax benefit would only accrue with future financings of new investments. And as discussed in Section 7, net positive financing benefits associated with MPDA's tax-exempt status may not be realized for some time because of offsetting factors, such as a high acquisition costs leading to larger initial debt, and lower credit ratings due to a high leverage ratio.

There is also another dimension to the taxation status of the MPDA. Although MPDA is itself exempt from paying income taxes, it will be hiring an independent, for-profit contractor(s), who will have to pay income taxes. If the profit components of the contractor's management fee is similar to the pre-tax returns that the IOUs are currently being allowed to recover from ratepayers, then it is a wash and there is no change for ratepayers (as the management fee would be recovered through rates, similar to the IOUs' returns), and there will be no detrimental impacts on the tax revenues collected by the State and Federal Government. On the other hand, if the taxable income for the contractor is less than the pre-tax returns earned by the IOUs, there would be ratepayer savings (because the revenue requirement under the MPDA scenario is then lower than the revenue requirement under the Status Quo Scenario). However, such a situation also suggests that the State would face a loss of tax revenues. The study on the contractual arrangement for the contractor (Recommendation #6), may shed some light on which situation is more likely. Therefore, it may be helpful for the tax study to also consider the most effective options to offset those expected losses in state tax revenues.¹⁶

There is ambiguity in the language of LD 1646 as it relates to local property taxes and sales tax that should be clarified.

Recommendation #9: If the intent of LD 1646 is to have MPDA's sales be fully exempt from Maine's sales tax while keeping local property taxes the same as they would have been under IOU ownership, then the language in the legislation should be amended.

LD 1646 stipulates that if MPDA has sufficient pre-tax net income, it will pay the same amount of local facilities and property tax payments paid by the IOUs. This will be collected through rates charged by the MPDA and paid out as payments in lieu of taxes to local governments.¹⁷ Assuming MPDA collects sufficient revenue to cover such local taxes, there will be no savings to ratepayers, but also no change in the local taxes collected from T&D assets in Maine (and therefore no

¹⁶ The tax study should also recognize that the electricity industry is changing rapidly. In a world with more decentralized power sector, T&D operators may not be able to retain load, leading to lower state tax revenue from T&D companies.

¹⁷ The current language in LD 1646 is ambiguous about whether the MPDA has the choice of payment in lieu of taxes. Clarification from one of the sponsors of the bill suggests that the current language may be a drafting error, as the intent of the bill was that MPDA would pay the same amount of local taxes that the IOUs would pay.

negative impacts for Maine residents and local communities). However, the language in LD 1646, in conjunction with the MPDA's primary goal of minimizing rates, suggests that it is possible that the MPDA may not have sufficient funds to make payments in lieu of local property taxes. In that case, local communities may face a tax revenue shortfall that would need to be covered by other resources (such as tax hikes on other property) or a reduction in programs and services funded with local taxes.

LD 1646 also states that "*income of the authority*, as a public instrumentality, is exempted from all taxation or assessment by the State..." (emphasis added). The Project Team interprets this clause of the legislation to suggest that Maine sales tax would continue to apply to electric sales, so long as they are not exempted already by state statute. The application of sales tax does increase the final cost to ratepayers, but it also serves as a source of revenue for the state government budget. As part of the tax study, the Legislature may want to also request a fiscal impact analysis, in order to better understand the impact on the State from a change in sales tax contribution from electricity sales. LD 1646 should be amended to explicitly state whether MPDA's sales would be fully exempt from Maine sales tax.

2 History of the electricity sector in Maine

Maine's electric history began with the early development of hydroelectric power in the state. By the 1890s, many local communities had begun powering street lighting through locally owned gas or electric companies. Central Maine Power Company was founded in 1899 when Harvey D. Eaton, an attorney, and Walter S. Wyman, an engineer, bought the Oakland Electric Company. The company changed its name to Central Maine Power Company in 1910 and continued to acquire small hydroelectric companies and to develop new sites to supply hydropower. Similarly, Emera Maine's origins are traced back to 1887, when the first electric generator was installed on Cross Street in downtown Bangor.¹⁸ A number of local generators amalgamated into Bangor Hydro-Electric Company ("BHE"), which was incorporated in 1924. Bangor Hydro-Electric Company also continued acquiring small hydroelectric companies over time and began building other forms of generation capacity. Emera Maine currently is the result of the merger between BHE and Maine Public Service Company ("MPS") in 1994.

Over time, Maine's utilities continued acquiring or building new generation plants. The planning and development of the systems were undertaken by electric utilities (but under the supervision of governmental regulation).¹⁹ The 1990s brought about a restructuring of the electric power industry. In 1997, the Maine Legislature passed *An Act to Restructure the State's Electric Industry*, whereby customers would be able to choose their electricity suppliers and the IOUs divested their generation assets (discussed further below). Because utilities were no longer generating power with their own assets, the Maine IOUs became responsible only for operating and maintaining the transmission and distribution system.²⁰

Today, the majority of Maine's electricity customers are serviced by CMP, Emera Maine, and 10 COUs.²¹ CMP serves more than 600,000 residential, commercial, and industrial electricity customers in an 11,000 square-mile service area in central and southern Maine²² and is owned by Avangrid of Orange, Connecticut. Avangrid owns other electric and gas distribution assets in the US and is majority-owned by Iberdrola, a Spanish utility company.²³ Emera Maine is Maine's second-largest electric utility, delivering electricity to more than 158,000 customers across 10,400

¹⁸ See <https://digicom.bpl.lib.me.us/cgi/viewcontent.cgi?article=1055&context=bangorhydro_news>.

¹⁹ Maine is part of the New England Power Pool ("NEPOOL") and has a history of regional cooperation that predates the formation of ISO-NE in 1997.

²⁰ ISO-NE was also formed in 1997 and over time became a Regional Transmission Organization ("RTO") in 2005 to ensure access to transmission systems and also implemented wholesale electricity markets in 1999.

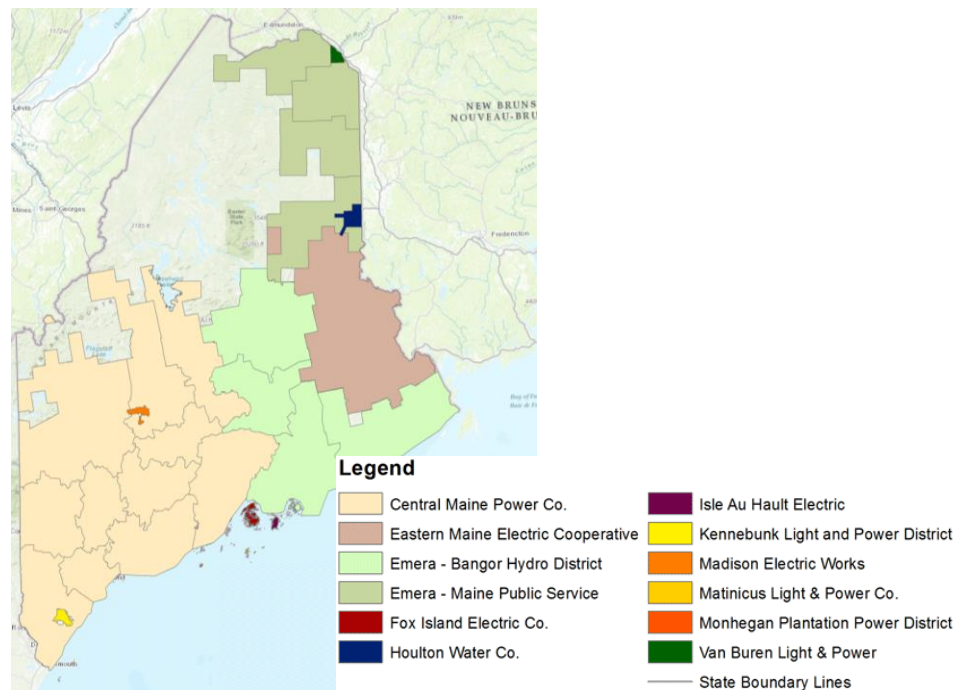
²¹ These include COUs such as Eastern Maine Electric Coop, Kennebunk Light & Power Company, and Fox Islands Electric Coop. These are shown in Figure 5.

²² Central Maine Power Fact Sheet. <<https://www.cmpco.com>>.

²³ Avangrid. <<https://www.avangrid.com/wps/portal/avangrid/aboutus/companyprofile>>.

square miles in five counties in eastern and northern Maine.²⁴ Emera is owned by Emera Inc. of Nova Scotia (Canada). Emera Inc. is in the process of selling Emera Maine to ENMAX Corp., based in Calgary, Alberta (Canada). ENMAX is wholly-owned by the city of Calgary. The two IOUs, Emera and CMP, transmit approximately 96% of the state's total power.²⁵ In 2018, Maine's electric consumption came primarily from commercial and industrial customers (62%); residential customers accounted for the remaining 38% of total consumption.²⁶ The service territories are shown below in Figure 5.

Figure 5. Breakdown of Maine by Electric Territory



Source: Adapted from the MPUC

2.1 Meeting the objectives of electric regulation in Maine

Forty years ago, the Maine Supreme Court described the “paramount objective” of utility regulation in Maine as “ensuring that the public receives an adequate service, delivered in a safe and reliable manner, at a charge just and reasonable in relation to the public utility’s costs of providing the service.”²⁷ A few years later, when the Maine Legislature recodified Maine’s utility

²⁴ Emera Maine Service District. <<https://www.emeramaine.com/about-us/service-district/>>.

²⁵ Maine PUC. <https://www.maine.gov/mpuc/electricity/delivery_rates.shtml>

²⁶ EIA. Sales and Direct Use of Electricity to Ultimate Customers.
<https://www.eia.gov/electricity/annual/html/epa_02_02.html>.

²⁷ Central Maine Power Co. v. Public Utilities Commission, 414 A.2d 1217, 1224-25 (Me. 1980).

regulation statutes, a new Statement of Purpose was adopted, which focused on these basic concerns of rate levels and safe and reliable service.²⁸

Over the decades, the Statement of Purpose has been amended as new policies were created and the objectives and structure of electric energy regulation evolved.²⁹ Among those changes were the divestiture and deregulation of generation, increased competition in the supply of electricity, and increased emphasis on energy efficiency and more recently climate impacts. Title 35-A today reflects substantially more concerns and objectives than its original version adopted in 1913,³⁰ and it is likely that governing legislation over electric utility regulation will continue to evolve.

During the half-century following the creation of the MPUC in 1913, the objectives of reasonable rates and service were of primary focus, and utility regulation was often reactive. In the decades of the 1970s through the 1990s there was an increasing emphasis on efficiency and planning matters, and a growing proactive approach, culminating in the restructuring of the electric utility industry in 1997. And in this new century, regulation appears to be increasingly an instrument of implementing public policy and public objectives, such as incentivizing renewable energy resource development, conservation/reduction in consumption of electricity and customer choice of electricity providers.³¹

2.1.1 Experience with electric sector restructuring

LD 1646 now presents the question of whether there should be another fundamental restructuring of the regulatory regime at this time. This is not the first time in current lifetimes that the State of Maine has faced the prospect of a major restructuring of the regulatory paradigm for the electric

²⁸ When Title 35 was recodified into Title 35-A in 1987, a new Section 101 was enacted as follows: *The purpose of this Title is to ensure that there is a regulatory system for public utilities in the State which is consistent with the public interest and with other requirements of law. The basic purpose of this regulatory system is to assure safe, reasonable and adequate service at rates which are just and reasonable to customers and public utilities.*

²⁹ Section 101 presently states: *The purpose of this Title is to ensure that there is a regulatory system for public utilities in the State and for other entities subject to this Title that is consistent with the public interest and with other requirements of law and to provide for reasonable licensing requirements for competitive electricity providers. The basic purpose of this regulatory system as it applies to public utilities subject to service regulation under this Title is to ensure safe, reasonable and adequate service, to assist in minimizing the cost of energy available to the State's consumers and to ensure that the rates of public utilities subject to rate regulation are just and reasonable to customers and public utilities.*

³⁰ In 1913, the Legislature created the MPUC. The Legislature delegated to the MPUC the authority to decide when a utility may provide service in an area where another utility is already providing service. See 35-A M.R.S.A. §2102/2105. Section 2105 provides that the MPUC shall not grant approval for a second utility unless it determines, "that public convenience and necessity require a 2nd public utility." As noted in the treatise, the Commission's interpretation of the public need standard is flexible in response to the circumstances of the industry and perceptions of public need.

³¹ For a discussion of Goals of Public Utility Regulation see Phillips, *The Regulation of Public Utilities* (1993) p. 172-73. The trend towards more emphasis on public policy goals is noted by Professor Phillips, "Some have argued that regulation should seek "social," as opposed to "business" or "economic" objectives." p. 173.

energy sector. As noted earlier, in 1997 the State implemented “An Act to Restructure the State’s Electric Industry,” P.L. 1997, ch. 316 (adding Chapter 32 to Title 35-A), effective September 19, 1997 (referred to herein as the “1997 Act”). Among the major components of the Act was the requirement that IOUs divest themselves of their electric generation assets and related business activities.³² Thus, similar to LD 1646, the 1997 Act contained a governmental mandate for the transfer of ownership of a substantial part of the assets of Maine IOUs. The 1997 Act is informative in at least two important respects at this time.

First, it is worth noting that the major realignment of the electric energy sector in 1997 was implemented by a statute that was the product of a substantial, deliberate and lengthy study process. In the summer of 1995, the Legislature enacted Legislative Resolve 1995, Ch. 48 “Resolve, to Require a Study of Retail Competition in the Electric Industry,” effective July 3, 1995. The Resolve directed that two studies would take place. First, during the latter part of 1995, a study and development of a plan regarding the orderly transition to a competitive market for retail purchases and sale of electric energy would be conducted by the Work Group on Electric Industry Restructuring, consisting of representatives of the Legislature, relevant governmental entities, electric utilities and producers, and consumer interests. Second, the work group study would be followed by a study to be conducted by the MPUC to develop at least two plans and an MPUC recommended plan for the orderly transition to be presented to the Legislature.

A year and a half after the Resolve was adopted, on December 31, 1996, the MPUC issued its “Report and Recommended Plan, Electric Utility Industry Restructuring,” Docket No. 95-462. The MPUC’s December 31, 1996 Report (“MPUC Report”) was submitted to the Legislature, and in 1997 the Legislature enacted Chapter 316, which brought forth a major restructuring of the industry, two years after the initial Study Resolve. This history strongly suggests that substantial changes in the regulatory paradigm may require careful and thorough study, detailed planning and efforts at utilizing a collaborative approach.

In addition to this precedent with regard to process, the 1995-97 restructuring endeavor also produced legal precedent with regard to an important issue now arising under LD 1646 (i.e. the power of the State to direct the transfer of property of public utilities to another entity). In its report from December 31, 1996, the Commission addressed the issue of the State’s authority to order electric utilities to divest their assets:

Some commenters suggested that mandatory divestiture may violate the takings clause of the United States Constitution. On the contrary, the United States Supreme Court found mandatory divestiture of utility assets under the Public Utility Holding Company Act (PUHCA) SS11(b)(1) does not violate that clause. See North America Company v. SEC, 327 U.S. 686 (1946). State-ordered divestiture raises no constitutional issues different from those addressed by the Court in North America. Moreover, although the takings clause could be implicated if forced divestiture resulted in a substantial reduction in the value of investors’ holdings in the utility, the Commission

³² CMP and BHE sold their generation assets to Florida Light and Power and PP&L Global respectively following the 1997 Act.

*would allow investors the same opportunity as they have now to recoup the value of their holdings through the stranded cost charge and the fair determination of the value of divested assets.*³³

In reaching these conclusions regarding the State's authority to order divestiture, the MPUC relied on an extensive legal analysis submitted by the Office of the Public Advocate.³⁴ The legal analysis addressed legal and constitutional issues that now relate to LD 1646 with respect to eminent domain power. Subsequent discussion in this report regarding these issues adopts the legal analysis followed by the MPUC in its December 31, 1996 report.

2.1.2 Experience with public entities

In addition to this not being the first time in Maine history that the State has addressed a major restructuring of the electric energy sector, it is also the case that the consideration of LD 1646 is not the first Maine experience with non-investor-owned utilities. Portions of Maine have been served for many decades by non-investor, publicly owned or controlled transmission and distribution utilities. These include municipalities, quasi-municipal districts, municipal-owned companies and cooperatives, and are generally known as COUs. Title 35-A provides that the COUs are public utilities and that they are regulated by the MPUC as such, subject to certain specific provisions of Title 35-A. As noted previously, regulation by the MPUC of COUs is more limited than IOUs in terms of rate regulation. The Maine Legislature has a history of bringing other forms of public entities and attributes into the regulatory scheme for the electricity sector, as reflected in the following provisions of Title 35-A.³⁵

Figure 6. Provisions of Title 35-A that bring other forms of public entities and attributes into the electric sector regulatory scheme

Provisions of Title 35-A

Maine Public Utility Financing Bank Act (Ch. 29)
Purchase and Resale of Electricity by Public Utilities Commission (§3181, repealed 2000)
Consumer-Owned Transmission and Distribution Utilities (Ch. 35)
Community Based Renewable Energy (Ch. 36)
Rural Electrification Cooperatives (Ch. 37)
 Generation & Transmission Cooperatives (Subchapter 4)
Municipal Electric Districts (Ch. 39)
Maine Municipal & Rural Electrification Cooperative Agency Act (Ch. 41)

³³ MPUC, *Report and Recommended Plan, Electric Utility Industry Restructuring*, Section III (B) (2). Docket No. 95-462.

³⁴ Ibid, footnote 34.

³⁵ Proposals for the creation of public power entities in Maine have been previously the subject of legislative activity (and ultimately rejected on at least two occasions: by the Legislature in 1966 and by Referendum in 1973, "Are private or public electric utilities cheaper?", BDN, 12/23/19.)

2.2 Current regulatory structure in Maine

Since 1913, the Maine Legislature has exercised its police powers to establish, maintain and modify a state utility regulatory structure that establishes and authorizes the MPUC to regulate public utilities. Title 35-A designates certain entities that transmit and distribute electricity as “public utilities,” under the category of “transmission and distribution utilities.” The large part of transmission and distribution utility service in Maine is currently provided by the two IOUs, CMP and Emera.

The Legislature has provided the MPUC with a palette of powers and responsibilities to carry out its function to assure the protection of the consumers’ interests, including the following types:

Figure 7. Types of regulation of public utilities and their objectives

Type of Regulation	Objective
Rate Regulation	Establish just and reasonable rates, that provide sufficient revenues to the utility but do not unnecessarily overburden customers, and are designed in a reasonable and fair manner.
Service/Safety Regulation	Assure service that is safe, reasonable and adequate and meets the needs of customers with respect to the reliable delivery of electricity for their use, including the maintenance of effective, efficiency and reasonable customer communications, services and relations.
Entry Regulation	Assure that a second utility does not enter the service area of the existing utility unless the MPUC makes a finding that it is required by the public convenience and necessity in order to assure that the benefits of economies of scale and the financial ability to serve all customers at reasonable rates are not diminished by unwarranted competition.
Financial/Transactional Regulation	Assure that financings, borrowings, transfers of assets, the granting of security interests, affiliate transactions and changes of control are in the public interest, and conducted in the manner to protect the health of the utility and its ability to provide service at reasonable rates and to protect investors in utility securities.
Oversight of Eminent Domain	Assure that the sovereign power of eminent domain, which is delegated to the utility by the state, is applied when necessary and in a reasonable manner.

In order to perform these responsibilities, the MPUC is provided with resources, generally funded through the rates paid by utility customers, and substantial legal and administrative power. The MPUC is authorized by law to investigate any matter regarding any public utility, to compel the production of information and witnesses and to issue rules and orders regulating and directing the rates, service and acts and practices of utilities.

2.3 Rate regulation of utilities

There are two main parts of customers’ electric bills: supply and delivery. Supply refers to the energy and capacity services generated from competitive electricity generators (or demand response providers) located throughout New England or imported from other electricity grids. Delivery refers to the services to bring energy and capacity to customers through the electricity network. For delivery, the grid is currently assumed to be a natural monopoly and the rates

charged for the grid's services are regulated mainly by MPUC and the Federal Energy Regulatory Commission ("FERC"), with some exceptions further discussed in this report.

The financial cost-benefit analysis in this report focuses only on the delivery component of the electric bill. This is because the supply part of the electric bill should not differ due to the creation of MPDA, as energy supply is liberalized in New England and the prices are determined by competitive market forces that are independent of the T&D company.

For delivery charges, the charges are further separated into transmission charges and distribution charges. Transmission refers to high voltage power lines that carry energy over long distances. Currently, transmission services provided by IOUs are regulated by FERC. Distribution service provided by IOUs is regulated by the MPUC. The state's jurisdiction over distribution service would remain unaffected by the creation of the MDPA. Transmission service provided by COUs such as the MDPA is not subject to federal regulation. Rather, the T&D service that would be provided by the MDPA could be subject to the form and substance as the State of Maine determines.

There are two elements that make up regulated utility rates. First, as established by the US Supreme Court, regulated utilities are entitled to a reasonable opportunity to recover their prudently incurred costs.³⁶ Second, regulated utilities are also entitled to earn a fair and reasonable rate of return on their capital investment.³⁷ Overall, the standards of setting regulated rates are whether the rates are "just and reasonable", as stated in Maine Statutes Title 35-A §301. "Just and Reasonable" rates presuppose that the rates will produce revenues reasonably calculated to assure the utility the opportunity to earn a return on investment commensurate with the risks confronting the utility:

"The rates, toll or charge, or any join rate made, exacted, demanded or collected by any public utility for production, transmission, delivery, or furnishing of electricity, gas, heat or water ... shall be just and reasonable."³⁸ Additionally, "every unjust or unreasonable charge for public utility service is prohibited and declared unlawful"³⁹ "In determining just and reasonable rates, the commission: (a) shall provide such revenues to the utility as may be required to perform its public service and to attract necessary capital on just and reasonable terms; and (b) shall, to a level within the commission's discretion, consider whether the utility is operating as efficiently as possible and is utilizing sound management practices, including the treatment in rates of executive compensation."

³⁶ Federal Power Commission et al v. Hope Natural Gas Co., 320 U.S. 591, 603 (1944)

³⁷ Bluefield Water Works and Improvement Co. v. Public Service Commission of West Virginia, 262 U.S. 679 (1923).

³⁸ PL 1987, c. 141, Pt. A, §6.

³⁹ Ibid.

In practice, utilities file rate cases at the MPUC related to distribution rate changes. In these rate cases, the utility presents to the MPUC evidence of its projected expenses and level of investments, its required return on equity, its cost of debt, and other arguments supporting its desired level of rate change. Other stakeholders, such as Maine's Office of Public Advocate and electricity consumer groups, can also participate in the rate case and file evidence in favor of or against the proposed rate change.

In Maine, there is also a difference between an IOU and COU from a rate regulation perspective in terms of the level of autonomy a COU has in setting rates. Title 35-A §3502 states that a COU that proposes to increase rates may not be more than 15% of the utility's annual operating revenue or proposes rate decreases in any amount may elect to set rates following a public hearing and 30 days notification process, unless 10% of the customers of the COU or 750 customers, whichever is less, file with the utility and MPUC a petition to request a review of the rate change.

Most of Maine's electric transmission grid (with the exception of the northern Maine transmission system in Aroostook and Washington counties, which is part of the Northern Maine Independent System Administrator, or "NMISA") is under the operation of ISO-NE. Accordingly, transmission rates are governed by the ISO-NE Open Access Transmission Tariff ("OATT"). Under the OATT, over 90% of transmission charges are under the regional network service ("RNS") and are shared across New England states under a postage stamp rate structure. Currently, the transmission owners jointly file the annual transmission revenue requirement ("ATRR") to FERC on an annual basis. Maine's share of the transmission charge is based on Maine's share of the 12-month average of all monthly regional network loads. As of the end of 2018, transmission assets comprised approximately 60% of CMP and Emera Maine's regulated asset-base.

3 Summary of LD 1646

As explicitly written in Section 4002 of LD 1646, the MPDA is “established to provide for its customer-owners in this State reliable electric transmission and distribution services at the lowest possible cost in accordance with this chapter.” Although only two principle objectives (reliable T&D services and low costs) are stated, during the course of the preparation of this report, the principal sponsor of the LD 1646 and his advisor were interviewed, and the Project Team reviewed previously proffered testimonies regarding LD 1646 in order to ascertain other motivations and objectives behind LD 1646. This includes better responsiveness to customers, local control and greater consideration of needs, and increased consideration of public policy objectives of clean energy. The key features of LD 1646 are broken down below. This chapter provides a summary of the Sections in LD 1646 which will be referenced throughout the remainder of the report.

3.1 Section 4002: Maine Power Delivery Authority and its Board members

The composition of the governing Board of the MPDA is specified in LD 1646 as a 10-member “public instrumentality of the State.” Typically, board members for COUs are selected by their members. However, in the case of MPDA, the Board members are appointed by the Governor of Maine and confirmed by the Legislature. According to LD 1646, the Board would consist of:

- One residential consumer of electricity;
- One representative of a commercial consumer of electricity;
- One representative of an industrial consumer of electricity; and,
- No more than five members from the same political party.

In addition, the LD 1646 will impose other procedures when the Governor appoints members, including:

- Five members must reside in CMP’s service territory as of January 1, 2000;
- Two members must reside in Emera Maine’s service territory as of January 1, 2000;
- One member must reside in the service territory of the third-largest IOU as of January 1, 2000;
- One member chosen from a list of at least two proposed members must be provided by an organization representing the COUs in Maine, serving at least 1,000 customers each; and,
- One member chosen from a list of at least two proposed members provided by the executive board of a bona fide labor organization or association of employees representing at least 10% of the workforce employed by T&D utilities in Maine.

Figure 8. Summary of LD 1646

Section 4002: Maine Power Deliver Authority Established; Board Members	
4002(1): Governance	Composition of the 10-member Board of Governors
4002(2): Term of office	Description for staggered member terms
4002(3): Quorum and chair	Rule of six member majority
4002(4): Voting	Decisions require a majority vote
Section 4003: Powers and Duties	
4003(1): Powers; generally	MPDA is defined as a COU and has powers of a T&D utility under Title 35-A, as affected by Chapter 35 (Consumer-owned utilities)
4003(2): Limits on authority; generating property	May not own / operate generation
4003(3): Operations	MPDA will contract with a nongovernmental entity to provide operations and administrative services
4003(4): Employees	Rules for retaining unionized labor
4003(5): Acquisition of utility property	Rules/procedures for acquisition of IOU assets
4003(6): Regional transmission	MPDA remains in ISO-NE until/if MPDA Board votes to exit
4003(7): Name	May adopt alternative/abbreviated name
4003(8): Consumer-owned transmission and distribution utilities; application	MPDA will be regulated as a COU subject to certain specified exceptions. Other COUs are unaffected and may expand service boundaries unopposed by MPDA in certain circumstances
Section 4004: Rates	
4004: Rates	Rates must cover cost of service including debt and payments in lieu of taxes. Debt is not the liability of the state.
Section 4005: Tax-exemption; payments in lieu of taxes	
4005(1): Tax exemptions	MPDA is treated as a public municipal entity for certain purposes and is subject to certain tax exemptions
4005(2): Payments in lieu of taxes	MPDA to make payments to municipalities, counties, and political subdivisions in lieu of taxes
Section 4006: Governmental function	
4006: Governmental function	MPDA is a public instrumentality of the state and performs a governmental function and its debt is not a liability of state
Section 4007: Termination of authority	
4007: Termination of authority	MPDA may not be dissolved except by authorization of law
Section 4008: Accountability, transparency and reporting	
4008: Accountability, transparency and reporting	MPDA is subject to standards of governmental review and will submit a report each year to Legislature summarizing its activities and performance to ratepayers and employees

Each member of the Board serves for six years. However, because Board members are appointed by a single Governor, the legislation introduced staggered terms for the first Board: four members will serve 6-year terms, three members will serve four-year terms, and three members will serve two-year terms. Board members may be reappointed. Six members of the Board constitute a majority and a quorum, and decisions must be made by a majority of the Board. Key insights

around the governance of the MPDA and Board composition are discussed in Section 4 of this report.

3.2 Section 4003: Powers and duties

Sections 4003(1) and 4003(8) are clear that the MPDA will be a COU and therefore subject to the regulation by the MPUC as a COU under Title 35-A (as discussed in Section 2.3)) subject to certain specified exceptions. In fact, the current wording of Section 4003(1) suggests that the MPDA will be a COU, subject to MPUC jurisdiction, on the day that it is created, even though, at that time, it may not be operating as a public utility and might not be doing so for some extended period of time.⁴⁰ Analysis of the regulation of the MPDA is presented in Section 4.3 of this report.

As with the current IOUs, the MPDA would not own generation assets or purchase energy from a generating source except under MPUC approval. The operations will be conducted by a contractor, which is to be a nongovernmental entity hired through a competitive solicitation. However, it is unclear whether “operations and administration services” include executive management of the MPDA since this decision is left up to the Board (see Section 6).

The contractor that is ultimately hired must also hire qualified labor from the IOUs that have existing bargaining agreements at the time of the acquisition, and the contractor must extend those workers a job for at least five years. Additionally, Section 4003(4) states that if two or more union contracts exist, the wages, salaries, and benefits of union employees must at least be equal to the higher of those provided in other IOU’s union contracts. The impacts of this are discussed in Section 6.2 of this report.

Section 4003(5) discusses the acquisition process of utility property which is of significant importance to the short- and long-term costs and benefits of moving to the MPDA. As written, the MPDA would purchase all utility facilities owned by the IOUs within 1-2 years and financed through debt. The purchase price, as written in LD 1646, would be 1x NBV. The purchase price can be appealed to the Law Court, but if the final purchase price of utility facilities and property is not accomplished within the 1-2 years window, then the MPDA would take the assets by eminent domain. A discussion of alternative approaches to this process is discussed in Section 5.1 of this report. LEI also considered the impact of different acquisition prices (i.e. different multiples over the NBV) in order to test what the impacts would be on the short- and long-term costs and benefits. This is discussed in Section 7 of this report.

The MPDA Board also has other powers, such as voting to leave ISO-NE/NMISA and adopting an alternative name. The Project Team did not explicitly study the impacts or implications of the MPDA leaving the regional transmission systems to which it belongs as this was out of the scope of this report.

⁴⁰ The common definition of a public utility is that it is an entity, “owning, controlling, operating or managing” utility plant for compensation. The MPDA may not meet this traditional definition for some period of time. The Legislature may want to give further consideration of the implications of immediate utility status (see Section 4.3).

3.3 Section 4004-4005: Rates, tax-exemptions, and payments in lieu of taxes

Section 4005(1) states that the income of the MPDA, as a public instrumentality, is “exempt from all taxation or assessment by the State or any political subdivision of the State.” However, in Section 4005(2), the Project Team understands from the original drafters of the legislation that “to the extent its revenues exceed current expenditures and any necessary reserves in any fiscal year” should be removed, and the MPDA *will* make payments in lieu of taxes for utility facilities or property to any municipality. If such a change were to be made, then property taxes paid by the IOUs would continue to be paid by the MPDA. As such, the only tax difference between the MPDA and the IOU ownership models would be that the MPDA would not pay income taxes, which would lower the revenue requirement (so long as the taxable income of the contractor is less than the taxable income of the IOUs). This is discussed in Section 7.6 of this report. LEI also conducted several sensitivities on the impact of tax-exempt debt in Section 7.5.3.

3.4 Sections 4006-4008: Governmental function, termination, and reporting

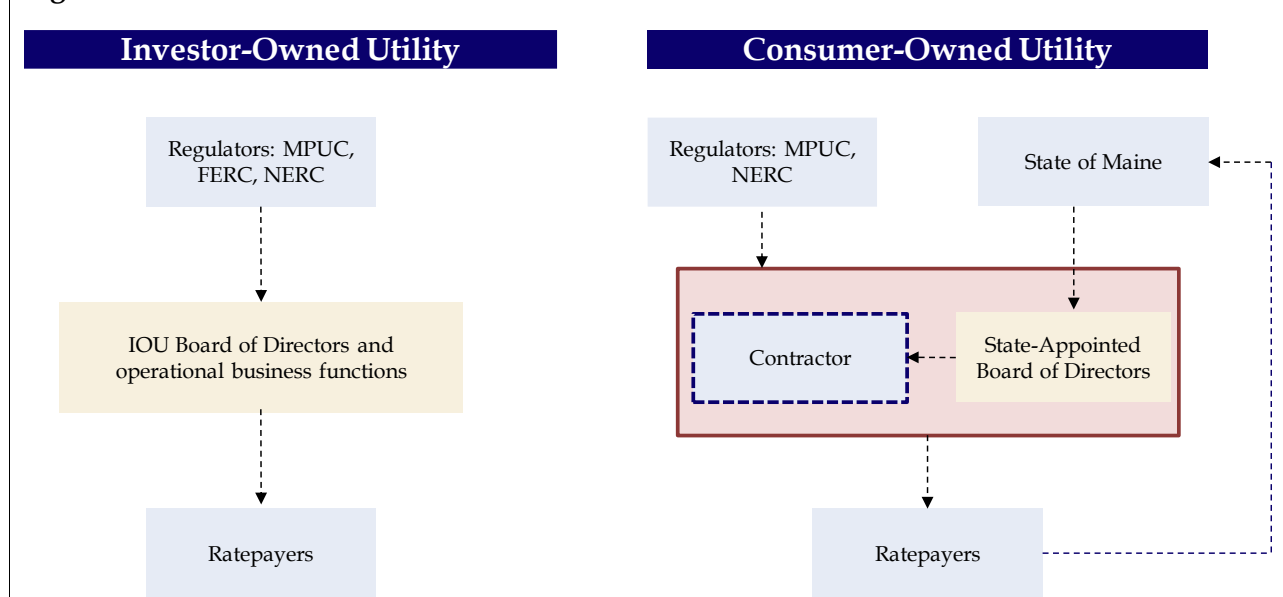
Finally, the last three sections of LD 1646 reiterate that MPDA is a public instrumentality and performs a government function, but the State is not liable for the debt. The MPDA also cannot be dissolved or cease operations without paying off all debt and only by authorization of law. The MPDA is also expected to annually report to the joint standing committee of the Legislature regarding its present and future activities, and performance in meeting obligations to ratepayers and employees.

4 Creation and Governance of the MPDA

The model reflected in LD 1646 is a public authority, generally similar in structure to the Maine Turnpike Authority (“MTA”), which would have assets, powers, and responsibilities to the public. Rather than own, operate and bill for the use of transportation infrastructure, the MPDA would own and operate electric T&D assets, and bill electric ratepayers for the usage of those electric transmission and distribution infrastructure. Also, like the MTA which is subject to certain environmental regulatory requirements of the State, the MPDA would be subject to utility regulation as a COU (and the reliability requirements of the National Electric Reliability Corporation or “NERC”).

Figure 9 shows the regulatory structure of an IOU versus the MPDA. Under the IOU model, the IOU provides services to ratepayers and is regulated by the MPUC, FERC, and NERC. Under the MPDA COU model, the MPUC will still have overall regulatory responsibility for overseeing the utility, the Governor of Maine will appoint the MPDA Board, which in turn oversees the private contractor which will operate the utility.⁴¹ The contractor ultimately is providing services to MPDA, the cost of which is being recouped from ratepayers.

Figure 9. IOU Vs COU



4.1 Creation of MPDA

The creation of the MPDA and its establishment as a provider of transmission and distribution services in the status of a public utility requires careful consideration of the process by which it enters the energy sector and the resulting regulatory structure.

⁴¹ NERC will also have jurisdiction over specifically designated areas regarding reliability.

4.1.1 Board guidelines

The MPDA would be a public instrumentality of the State and governed by a Board organized in accordance with the provisions of the legislation.⁴² There may be statutes of general applicability to authorities and boards, and similar entities created by the State, which may warrant review to assure that they do not give rise to any concerns or issues, given the nature of the MPDA and its potential activities. For example, given the importance and high visibility of the activities of the MPDA and its Board, consideration might be given to assuring that conflict of interest provisions of general applicability to state officials are applicable and sufficient in the circumstances of the MPDA. Once there is a final decision on the composition of the Board of the Authority, it is recommended that the Legislature consider the establishment of standards of conduct for the Board, as there are standards of conduct for boards of private corporations, standards of conduct for public utilities (e.g. utility insider transactions under 35-A M.R.S.A. §709), and the conflicts of interest statutes currently applicable to the MPUC.

4.1.2 Timing of utility status

Section 4003(1) is clear that the MPDA will be a COU and therefore subject to the regulation by the MPUC as a COU under Title 35-A. In fact, the current wording of Section 4003(1) suggests that the MPDA will be a COU, subject to MPUC jurisdiction, on the day that it is created, even though, at that time, it may not be operating as a public utility and might not be doing so for some extended period of time because it will not yet have assets and will not yet be able to provide services. The common definition of a public utility is that it is an entity, “owning, controlling, operating or managing” utility plant for compensation. The MPDA may not meet this traditional definition for some period of time. The Legislature may want to give further consideration to the merits of immediate utility status.

4.1.3 Entry regulation

LD 1646 proposes to create an entity that would provide electric transmission and distribution service in the areas currently served by Maine’s two large investor-owned electric utilities. There is no serious dispute that the State has the authority to create a public entity that may engage in such activity. However, some may argue that creating and allowing such an entity to serve in the areas currently served by the IOUs violates a “monopoly” or “franchise” which the IOUs is believed to presently hold. In the first instance and as noted earlier, the State does not have an obligation when it charters an entity or grants a franchise, to keep that franchise in perpetuity. (See *Charles River Bridge*, and *Me. Const.*, Art. 4, Pt 3, Sec. 14., *supra*)

In Maine, public utilities do have statutory protection from competition in a geographical area from another similar utility, but only unless and until the PUC determines that the public convenience and necessity requires that a “second utility” also be able to serve in the same area. As described in *Maine Regulation of Public Utilities*, Verrill Dana LLP, 2018 Edition, Ch. 5, and discussed earlier, in the 19th century public utilities were chartered by the Maine Legislature by

⁴² LD 1646, Section 4002(1).

the enactment of a private and special law, and granted a service territory in which it was the sole utility. Maine's large investor-owned electric utilities started as chartered utilities serving a discreet area in the State and grew over time through mergers and acquisitions of chartered entities and private companies.

Under existing law, if the MPDA were created, it would appear to be required to file a petition with the MPUC for a certificate of public convenience and necessity to provide service in the area currently being served by the IOUs. Furthermore, under existing law, the IOUs would appear to have the right to contest that petition under current law. This report suggests that LD 1646 may require clarification as to the applicability and relationship of Section 2102/2105 to the commencement of service by MPDA. In particular, should the MPUC be required to decide if service by MPDA is required by the public convenience and necessity, or by some other standard; or should the Section 2012/05 process be bypassed and the MPDA authorized by legislation to provide service in the IOUs' service areas, without the need for MPUC process and approval?

As seen in the Comments filed with the MPUC (which are similar to testimony filed in the Legislature's consideration of LD 1646), the existing IOUs argue that the creation of the authority and the exercise of powers by the authority violate constitutional criteria. However, the fundamental question with regard to constitutional analysis is whether there is a rational basis for the legislation and whether it is applied fairly. The courts have been deferential to legislatures with regard to the creation of public power authorities, and they have found that such authorities could be validly granted the power of eminent domain. While it may be considered difficult for litigation to prevail in derailing an MPDA, it is likely that the IOUs would seek judicial review of any statute that is enacted. Any such litigation would result in substantial costs and delays, and possible unexpected outcomes. Such potentials for litigation, and for delays and costs should be kept in mind in crafting any legislation.

4.2 Selection of MPDA Board members

As written in LD 1646, the Board composition represents a wide variety of stakeholders, but not necessarily customers of MPDA. This diversity could ensure the representation of broad interests in Maine. However, the Board is not selected by the actual members of the MPDA COU and does not proportionately reflect the actual customers of the IOUs. As a result, two problems can arise.

Firstly, if LD 1646 is committed to "local control," then the current process for Board selection may not be suitable. Despite attempting to balance different interests in Maine through a legislatively determined Board-composition, the MPDA would still resemble a state-owned enterprise in which Board appointments are determined by the Governor. Secondly, because the MPDA Board would represent the interests of many different stakeholders, who may have conflicting objectives, issues in planning, operations and rate-setting may arise. It is conceivable for example, that the Board member representing labor groups and the Board member representing industrial customers may have conflicting views about increasing rates to meet higher labor cost needs. As a result, board members may be placed in a situation of potential conflict between their overall fiduciary duty to the Board and the stakeholder interests from which they were necessarily selected.

The most obvious alternative to legislatively mandating the Board composition and having the Governor appoint board members would be to allow customers of the MPDA to elect Board members. This achieves “local control” (as customers directly choose board members) and should better represent geographical diversity and customer type diversity. Although some stakeholders (like customers of other COUs and labor representatives) would be omitted, an elected board should represent the broad interests of MPDA’s customers.

4.3 Regulation of the MPDA

As noted earlier, the MPDA is deemed to be a COU and is to be regulated by the MPUC as a COU. Therefore, the MPDA would be subject to the jurisdiction of the MPUC with regard to rates, service, financing, transactions, etc. The MPDA would also be responsible to contribute to the MPUC’s Regulatory Fund Assessment, as is the case with all other public utilities, on a proportional basis.

As a COU, the MPDA would be exempt from some regulatory requirements of IOUs. On the other hand it appears that the Legislature intends the MPDA, which may be stepping into the shoes of the IOUs, will be subject to some regulatory requirements from which other Maine COUs are currently exempted.⁴³ The Legislature may wish to give this additional attention. Of particular significance, COUs are not subject to the suspension and investigation of rate increases applicable if rate changes are filed under 35-A M.R.S.A. §3502, which applies to COUs. Given the size and scope of the impact of rate increases by the MPDA and because the profile of the Board might give rise to concerns of certain specific interests being represented or not represented, the Legislature may wish to reconsider the MPUC’s regulatory role. In particular, the Project Team recommends that the MPDA should be subject to the same regulatory oversight as the IOUs, rather than the special ratemaking treatment currently allowed for COUs, which are much smaller than the MPDA.

The MPDA would also be subject to limited federal regulation and federal requirements. Principal among this body of regulation would be the reliability rules and regulations of NERC. It should be noted also that the transfer or disposition of the assets of an IOU to the MPDA whether by eminent domain or by negotiation would likely require the approval of the FERC pursuant to Section 203 of the Federal Power Act. Generally speaking, under Section 203 an IOU transferring its assets must obtain approval by the FERC notwithstanding the acquiring entity is a public sector entity (e.g. COU) that is not subject to pervasive federal regulation. Therefore, it is recommended that any legislation creating a MPDA should include a provision directing the IOUs to timely file and pursue any required approvals under the Federal Power Act, including Section 203.

Section 4003(6) of LD 1646 provides that the service territories of the authority would remain within the transmission systems to which they originally belonged (i.e. ISO-NE and NMISA, respectively). Subsection 6 states that this may be changed by majority vote of the Board. Therefore, it appears that LD 1646 anticipates that there may be changes with regard to

⁴³ Section 4003(8)(B)

participation of the MPDA in regional transmission systems. Any such changes will require substantial analysis, research and consideration, and financial fees or costs. It may also require a number of years to complete the analysis and to implement any changes. For purposes of the rate impact analyses in Section 7 this report, a continuation of the status quo has been assumed, where MPDA would continue to be part of ISO-NE.⁴⁴

In New England, COU transmission assets in Massachusetts and Connecticut have been turned over to ISO-NE for inclusion in the region's transmission system. In other jurisdictions, COUs with transmission assets have voluntarily "joined" the regulatory regime of the Independent System Operator ("ISO") and, pursuant to these arrangements, have made available their transmission assets to the applicable ISO for inclusion in the transmission systems pertaining to that ISO. The Legislature may choose to authorize the MPDA to enter into arrangements with the ISO-NE, subject to MPUC review.

Similar to the requirement for the approval of FERC under Section 203 of the Federal Power Act, the transfer of assets from the IOUs to the MPDA may require approval of the MPUC under Section 1101 of Title 35-A, (Sale or Disposal of Utility Property) and may also trigger the need for approval of the MPUC under Section 1104 of Title 35-A (Abandonment of Property or Service). The creation and implementation of MPDA should anticipate the potential for these requirements under state law and, as noted, the requirement for approval of the FERC under Section 203 of the Federal Power Act.

⁴⁴ Similarly, Emera Maine's transmission assets in Northern Maine would continue to be part of NMISA.

5 Acquisition of Transmission and Distribution Assets

One factor that will critically determine the impact of LD 1646 on Maine electric ratepayers is the acquisition price of the transmission and distribution assets from the IOUs and how the initial asset acquisition would be financed. There are legal, practical, and financial concerns around the proposed acquisition process and potential acquisition price. Section 4003(5) of LD 1646 states that the MPDA will pay the IOUs the NBV of the utility facilities and any utility property unless there is a mutually agreed purchase price.

The acquisition and asset transfer process have been one of the most often cited complications in completing municipalization initiatives around the US. Of the 64 municipalization projects proposed in the last 20 years, only 11 have been completed, and two of these 11 transactions were unwound and the assets eventually sold back to the IOU.⁴⁵ Of the 11 completed transactions, the vast majority of these cases were smaller in size than the MPDA in terms of network assets, customers served, and NBV. The typical time to complete the acquisition and asset transfer ranged from four to five years. The table below shows highlights some of these completed municipalization since 2005, including the time elapsed between proposal and completed, and the reported cost at acquisition. The City of Boulder, Colorado is currently undergoing an effort to form a city-owned utility. This effort was launched in 2011 with voter authorization. In 2019, the Colorado PSC authorized the transfer of Xcel assets to Boulder, but the transaction has not yet been completed, in part due to issues around the acquisition price. The City of Boulder offered Xcel \$94 million for the assets in November of 2019;⁴⁶ this latest offer follows two previous offers (an initial offer of \$68.5 million was based on the appraisal including assets inside substations; in June 2019, the City of Boulder increased its offer to \$82 million).

Figure 10. Municipalizations completed across the US since 2005

Municipality	Previous Supplier	Year Est.	Duration	Acquisition Price
Jefferson County, WA	Puget Sound Energy	2013	4 years, 5 months	\$109 million (2.2x NBV)
City of Egegik, AK	Egegik Light & Power Co.	2012	Approx 2 years	\$50,000
City of Atka, AK	Andreanof Electric Corp.	2008	Approx 1 year	\$50,000
Island Power, Pittsburg, CA	Former Military Base	2006	N/A	\$50,000
Winter Park, FL	Progress Energy Florida	2005	Approx 4 years	\$42.3 million

Source: LEI research based on the trade press and filings with the respective public utility commissions.

Note: The Alaska and California examples above were small transactions in which assets were acquired for \$50,000 although the NBV was in some cases considerably lower (as low as \$1.00).

The sections below discuss the legal, financial and operating concerns of the acquisition process as laid out in LD 1646.

⁴⁵ Concentric Energy Advisors, *Preliminary Feasibility Study City of Pueblo, Colorado Municipalization*. September 2019.

⁴⁶ Notice of Intent to Acquire and Final Offer. (November 20, 2019)

5.1 Legal concerns

The acquisition of the property of the existing IOUs raises questions of constitutionality if the MPDA were to try to use eminent domain to take the assets of the IOUs as well as questions regarding the compensation that would be provided to the IOUs (e.g., the acquisition price).

5.1.1 Constitutional authority to take property

It comes as no surprise that it is general law and practice that public entities (e.g. MTA) and utilities are granted authority to take property by eminent domain.⁴⁷ It is clear that the State has the power to regulate and control public utilities, subject to constitutional constraints. The question presented is whether any such requirement to abide by the Constitution would preclude the exercise of eminent domain authority by MPDA. The Constitution of Maine incorporates two provisions that act to limit the power of the State to take private property.⁴⁸ Article I, Section 6-A (the "Due Process" clause) states, "No person shall be deprived of life, liberty or property without due process of law... ." Separately, Article I, Section 21 (the "Takings" clause) states, "Private property shall not be taken for public uses without just compensation; nor unless the public exigencies require it."

Substantive due process insures that property is not taken arbitrarily or without sufficient cause.⁴⁹ Requirements of due process exact that the law shall not be unreasonable, arbitrary or capricious and that the State's police power can be properly exercised only where there is a reasonable relationship to the "public health, safety, morals or welfare."⁵⁰ Thus, if the action is one over which the State retains legitimate interests and authority, there is a rational relationship between the objective being pursued and the mechanism taken to accomplish it, and the private rights affected have not been intruded upon in an arbitrary and capricious manner, the requirements of substantive due process will be found to have been met.

The Takings Clause in the Maine Constitution requires a "public use" and "public exigencies." In assessing the constitutionality of a statute under the public purposes clause of the Maine Constitution, the court undertakes an inquiry to determine whether the legislature had a rational basis for its conclusion that the potential benefits to be derived by the public from the enactment

⁴⁷ Sometimes statutory grants of eminent domain authority to a public utility are not applicable to the taking of the property of another utility, or at least not without prior approval of the MPUC. (See, for example, 35-A M.R.S.A §6408 & § 6501(3)(B).) Evidently, LD 1646 intended no such limitation.

⁴⁸ This discussion borrows substantially from the legal analysis of the Public Advocate which was incorporated by reference into the MPUC's December 31, 1996 Report on Restructuring and Divestiture.

⁴⁹ It has been said that the "substantive demands of due process require that the means employed must not exceed the public need or substantially affect uses which do not partake of offensive character of those which cause the problem sought to be ameliorated." *State v. Rush*, 324 A.2d 748, 755 (Me. 1974).

⁵⁰ *Inhabitants of Town of Boothbay v. National Advertising Co.*, 347 A.2d 419, 422 (Me. 1975)

of the statute outweighs the detriment.⁵¹ This interpretation of the “public use” requirement found in the Takings Clause of the Constitution of Maine is in keeping with the US Supreme Court's interpretation of identical language in the Takings Clause of the US Constitution.⁵²

While the Constitution of Maine also makes explicit that a “taking” must be required by the “public exigencies,” this has been interpreted to be a proscription against arbitrary action. In general, the courts have given deference to state determinations of the need for a taking to occur. The “question of determining exigency has long been considered to be a political decision for the Legislature to make, free from judicial review (unless it can be said there is no rational basis upon which exigency could be found).”⁵³

5.1.2 Just compensation

It would appear that the more difficult question to be faced with regard to the grant of eminent domain power to the MPDA in LD 1646 is the second corresponding question: i.e., what amount of compensation does the Constitution require the acquiring entity to pay to the owner of the property which is taken by eminent domain? The literature and the case law show that there are various criteria which may be applied and there are various economic and accounting methodologies which may be applied in determining what constitutes “just compensation” in particular circumstances and that often there is controversy regarding the correct method and how the method is applied. The testimonies of CMP and Emera regarding LD 1646 illustrate the complexity and difficulty involved in resolving the compensation issues. Accordingly, the testimonies of CMP and Emera are also likely correct when they state it may take extensive time for the compensation issues to be resolved through the condemnation process, litigation and subsequent appeals to the court.

Resolution of the issue of just compensation is of major significance. The purchase price will have a significant effect on the amount of funds necessary to finance the MPDA and consequently the level of rates that would be charged, as discussed further in Section 7. LD 1464 suggests, and proponents argue, that an appropriate price would be NBV. The IOUs have argued that a market-based price is required by constitutional provisions, which they suggest may produce a price closer to double NBV. The wide difference between these two positions appears to be on the order of approximately \$3-\$4 billion.⁵⁴ This report is not in a position to identify a specific value of the

⁵¹ Opinion of the Justices, 601 A.2d 610, 619 (Me. 1991). See generally, *National Hearing Aid Centers v. Smith*, 376 A.2d 456, 460 (Me. 1977) (“rational relationship” all that is required to support use of state's police power).

⁵² See, e.g., *National R.R. Passenger Corp. v. Boston and Maine Corp.*, 503 U.S. 407 (1992), *aff'd in part, dismissed in part* 976 F.2d 1444 (DC Cir. 1992).

⁵³ *Ace Ambulance Service, Inc. v. City of Augusta*, 337 A.2d 661, 663 (Me. 1975).

⁵⁴ As a reference, net utility plant value of CMP and Emera Maine as of end of 2018 amounts to \$4.5 billion based on FERC Form 1/1-F, FERC Form 3/3-A and EIA 861 filings.

appropriate acquisition price. In the quantitative analysis presented in Section 7, LEI used a range of acquisition prices from 1x NBV to 2x NBV, at 0.1x NBV intervals, to conduct the analysis.

In addition to the likelihood of litigation and appeals in the courts, the procedures and timetable anticipated by LD 1646, itself, potentially contribute to prolongation of the process and a lengthy period of uncertainty. LD 1646 requires that initially there be a period of one year or two years during which the authority and the IOUs would engage in negotiations (there is also a process for the IOU to appeal the decision of the MPDA to offer a price.) If a purchase is not accomplished within that one- or two-year period, then the MPDA is authorized to take the property by eminent domain. These preliminary steps may likely prolong the period of uncertainty further.

Moreover, if eminent domain is to be exercised, LD 1646 requires that the eminent domain would be conducted “in the same manner and under the same conditions as set forth in chapter 65” of Title 35-A of the MPUC statutes. Chapter 65 follows a process common for the exercise of eminent domain generally used in Maine to acquire discrete segments of property. LD 1646 contemplates the acquisition of ongoing multi-million-dollar infrastructures and operations. The Chapter 65 process begins under Section 6502 with a filing to be made with the relevant County Commissioners and to then be recorded in the local Registry of Deeds, which in the case of the IOUs could constitute every county in the State. It is generally understood that upon the filing with the Registry of Deeds, title to the property is vested in the taker.⁵⁵ Thus, it may be expected that the filing itself will trigger litigation at that time with regard to the legality of the taking itself, let alone litigation over compensation.

After the filing has been made, the owner of the property being taken has a period of three years to file an application with the County Commissioners to determine the amount of damages to be paid by the party taking the property. (35-A M.R.S.A. § 6503.) Thus, it is possible that the process for determining damages might not even start for a period of 3 years after the taking is consummated, which may put the litigation now out 4 to 5 years from when it started.

After the County Commissioners render a decision on the amount of the compensation, that county decision is appealable to the Maine Superior Court for that county (35-A M.R.S.A. §6507), which might initially involve multiple appeals to multiple courts. Moreover, it can be well expected that any Superior Court decision will ultimately be the subject of an appeal to the Supreme Judicial Court of the State of Maine. Litigation in the courts could add another year or two or possibly more time before a final decision is reached, particularly if the matter is remanded for further action below. In the meantime, the MPDA may be in possession of property for which it does not yet know the final price – if investors are willing to lend to MPDA to acquire assets that would potentially need extra funding to complete the transaction. This generally means a higher cost of debt for the initial acquisition to compensate for higher risk the investors would face. If the final price ends up being materially higher than initial price, MPDA would have to raise additional debt to finance such additional payment, which would reduce potential ratepayer savings or even result in dis-savings, without any opportunity to roll-back the acquisition.

⁵⁵ See, e.g. 23 M.R.S.A § 154.

It could be years after the fact before the MPDA knows the final cost to acquire the IOU assets. It is beyond the scope of this Report to identify the specific acquisition price. However, given current legal precedent as to pricing methodologies and trading price of utility companies, as presented in Section 7.4, it would appear that the price likely includes a premium above NBV.

It is inevitable that resolution of these issues will require the application and consideration of expert analyses and testimony, arguments by lawyers, and decision by judges. In consideration of the substantial time and uncertainty, it is recommended that the Maine Legislature consider amendments to LD 1646 to enable an alternative acquisition process. Moreover, it is highly recommended that the acquisition issues (both methodology for setting/negotiating the compensation and price determination) be resolved to the extent possible before other major actions are taken (especially before property of the IOUs is taken).

A potential model for an alternative process may be found in the *Rangeley Water Company/Rangeley Water District* case reported at 1997 ME 32, 691 A.2d 171 (1997). The Rangeley Water District was formed in 1992 by the Legislature under P.&S.L., Ch. 72 (691 A.2d at p. 174). Chapter 72 granted the District eminent domain authority to take property on a forward going basis in accordance with procedures similar to Chapter 65, with the exception that the District was required to follow a different specified process if it were to take the property of the existing Rangeley Water Company. (Ch. 72, Sections 5-8, & 13.) The process established by Section 13 of the Private and Special Law included a proceeding which might employ the services of a “referee,” an expert in such matters. The issues before the referee in the Rangeley case were twofold: (1) what was the appropriate methodology to be used and criteria for judging value in determining the just compensation and (2) when that methodology or methodologies are used, what is the result?

As a review of the literature and legal cases will show, there are a variety of possible methodologies for determining fair compensation or fair market value of assets and a variety of opinions as to which is the correct methodology to be applied in a particular circumstance. The resolution of correct methodology and its application are a mixed question of law, economics, accounting, and a great deal of judgment. In its appellate decision in the *Rangeley* case, the Maine Supreme Court noted that there were at least three methodologies which may be appropriate for determining just compensation in the circumstances of the taking of the utility property in question. The Court stated, “We have previously approved the use of three standard methods of valuation: the ‘comparative’ method, the ‘income or capitalization’ method, and the ‘reproduction cost less new depreciation’ or ‘cost’ method.” (691 A.2d at p. 175.) The Court went on to note that while all three methods might be employed, often only one or two might actually be usable.⁵⁶ It is the view of the Project Team that the valuation issue should be determined by a

⁵⁶ The Court also quoted (691 A.2d at p. 178) a Florida decision suggesting a dissimilarity between ratemaking concepts and the just or full compensation standards which govern in the case of eminent domain. This discussion by the Court may seem to call into question the likelihood of use of NBV for valuation purposes in the case of eminent domain being exercised by the MPDA. Nonetheless, there may be circumstances, not yet articulated, where NBV or a variant may be relevant to the analysis.

formal legal process rather than by the legislative process, because it is essentially governed by constitutional standards.

Under Chapter 72, the process for taking the property of Rangeley Water Company started with the filing of a condemnation order in the county Registry of Deeds. At the same time a check in the amount of damages determined by the trustees of the water district was provided to the owner. Unlike Chapter 65, there was no involvement of the County Commissioners in determining damages. Rather, the owners of the Rangeley Water Company were allowed to appeal the matter directly and immediately to Superior Court. The Legislature then further provided that the Superior Court could determine damages by a verdict of its jury or, if the parties agreed, by the court without a jury, or by use of a referee or referees. An appeal from the decision of the Superior Court could then be taken to the Maine Supreme Judicial Court (in the *Rangeley* case the referee process was used.)

Based on pragmatic considerations, a process modeled on the *Rangeley* eminent domain process should be considered for enabling legislation for the MPDA. Indeed, it would be best that the *Rangeley* process be modified to foster a timely and decisive result, in advance of actual taking or transfer of ownership. Possible steps in such a process might include the following:

- 1) MPDA determines property to be taken and compensation offer to be made
- 2) MPDA delivers notice directly to IOUs of property to be taken and compensation to be paid
- 3) IOUs have 30 days to petition a single designated Superior Court to determine pricing (perhaps the Business and Consumer Court).
- 4) The judge would immediately convene a conference of the parties. The parties and the judge would decide upon a referee or referees with expertise and capabilities to decide both the appropriate methodology and the application of the methodology.
- 5) The judge and the parties would also establish an expedited schedule for a trial or hearing to be held for presentation of evidence to the referee (or possibly agree to a less formal process). The matter would then be heard by the referee and the referee would make a decision. A referee's decision would then be submitted to the court and the parties be allowed an opportunity to file exceptions.
- 6) The Superior Court would make a decision within 30 days. The decision of the Superior Court would be appealable to the Maine Supreme Judicial Court on an expedited basis.
- 7) After any appeals are resolved and a final decision exists, the MPDA would have one year to file a notice of condemnation in the respective county registries of deeds and take the property. The MPDA would be required to file descriptions of the properties being taken in the Registry of Deeds and to make payment in the amount

of damages determined through the referee/judicial process, unless another price were negotiated between the parties.

5.2 Financial concerns

The acquisition price also leads to three concerns related to the financing and ratepayer impact of MPDA:

- whether debt raised to acquire existing properties is tax-exempt;
- whether acquisition premium over NBV of the acquired assets can be included in the rate base for revenue requirement calculation; and
- whether a large acquisition premium would offset any potential ratepayer savings driven by lower financing cost of MPDA relative to the IOUs.

In this section, LEI focuses on the analysis related to second issue. The first and third issue is discussed further in Section 7, where LEI presents its quantitative ratepayer impact analysis findings.

As discussed in high level in Section 2.3, utilities are entitled to earn a fair and reasonable rate of return on their capital investment. However, when it comes to rate setting, that “capital investment” might, in certain circumstances, not include an acquisition premium (i.e. price paid for purchasing assets over their NBV or historical cost basis less depreciation) for transmission and distribution assets.

As the MPDA would be a COU, its distribution rates would be under the regulation of MPUC, and therefore subject to the MPUC’s decision on whether acquisition premium can be included in the rate base for purposes of revenue requirement calculation. In Section 303 of Title 35-A, the Legislature has addressed the issue of inclusion of an acquisition premium in the valuation of utility property for the purpose of determining rates: “[T]he commission shall give due consideration to evidence of the cost of the property when first devoted to public use and the prudent acquisition cost to the utility.” Therefore, it appears that the acquisition premium may be included in the determination of distribution rates for the MPDA if the MPUC finds that the incurrence of the cost was prudent. For transmission rates, which is under FERC jurisdiction in the Status Quo scenario, FERC has stated in Docket AC11-46-000 that:

*“[t]he Commission has a long-standing policy related to the recovery of acquisition premiums, including goodwill, through rates. Under Commission policy, **rate recovery of an existing facility is generally limited to the original cost of the facility and recovery of acquisition premiums including goodwill in cost-based rates is allowed only if the acquisition is prudent and provides measurable, demonstrable benefits to ratepayers....** Absent express authorization to recover acquisition premiums and goodwill, the Commission requires removal of the effects of acquisition premiums and goodwill from a utility’s cost-of-service; ratepayers should not be affected by any amounts related to acquisition premiums, including the increase of equity amounts used to determine formula rate billing, through the inclusion of goodwill without a proper*

showing to the Commission. In addition, the Commission has explained in its Merger Policy Statement that it historically has not permitted rate recovery of acquisition premiums.”⁵⁷
(emphasis added)

In LEI’s quantitative analysis of LD 1646’s rate impact, we assume MPUC would allow the MPDA to include an acquisition premium into its distribution revenue requirement calculation.

There are also further complications towards whether this FERC policy can be directly applied to transmission rates of MPDA:

- MPDA would be considered a COU under LD 1646, and pursuant to various provisions of the Federal Power Act, a COU’s transmission assets are not subject to regulation by FERC;
- While MPDA is not directly subject to FERC rate regulation, if MPDA continues to participate in ISO-NE’s transmission network, then MPDA’s transmission rate would continue to be governed by ISO-NE’s OATT – however, this is a commercial arrangement instead of typical regulation;
- Since ISO-NE’s OATT socializes transmission revenue requirement throughout ISO-NE states, this means that the inclusion of the acquisition premium in the rate base to calculate transmission rates would impact transmission rates of non-Maine electricity consumers – and it is unlikely that non-Maine transmission owners and electricity consumers would support this.

Regardless of whether the acquisition premium can be included into MPDA’s asset base for transmission revenue requirement calculation, the acquisition premium would nevertheless be funded (at least initially) by interest bearing debt. This means if the acquisition premium is excluded from the rate base, then the transmission business of MPDA alone may not be able to collect sufficient revenue to cover its principal and interest expense. However, this is not the current situation in ISO-NE. ISO-NE’s IOU transmission owner return on equity is currently set at 11.07% as approved by FERC,⁵⁸ with the cost of debt depends on the borrowing cost of the individual IOUs. However, municipal transmission owners (“MTOs”) do not have equity and therefore the FERC approved return on equity does not apply to MTOs. Instead, in transmission rate case filings, the New England MTOs use an 8.0% cost of capital rate when calculating MTOs’ “investment return plus income taxes” for transmission revenue requirement calculation. This 8.0% return is based on an Interpretive Guidance issued by the New England Power Pool

⁵⁷ 140 FERC ¶ 61,034, Docket No. AC11-46-000, paragraphs 30 and 31

⁵⁸ ISO-NE. “Executive Summary – Status Report of Current Regulatory and Legal Proceedings as of February 5, 2015” There is currently a transmission rehearing on ROE in front of FERC (Docket Nos. EL14-12-003, EL 15-45-000) which would potentially change the method FERC determines whether a utility’s ROE is just and reasonable. Discussion of such potential impact is presented in Appendix C.

("NEPOOL") issued in 2002 during an RNS Rate Audit.⁵⁹ Whether this 8% return on capital is directly applicable to MPDA's transmission business is an uncertainty, depending on both FERC's jurisdiction and other ISO-NE's transmission rate making process. In summary, there are three uncertainties surrounding the acquisition price and how it impacts MPDA's transmission business revenue requirements: (i) whether the 8% return on capital of other ISO-NE MTOs are applicable to MPDA; (ii) which entity / regulator has the authority to determine the above two issues; and (iii) whether acquisition premium can be included as part of the rate base for transmission revenue requirement calculation.

The uncertainties above present a problem that is complex and time consuming to resolve. In the impact assessment model used to evaluate the economic impact of LD 1646 towards ratepayer and other stakeholders, LEI assumed the precedence set under the current regulatory environment is continued: (i) the allowed return on transmission based on the 8% return on capital as currently used by other MTOs in ISO-NE, and (ii) the acquisition premium is excluded from the transmission rate base for revenue requirement calculation.

5.3 Operating concern

If the Maine legislature decides to go forward in creating MPDA without first creating a clear framework on how the acquisition price of the IOUs would be settled in an agreeable and timely manner, then the acquisition process would likely be contentious, complicated and lengthy. This may create a concern with regards to the going-forward operations of the electric grid, as the IOUs may cut back on seeking our operating efficiency gains, and reduce their innovation and strategic long-term planning efforts during the litigation or negotiation period if they feel there is significant uncertainty about their future ownership status and low likelihood of recovery of their value added efforts because their ownership will be cut short.

A long and contentious acquisition process may also reduce the attractiveness to existing staff and potential contractors that would operate and administer MPDA's assets, as the asset quality may be poor when they take over its operations. Uncertainty as to when the transaction would be complete means the contractor may need to be idle for some period of time after having been awarded the contract – such a situation may increase the risks for the contractor (which would be reflected in the management fee). In addition, there is the possibility of attrition from existing employees that may choose to leave in the face of uncertainty (both unionized and non-unionized labor).

⁵⁹ NEPOOL. "Interpretive Guidance as to Certain Questions Arising in the Context of the RNS Audit Mandated by the Settlement Agreement Reached in the Tariff Docket" April 19, 2002 RNS Rate Audit Report Appendix D.1. In the section titled "Implementation Rule Section II.A.2 (Cost of Capital Rate)" stated that "RSI has raised a question with respect to calculation of the "Weighted Cost of Capital" with respect to an MTO, particularly concerning long term debt (Section II.2(a)(i)). For purposes of the RNS audit, the Weighted Cost of Capital for an MTO shall be a proxy of 8.00%, consistent with the requirements of applicable state law."

6 Operations of the MPDA: Contracting, Labor and Performance

As stated in Section 4003(3), the MPDA will “contract by means of a competitive public solicitation the services of a qualified nongovernmental entity” to provide operations and administrative services. The existing responsibilities for operations and administrative services (including reliability and technical performance of T&D assets) of the IOUs would effectively transfer to the contractor hired by the MPDA Board. Subject to the decision of the Board, executive management services may also be requested of the contractor. While the MPDA is not a merger of the two existing IOUs, the transfer of responsibilities will potentially obviate the need for some services and administrative functions at the current IOUs. As such, LD 1646 includes certain protections for unionized labor.

This section of the report discusses the Project Team’s observations around the contractor, employee requirements, possible synergies, and impacts on reliability.

6.1 Contractor

As noted earlier, the contractor is a qualified nongovernmental entity responsible for operations and administration. Thus, it appears contemplated that the MPDA itself will consist essentially of the Board and that all “employees” will actually be employees of the contractor, potentially including executive management. The contractor retained by the MPDA would be considered “private employees,” with the rights and responsibilities of private employees. As private employees, the contractor would require fair compensation that could be similar to that already received by the IOUs. This includes a profit margin that would be passed along to the MPDA. Consequently, LD 1646 as written does not shield ratepayers from paying a profit margin and guarantee lower operational costs. Ultimately, any ratepayer savings (benefits) from having the MPDA and a contractor (instead of an IOU) would depend on whether fair compensation as determined by the contractor is higher or lower than the regulated returns on equity allowed in rates for the IOUs.

For example, CMP and Emera Maine have historically been earning a realized post-tax return on equity of 6.9% to 7.5%,⁶⁰ and post-tax return on assets of 2.9% to 3.0%.⁶¹ In comparison, PSEG Long Island’s management fee for operation of the LIPA system is equivalent to less than 1% return on assets (notably, the LIPA system is larger than the Maine T&D system).

Another instructive example of the management fee can be taken from the Independent Distribution Network Operators (“IDNO”) in the UK, which compete for management of distribution networks. In the UK, there are two types of distribution network companies:

⁶⁰ Calculated based on net income/total proprietary capital in 2014-2018 based on FERC Form 1/1-F, FERC Form 3/3-A and EIA 861 filings.

⁶¹ Calculated based on net income/total asset in 2014-2018 based on FERC Form 1/1-F, FERC Form 3/3-A and EIA 861 filings.

Distribution Network Operators (“DNO”) which own and operate the major distribution networks, and IDNOs that can compete against the DNOs for certain services. Under the regulation set by UK’s Office of Gas and Electricity Market (“Ofgem”), DNOs must charge a 4% regulated margin on contestable services,⁶² and IDNOs can compete against DNOs to provide such services. Based on LEI’s calculation, if this contestability concept is applied to MPDA, the 4% margin would imply a management fee ranging from slightly less than 1% to 1.5% of the rate base of the MPDA, depending on the year analyzed.

There are only a limited number of operators in the world that have the capability and experience to operate a T&D system reliably and are willing to operate under a contractor model. If such firms are not willing to offer their services unless a certain minimum contract value is met, then the management fee as a percentage of the asset under management would be high.

In recognition of the need to seek out efficiencies and reduce the rates, LD 1646 requires that the contractor be selected by means of a competitive public solicitation. The purpose of procuring the contractor through a bidding process is to “introduce an element of competition and to provide greater flexibility for performance-based compensation.”⁶³

However, LIPA’s experience of running a competitive solicitation could be instructive as to the lengthiness of this process. In the case of LIPA, a competitive solicitation process was launched in June 2010, and the selected contractor, PSEG, only took control of day-to-day operations beginning in January 2014.⁶⁴ The MPDA would likely require significant time (and potentially costs) to establish a solicitation process, evaluate proposals, and finalize contract negotiations. Nonetheless, it should be noted that LIPA customers appear to be experiencing better service with the current management structure. Customer approval has considerably improved, with over 90 percent satisfaction levels.⁶⁵

It is beyond the scope of this report to consider and recommend a specific structure for the competitive tender and the design of the agreement between the MPDA and the contractor, but the Project Team emphasizes that this is an important driver of future outcomes. Therefore, the Project Team recommends that the Legislature undertake studies to better understand and

⁶² Ofgem, *A Guide to Electricity Distribution Connections Policy*. <<https://www.ofgem.gov.uk/ofgem-publications/87259/guideelectricitydistributionconnectionspolicy.pdf>>

⁶³ Notes from Representative Seth Berry.

⁶⁴ Before 2014, LIPA’s electric infrastructure was run under its own name, though KeySpan operated its electric infrastructure under a prior management contract with LIPA until 2007. In 2007, KeySpan merged with National Grid USA and National Grid began operating the electric infrastructure portion of LIPA’s business until December 31, 2013.

⁶⁵ LIPA, *Long Island Power Authority Evaluation of PSEG Long Island Performance and Incentive Compensation*. <<http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7B884B2A56-7A9D-4183-8D97-2999979EE365%7D>>.

evaluate the options around the competitive tender and the most appropriate contractual arrangements for the MPDA.

The contractual arrangements will also include the management fees demanded by potential contractors and the risks involved. If there is a potentially heavy penalty for non-performance, contractors would demand a higher management fee to offset the penalty risk. The level of risk faced by the contractor depends on certain contract terms, including, but not limited to, how much of the O&M and capital investment overspend/underspend are shared by the contractor, and how much of the management fee is fixed vs variable.

As one of the main motivations for creating the MPDA is to improve the performance of the electric sector in Maine, LEI expects the agreement terms offered to potential contractors would have material performance incentives/penalties. This means that the management fee could be higher than 1% of assets under management (which is what LIPA's current contract with PSEG reflects).⁶⁶

6.2 Union requirements

Specific provisions for unionized labor exist in LD 1646 to mitigate detrimental impacts of establishing the MPDA for current employees that have bargaining agreements with the Maine IOUs. According to Section 4003(4), the "contractor shall hire any person who was an employee of the investor-owned transmission and distribution utility at the time the authority acquired the investor-owned transmission and distribution utility." The hiring requirement of all qualified union labor of the IOUs also had a time requirement for five years after beginning operations.⁶⁷ This means that it is unlikely that unionized labor should expect negative financial impacts at least for the first five years. And the contractor would also be limited in its ability to reduce labor-related costs of operation.

In addition, there is an equivalency requirement such that if two or more union contracts exist, the wages, salaries, and benefits of union employees must at least be equal to the higher of those provided in other IOU's union contracts. Based on data received from the IOUs as part of the Project Team's data requests, the equivalency requirement will result in an increase in benefits and wages to Emera Maine unionized employees. However, LEI estimates that the equivalency

⁶⁶ Under PSEG Long Island's current contract with LIPA, PSEG Long Island's performance incentive was 13% of its total management fee on average from 2016-2018. In terms of customer size, LIPA is approximately three times the size of CMP and Emera Maine combined. Therefore, the low management fee charged by LIPA could also be due to its relatively large size.

⁶⁷ LD 1646 also states that if otherwise qualified, any such employee may not be terminated as a result of the 5-year period expiring. The contractor shall honor and maintain the terms of any collective bargaining agreements in effect at the time the authority acquired the investor-owned transmission and distribution utility for the remaining term of any collective bargaining agreement.

requirement would cost only an additional \$3.8 million per year, which is less than 0.5% of the total revenue requirement.

Nonetheless, depending on which policy priority is more important to Maine (continuity of union employment or lower electric rates) - the Legislature may want to amend the clauses in LD 1646 related to unionized labor. The Legislature may also want to provide flexibility for the MPDA Board to determine what kind of union labor requirements it would impose on the contractor to serve the best interests of the ratepayers.

6.3 Loss of IOUs' shared services versus consolidation synergies

While LD 1646 describes protections for unionized labor, it does not explicitly provide measures to how non-unionized employees would be impacted. LEI did not study the extent of how much non-unionized labor in Maine would be rendered redundant as a result of an effective "merger" between CMP and Emera Maine. Shared services and management represent mostly non-unionized labor.

The IOUs argue that under the MPDA, loss of shared corporate services would result in higher costs for ratepayers. This is because many of the shared corporate services take advantage of scale economies and are based on allocation of services provided by the IOUs' parent companies (i.e. Avangrid/Iberdrola and Emera). For example, CMP notes that it "receives services from Avangrid Service Company, the centralized shared service company for the Avangrid Networks group, Avangrid Management Company, and from other Avangrid affiliates."⁶⁸

While it is possible that the loss in shared services can increase costs, the impact is likely to be muted by realizing some back-office synergies because the back-office systems of just one company would be needed. It is also plausible that contractors participating in the competitive bidding process may also be incentivized to lower their costs by passing through benefits of their own corporate shared services. In addition, the need for only one executive management team can also reduce some of the non-unionized labor costs for MPDA. Synergies other than shared services may also be realized by merging the contiguous service territories of CMP and Emera Maine. These can include non-labor costs such as machinery and equipment. However, because it is unknown exactly who the contractor would be, it is speculative to estimate the magnitude of such synergies or cost increases because of loss of shared services. In Section 7, however, when conducting the financial analysis, LEI conservatively assumes that the contractor would charge through \$32.5 million (in 2018 \$) of expenses associated with tasks akin to those provided by the

⁶⁸ Comments of Central Maine Power, Docket No. 2019-00280.

IOUs under shared services (in comparison, the combined shared services of both IOUs totaled \$33.75 million in 2018).^{69 70}

6.4 Performance and operations

One of the overarching motivators for the MPDA, as described in the preamble to the LD 1646, is that the performance of the IOUs has been disappointing, particularly with regards to service disruptions and responsiveness to customers. However, it is difficult to anticipate how performance would be improved without knowing the direction that the MPDA Board would take, the contractor that they would retain, and the scope of services and requirements in the contractual agreement. Therefore, LEI did not guess at the possibility. However, it is clear that service improvements would require more spending and that would inevitably mean higher rates.

Reliability and spending are frequently in tension with each other. Additional spending and investment could hypothetically increase reliability and improve performance, subject to appropriate incentives of management, such additional spending comes at the cost of higher rates. Independent regulators are typically put in charge of monitoring and regulating the rates and performance of utilities, in order to instill the appropriate balance between the lowest possible costs and acceptable levels of performance and reliability.

Based on empirical evidence from the US Energy Information Administration (“EIA”), the ownership structure of a utility (i.e., customer-owned utility such as a cooperative versus an investor-owned utility) is not a clear-cut predictor of performance.⁷¹ In contrast, economic theory suggests that for-profit versus non-profit is a lever that can be used to incentivize productivity and efficiency and that privately owned firms are more efficient and more profitable than otherwise-comparable state-owned firms.⁷² In fact, LD 1646 anticipates the use of a for-profit contractor to operate the T&D system in order to capture the benefit of such an incentive on operating costs.

Funding of capital investment will, however, be the responsibility of the MPDA, and not the contractor. The MPDA Board will face competing incentives with respect to capital investment.

⁶⁹ In CMP’s latest rate case, the value of shared services was approximately \$32.5 million, while Emera Maine’s was \$1.25 million. Notably a study by Strategy& suggests that shared services could be provided for a cost between \$29.5 to \$35.5 million. MPUC Docket No. 2018-00194. “Examiner’s Report”, January 9, 2020. Page 74.

⁷⁰ The reported historical salary of executive management team of the IOUs was below \$3 million per IOU, based on data submitted on FERC Form 1 filings. We therefore do not assume any significant synergies from merging the management teams in our analysis.

⁷¹ The EIA collected data from Form EIA-861 on frequency and duration of service interruptions with and without major events by type of utility (cooperative, investor-owned and municipally-owned). See: EIA, *Average Frequency and Duration of Electric Distribution Outages Vary by State*. (April 2018).

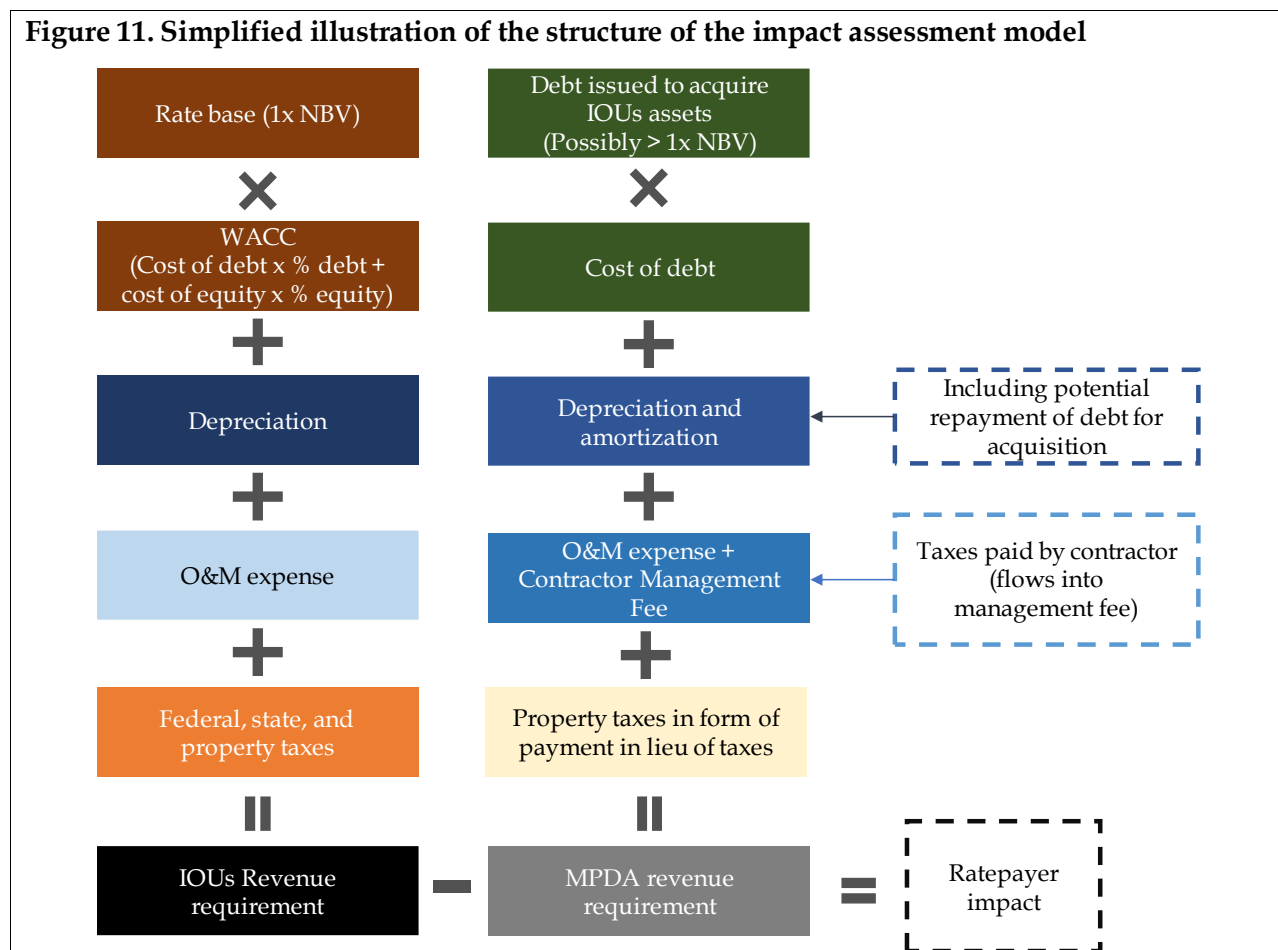
⁷² Megginson, William L., and Jeffrey M. Netter. *From State to Market: A Survey of Empirical Studies on Privatization*. Journal of Economic Literature, vol. 39, no. 2, 2001, pp. 321–389.

For that reason, it would be helpful to continue to have independent regulatory oversight (by the MPUC) over the MPDA's investment and resulting rate decisions (as recommended by the Project Team).

7 Economic cost and benefit analysis of LD 1646 and ratepayer impacts

In order to analyze the economic impact toward ratepayers, utility employees, and government entities in the MPDA/CMP and Emera Maine service territory if MPDA is created, LEI developed an impact assessment model that compares the difference in projected annual revenue requirements for a 'status quo' scenario where the two IOUs continue to operate over 30 years, versus a scenario pursuant to the LD 1646 where the MPDA is created and acquires the two IOUs' T&D assets.

Figure 11. Simplified illustration of the structure of the impact assessment model



Overall, the impact assessment model estimates that, under the Reference Case assumptions, creating MPDA would result in annualized ratepayer *dis-savings* of approximately \$12 million per year over a 10-year time horizon. (or \$118 million in NPV terms at a 3.5% real discount rate). If the analysis period is extended to a 30-year time horizon, creating MPDA would result in a \$8 million per year of *savings* (or \$236 million in NPV terms at a 3.5% real discount rate).

Note that the Reference Case assumes an acquisition multiple of 1.5x NBV. Given the high uncertainty over the acquisition cost, LEI also analyzed the annualized long term and short term savings/dis-savings using a range of acquisition cost multiples (see Section 7.5). For ease of

reference, Figure 12 presents the annualized ratepayer impacts for two alternative acquisition multiples (1.3x and 1.7x NBV).

Figure 12. Annualized ratepayer impact at 3.5% discount rate under Reference Case and two different acquisition multiples

\$million per year in 2018\$ (negative is savings)		Acquisition multiple		
		1.3x NBV	1.5x NBV (Reference Case)	1.7x NBV
Time horizon	Short term (10 years)	(\$15)	\$12	\$37
	Long term (30 years)	(\$29)	(\$8)	\$13

For purposes of understanding these results, if we focus on the Reference Case (with 1.5x NBV acquisition multiple), we observe a key modeling takeaway is that there is a trade-off for ratepayers between the short-term rate increase versus long-term. The MPDA ends up causing rate increases in the first ten years but then rate reductions (savings) in the next twenty years. savings for Maine electric ratepayers as a result of LD 1646.

The impact assessment also shows that the acquisition cost (based on the acquisition price including MPDA's upfront costs), the forecasted rate base growth rate (due to capital investment), and the level of management fee are major drivers that will influence the magnitude and timing of ratepayer savings or dis-savings. Generally:

- the higher the acquisition price and upfront start-up cost, the lower the ratepayer savings under MPDA (if it is high enough, it can even result in rate increases);
- the faster the rate base growth rate, the more likely MPDA would create ratepayer savings; and
- the higher the management fee paid to the contractor, the lower the ratepayer savings – but a higher management fee would also lead to lower state tax revenue losses.

7.1 Overview of the impact assessment model

The impact assessment model achieves this by calculating the revenue requirements of the MPDA scenario versus the Status Quo (continue having two IOUs). Then the difference between the scenarios' revenue requirements is taken. That difference translates into the annual ratepayer benefit or cost.

When forecasting the revenue requirement of MPDA and the Status Quo, LEI assumes that both scenarios would face the same key drivers: rate base growth rate, split in capex for transmission and distribution, operating and maintenance expense (except for potential merger synergies identified), labor cost (except for unionized labor equivalence requirement under MPDA), and borrowing cost if MPDA and the IOUs have the same credit rating.

The last key driver mentioned is especially important – LEI is not assuming that the MPDA and the IOUs would have the same borrowing cost. Instead, we are assuming that if MPDA and the IOUs have the same credit quality, investors would demand the same level of after-tax return when lending to MPDA or the IOUs. However, in the impact assessment model, MPDA’s credit quality would differ from the IOUs as the modeled credit quality metrics change over time, and this would result in a different cost of debt between MPDA and the IOUs.

Furthermore, for comparability between MPDA and the IOUs, LEI made no quantitative assumptions in the impact assessment model about whether, and to what extent, the MPDA and the IOUs would operate differently in terms of economic efficiency, reliability, types of investments made, or quality of the assets built – there is no basis currently to make such assumptions.

7.2 Caveats

It should be emphasized that the impact assessment model represents a simplified view of the future based on a set of assumptions. For example, the data used for initial rate base, operations and maintenance expense, and depreciation estimation are based on commercially available databases originally sourced from FERC Form 1/1-F, FERC Form 3/3-A or EIA 861 filings for the 2018 calendar year. This data source is chosen as it provides a way to ensure consistent financial data for the two IOUs. Therefore, the values used in the impact assessment model may differ from rate case filing materials.

LEI also assumed that MPDA would start operations no earlier than 2024, based on the legal assessment of the time needed to complete the acquisition of the IOUs’ assets, procurement and negotiation with the contractor, and the handover of the assets. Given the complex process anticipated for consummating the acquisition and asset transfer, it is difficult to estimate the time it would take to complete the restructuring. Notwithstanding these reservations, the Project Team could foresee a three- to five-year completion period for the acquisition process. The assessment looks out over 30 years from 2024, in order to allow for analysis of short-term and long-term effects.

For simplicity, the model also does not assume any regulatory lag in approving adjustments to the MPDA’s and the IOUs’ revenue requirement. The transmission business in NMISA owned by Emera Maine is not separately modeled from the rest of Emera Maine’s transmission business due to its relatively small size.

More importantly, the impact assessment model is:

- **not a rate forecast model** – the impact assessment model does not forecast a \$/kWh transmission or distribution rate that would be charged by MPDA or the two IOUs. Instead, it focuses on the major driver that would impact the annual revenue requirements from the two IOUs or for the MPDA;
- **not a calibrated financing strategy model** – the impact assessment model does not aim to depict a calibrated and refined financing strategy for the MPDA to minimize ratepayer costs and deliver improved reliability to CMP and Emera’s ratepayers. Specifically, when estimating the revenue requirement of MPDA, the model does not attempt to analyze whether the capital structure and debt terms could be further refined to result in the lowest long-term cost of service, nor does the model consider what kind of additional spending would be necessary to meet the improved quality of service goals underpinning the birth of the MPDA;
- **not a tariff model** – the impact assessment model does not allocate the revenue requirement estimates to different customer classes or fixed versus variable pricing model. Therefore, this study is not presenting specific tariff forecasts. The model simply looks at the overall transmission and distribution businesses; and
- **not an asset valuation model** – the impact assessment model does not aim to provide a recommendation on the price that MPDA should pay the IOUs for the acquisition of their assets.

Finally, it is important to recognize that the electricity industry is changing rapidly, and trends such as electric vehicles, electrification of space heating, aggressive state carbon emission reduction targets, development of energy storage, and other sociological and technology trends, will have a major impact on the industry. While LEI's modeling assumes current conditions, a more decentralized power sector may place additional pressure on T&D operators and increase uncertainty with regards to load retention.

7.3 Summary of assumptions

Figure 13 below summarizes the key drivers for the ratepayer impact assessment and the underlying values assumed for calculation of the Reference Case. It is important to note that there is substantial uncertainty around the value of these drivers. Therefore, the Reference Case results in Section 7.3.8 reflect a point estimate and are only one dimension of LEI’s ratepayer impact assessment. LEI also conducted sensitivity analysis around the key drivers, which are presented in Sections 7.4 and 7.5.

Figure 13. Reference Case assumptions for key drivers used in the ratepayer impact assessment model

Assumption	Value used
Annual capex as a percent of rate base (which drives rate base growth)	6.5% - Based on the weighted average of CMP and Emera's 5-10 year investment plan. This results in approximately 3.5% annual rate base growth after deducting 3% depreciation per year.
Average depreciation rate	3.0% per year - Based on historical averages.
Real discount rate	3.5% - Based on based on the discount rate used by the US House of Representatives Committee on Transportation and Infrastructure as discussed in Section 7.5.5.
Base cost of debt	5.1% - Based on Emera's historical cost of debt. However this is modeled to change dynamically over time based on MPDA's expected credit rating.
Acquisition multiple	1.5x NBV - Based on a similar proposed acquisition price negotiated by ENMAX for Emera Maine, and the implied acquisition multiples from publicly traded US T&D companies as discussed in Section 7.3.1.
MPDA transmission allowed return on capital	8.0% - Based on the allowed return on capital for ISO-NE municipal transmission owners.
Management fee	1.5% - Based on other industry examples of the percentage of assets under management.
Capex split between T&D	47% for distribution - Based on CMP and Emera's investment plans
Taxation	Debt for acquisition is not assumed to be tax free, but debt for new capex is assumed to be tax free up to a cap
O&M cost growth rate	1.27x of rate base growth - Based on the historical relationship for CMP and Emera.

7.3.1 Cost of acquiring the assets of the IOUs

For a variety of reasons, it is not likely that MPDA can acquire the IOUs' assets at the current NBV (e.g., "1x NBV"). The process suggested for acquisition is not likely to motivate the transaction at such a price. For example, based on the legal analysis in Section 5.1, LEI anticipated that a contentious acquisition would lead to complex and costly litigation. Avoiding such a process may require a premium to book value. LEI researched current trading values for T&D utilities and observed that the capital markets (and shareholders) are pricing electric T&D businesses at a premium above NBV.

The traded price-to-book values of selected publicly traded US T&D utilities are presented in Figure 14. The price-to-book ratio only presents the premium the market is paying for the equity value of the company, while when referring to the acquisition price for the IOUs, the purchase price will also include the debt. Therefore, the acquisition price as measured in NBV multiple would be lower than the price-to-book value traded in the equity market. For example, if a company has a trade price-to-book (equity value) ratio of 2.0 and is 50% debt-financed, then if all the assets of the company were to be sold to a buyer, the buyer would have to pay the asset financed by equity and debt, therefore the effective purchase price of the assets would be 1.5x of its book value.⁷³ Therefore, in Figure 14 LEI also calculated the implied "purchase multiple" by including the debt into both numerator (purchase price) and denominator (book value of the assets) of the equation. The result is an average implied purchase multiple of 1.55x.

⁷³ Cash equivalents, and other deferrals, which are usually not directly acquired in an acquisition, are not considered in this simplified example.

Figure 14. Traded price-to-book ratios and implied purchase multiple of US listed T&D companies

Entity name	Price-to-book ratio as of Dec 31, 2019	Last 12 month Debt-to-equity ratio	Implied purchase multiple
ALLETE, Inc.	1.95	0.75	1.54
Avista Corporation	1.59	1.19	1.27
Chesapeake Utilities Corporation	2.83	1.26	1.81
Edison International	1.96	1.25	1.43
Eversource Energy	2.08	1.28	1.47
IDACORP, Inc.	2.16	0.74	1.67
MDU Resources Group Inc.	2.01	0.90	1.53
NorthWestern Corporation	1.79	1.10	1.38
Otter Tail Corporation	2.74	0.95	1.89
PNM Resources, Inc.	2.29	1.88	1.45
Sempra Energy	2.43	1.31	1.62
UGI Corporation	2.39	1.79	1.50
Unitil Corporation	2.36	1.38	1.57
Average			1.55
Min			1.27
Max			1.89

Source: Capital IQ and LEI analysis

Note: Includes US list utility companies with mainly electric and gas T&D operations with less than 5 GW of generation capacity. Avangrid is excluded from this list as it is the parent company of CMP.

One explanation for the pricing above NBV is the expectation of load growth and the opportunity that the ownership of a network brings to serve that additional load and earn revenues. Another explanation for the pricing above NBV relates to the general cycle of investment of a utility business: as older assets are depreciated and retired, they are replaced with newer assets that simply because of the current dollar value difference to historical costs are pushing the NBV upward (therefore the NBV today is likely to be smaller than the NBV you will have in the future).

Furthermore, Emera Maine is currently in process of being sold by Emera Inc. ENMAX. According to LEI's assessment, the acquisition price ENMAX has offered is approximately 1.47x Emera's NBV.⁷⁴

⁷⁴ LEI recognizes that there has been some confusion about the proposed acquisition price. According to ENMAX's Q1 2019 Interim Financial Report, the purchase price would be Canadian dollars CAD \$1,286 million (or USD \$959 million as per Emera Inc's 2019 Q1 quarterly report) for the equity of Emera Maine, while the total enterprise value (inclusive of equity, debt, and working capital adjustment) of Emera Maine after the acquisition would be Canadian dollars CAD \$1,800 million (or USD \$1.3 billion). According to Emera Inc.'s 2019 Q1 quarterly report, Emera Maine's asset value less liabilities (i.e. equity for sale) amounts to Canadian dollars CAD \$710 million. This means the acquisition price proposed by ENMAX is approximately 1.47x NBV where NBV. However, in a response CMP provided to LEI during its information request, CMP referred to a 1.82x book value multiple for Emera's sale to ENMAX. LEI determined that this 1.82x was referring only to the equity portion of the book value. In reference to the acquisition clause in LD 1646, the "net book value" refers to "the utility's facilities and utility property". For the sake of consistency in wording, when referring to NBV in this report, including referring acquisition value in terms of multiples of NBV, LEI refers to the gross asset value less accumulated depreciation of an asset, instead of the equity value.

Another point of reference is Fortis Inc's acquisition of ITC Holdings Corp, using cash plus stock proceed of approximately \$6.9 billion and assuming \$4.4 billion of debt, and in return taking over asset value at \$7.4 billion.⁷⁵ This implies an acquisition multiple of 1.52x.

As mentioned in Section 7.2, the impact assessment model is not a valuation model and does not aim to provide a recommendation on the price MPDA should pay to acquire the assets of the IOUs. However, the acquisition price is a key driver of the ratepayer analysis and consideration of trade-offs over time. For purposes of the presentation of outcomes, LEI uses a range of acquisition values, ranging from 1.0x NBV to 2.0x NBV.

As part of the acquisition-related costs for MPDA, LEI also included an upfront cost for transaction-related expenses (including cost of legal and financial advisors necessary to get the MPDA set up). LEI estimated the upfront costs to be 0.7% of the acquisition price. As the MPDA would be a "new" state agency, the upfront costs may include a variety of one-time start-up expenses, in addition to typical fees associated with such financing. However, LEI conservatively used the size of the historical debt issuance cost of LIPA and the New York Power Authority to approximate the level of the upfront costs.⁷⁶

7.3.2 Cost of capital

As discussed in Section 2.3, regulated utilities are entitled to earn a fair and reasonable rate of return on their capital investment. For IOUs, this rate of return includes both a return on equity and cost of debt. Since a COU is a not-for-profit entity, the only rate of return required is the cost of debt.

Generally, the return on equity is higher than the cost of debt as the risk of investing in equity is higher than the debt.⁷⁷ For example, Emera Maine's approved return on equity for distribution business was 9.35% based on its 2017 distribution rate base filed to MPUC,⁷⁸ while the weighted cost of debt of Emera was estimated to be 5.10% by the MPUC.⁷⁹ CMP had its rate case settled

⁷⁵ PR News Wire (with news provided by ITC Holdings Corp). "Fortis Inc. To Acquire ITC Holdings Corp. For US\$11.3 billion". <<https://www.prnewswire.com/news-releases/fortis-inc-to-acquire-itc-holdings-corp-for-us113-billion-300217218.html>>

⁷⁶ For reference, LIPA's average debt issuance cost from 2008-2018 was 0.7% of bond proceeds, while New York Power Authority's debt issuance cost was 0.5% for taxable commercial paper in 2017.

⁷⁷ This is due to the legal arrangement that debt investors are paid before equity investors during bankruptcy, and in normal operations, payments towards debt holders are fixed while dividends paid to equity investors can vary.

⁷⁸ MPUC, 2018 Annual Report. (2019)

⁷⁹ MPUC Docket 2017-00-198 Exhibit RR-2

recently and was permitted an allowed base return on equity of 9.25% (minus management-efficiency adjustment of 75 basis point), and weighted cost of debt for CMP of 4.34%.⁸⁰

If we ignore how leverage impacts tax considerations and the credit quality of the company, and simply accept that the cost of debt tends to be lower than the cost of equity in most “normal” circumstances, then one can start to appreciate the intuition behind financing advantages of a COU versus an IOU. Simplistically, the premise is that an entity that is 100% funded by debt would have a lower cost of capital than an entity that is, for example, 50% equity funded.⁸¹ That lower cost of capital will flow through as a lower revenue requirement and ultimately a lower rate for customers.

In addition, given the MPDA is a tax-exempt COU and a public instrumentality of the state, there are additional adjustments required for MPDA’s cost of capital as compared to the IOUs. Such adjustments are discussed in the next sub-sections.

7.3.3 Tax-exempt debt

Another key aspect that differentiates MPDA from the IOUs is the MPDA’s potential access to tax-exempt debt. LD 1646 specifically states that:

“All bonds, notes and other evidences of indebtedness issued by the authority in accordance with chapter 9 are legal obligations of the authority, and the authority is a quasi-municipal corporation within the meaning and for the purposes of Title 30-A, section 5701. All bonds, notes and other evidences of indebtedness issued by the authority are legal investments for savings banks in this State and are exempt from state income tax.”⁸²

However, there are limitations on tax-exempt financing under the US federal tax code. If more than 10 percent of the proceeds of a government bond is used in a trade or business or persons other than a governmental unit, and the bond is directly or indirectly repaid from a private trade or business, it is considered a “private-activity” bond, and the interest on the bond is taxable, with the exception that the bonds are issued to certain “exempt facilities” which includes “facilities for the local furnishing of electricity or gas.”⁸³ LEI’s Reference Case assumptions

⁸⁰ MPUC Docket 2018-00194 Examiner’s report.

⁸¹ The Modigliani-Miller Theorem states that, without consideration of the impact of tax, the cost of capital of a company should be the same regardless of capital structure. See Modigliani, F.; Miller, M. (1958). “The Cost of Capital, Corporation Finance and the Theory of Investment”. For purposes of this discussion, we have simply assumed that the credit quality remains the same despite a more leveraged position, and hence the overall cost of capital decreases. In the impact assessment model, LEI dynamically considers the cost of debt and leverage ratio of MPDA.

⁸² LD 1646 §4005.2. Tax exemptions

⁸³ American Public Power Association and the Government Finance Officers Association prepared for Public Finance Network. “Tax-exempt financing: A primer”

assume MPDA's business can be considered to be exempted facilities, and therefore is eligible to issue tax-exempt private-activity bonds.

Furthermore, the federal tax code says that proceeds of private activity bonds cannot be used to purchase existing property unless over 15% of the proceeds are used for rehabilitation of the property.⁸⁴ As the process of creating MPDA requires the acquisition of the IOUs' assets, LEI's Reference Case assumption is that the initial debt raised to acquire the assets is not tax-exempt.⁸⁵ However, future debt being raised to finance capital investments would be tax exempted.

Finally, there is a Private Activity Volume Cap that limits the amount of tax-exempt private-activity bonds by the state under the Deficit Reduction Act of 1984 (P.L. 98-369) and Tax Reform Act of 1986 (TRA 1986, P.L. 99-514). This cap sets a ceiling towards the aggregate amount of tax-exempt private-activity bonds that may be issued in a state in any given year, which is the greater of \$105 per capita or \$311.38 million as of 2018 (adjusted by annual inflation). As Maine only has a population of 1.34 million,⁸⁶ the relevant cap is the inflation-adjusted \$311.38 million unless Maine experiences significant population growth in the future.⁸⁷

Although the Reference Case assumes the initial debt raised for acquiring the assets from the IOUs is not tax-exempt and that the debt raised for future capital investments is tax-exempt (up to the volume cap), LEI also tested alternative sensitivities. For example, in Section 7.5.3, LEI considers the ratepayer impact under the situations where (i) all the debt issued by MPDA would be tax-exempt, and (ii) all debt issued by MPDA is not tax-exempt.

7.3.4 Interaction between credit rating and cost of debt

In addition to the tax-exempt status, the actual credit rating of the MPDA would also impact its borrowing cost. One fundamental assumption of the impact assessment model is that if MPDA's credit rating is the same as CMP or Emera Maine, investors would demand the same post-tax return on debt instruments, regardless of whether the borrowing entity is MPDA or the IOUs.

In the impact assessment model, LEI set up a dynamic calculation where the credit rating of the MPDA would change over time based on a financial profile assessment that uses Standard & Poor's US Municipal Retail Electric and Gas Utilities rating methodology.⁸⁸

⁸⁴ 26 U.S.C. 147(d))

⁸⁵ LEI tested a sensitivity that did allow for full tax-exemption, which is described in Section 7.5.3.

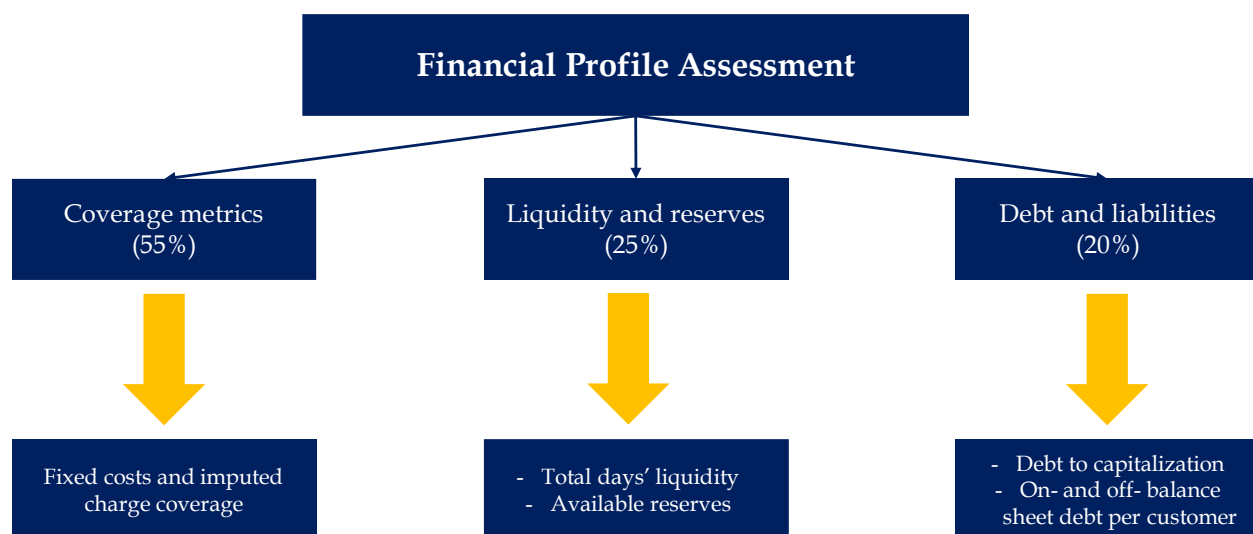
⁸⁶ US Census Bureau. Population estimates, July 1, 2019. <<https://www.census.gov/quickfacts/ME>>

⁸⁷ For simplicity, the impact assessment model assumes MPDA would be the only Maine entity to issue tax-exempt bonds under the Private Activity Volume Cap. LEI recommends the Maine legislature to conduct a study on whether other Maine entities will be issuing tax-exempt private activity bonds in the future.

⁸⁸ Standard & Poor's Financial Services LLC. "Ratings Direct: US Municipal Retail Electric and Gas Utilities.". 2017.

In the impact assessment model, LEI monitored three broad categories of credit metrics in each modeled year and mapped the results against S&P's financial risk profile score. The credit metrics were into an overall financial risk profile score based on the weightings presented in Figure 15.

Figure 15. Standard & Poor's US Municipal Retail Electric and Gas Utilities rating methodology



Source: Adapted from Standard & Poor's Financial Services LLC. "Ratings Direct: US Municipal Retail Electric and Gas Utilities.". 2017.

For example, if MPDA was projected to have a 1.6x or above coverage metric related to "Fixed costs and imputed charge coverage", then it would be considered to have a "extremely strong" financial risk profile score. In contrast if projected financials for MPDA resulted in a coverage ratio of 1.4x to 1.6x, then the score assigned that year to MPDA would be based on a "very strong" financial risk profile. The other categories of credit metrics – related to "liquidity and reserves" and "debt and liabilities" – also had similar quantitative ranking factors and associated scores. LEI also monitored the debt-to-capitalization ratio of the MPDA, to ensure a reasonable buildup of patronage capital (which is achieved through accumulation of earnings, when there are "leftover" revenue amounts after payment of expenses) over time. In the initial year, the MPDA would be fully debt-financed, but as MPDA begins to operate, it is assumed that it would accumulate reserves to achieve a target patronage capital of 35%.⁸⁹

Under this dynamic calculation, if from one year to another, the overall financial risk profile score increases (i.e. meaning that MPDA becomes riskier to lenders), we project then that MPDA's credit rating may be downgraded, driving its borrowing costs up so as to match the borrowing cost of the relevant lower credit rating debt, adjusted by the tax status of the MPDA debt.

⁸⁹ This is based on LEI's study of cooperatives in the US, which has an average patronage capital ratio of 30% to 40%.

As the difference in cost of capital is a key driver in creating savings from MPDA, it may be useful to also evaluate other ways to lower the financing cost of the initial acquisition, as that improves the likelihood of LD 1646 creating ratepayer savings. LEI recommends that financing studies are completed that examine possible financial and legal structures that would enhance the credit quality of the debt for the initial acquisition of the IOUs' assets. For example, one such possibility is using securitization or having MPUC to mandate longer regulatory asset lives as part of MPDA's creation.⁹⁰ Under the Reference Case assumptions, for the sake of illustration, LEI assumed that the debt raised for initial acquisition of the IOUs could take advantage of credit enhancement through legal or financial structuring, and therefore would have a higher credit rating than Emera Maine's current debt, albeit the difference is likely to be modest (based on bond yields, a 14 basis point reduction is applied to the debt cost of the IOUs' current investment grade cost of debt, based on the implied improvement from a AA rating to a AAA rating through credit enhancement).⁹¹

7.3.5 Differences in allowed return and cost of capital for transmission

As discussed in Session 5.2, transmission rates of CMP and Emera Maine are governed by ISO-NE's OATT, except for the region located in NMISA, and New England MTOs use an 8.0% cost of capital instead of the FERC approved ROE for the cost of capital calculation. Although LEI recognizes that the current RNS calculation and allocation method is under review at FERC as of the writing of this report,⁹² the impact assessment model assumes the 8.0% MTO rate would continue to be applicable to MPDA's transmission revenue requirement calculation in the short and longer-term. Under the current interest rate environment, it is very likely that the cost of debt for the transmission business under MPDA's ownership would be materially below 8.0%. This would result in a revenue requirement that exceeds the cost of service for MPDA's transmission business.⁹³

As discussed in Section 5.2, the long-standing policy of FERC is that the acquisition premium of transmission assets cannot be included in the rate base. For MPDA, since the acquisition would be entirely debt-funded, in the case when the acquisition price is higher than the book value of the transmission asset, the revenue requirement will not include the cost of debt required to

⁹⁰ It is beyond the scope of this paper to discuss details of the cost-benefits of securitization. Further analysis is required to ensure that the securitization can take advantage of highest possible credit rating, and that may require enabling legislation and provisions that direct MPUC to enforce the securitization terms (such as the non-bypassable nature of the rates associated with the repayment of the securitized debt, the continued repayment obligation of ratepayers in case of MPDA's bankruptcy, and how MPUC cannot issue future orders to change the repayment schedule).

⁹¹ Based on Morning Star Corporate Bond Index Sector Summary as of October 18, 2019, where a AAA bucket bond has 14 basis point lower spread than an AA bucket bond. The 14-basis point reduction means that borrowing cost would reduce from, say, 5.0% to 4.86% due to securitization.

⁹² 167 FERC ¶ 61,164, Docket Nos. ER18-2235-000 and EL16-19-000

⁹³ Unless the size of the debt for acquisition premium is large enough such that the cost of debt exceeds the excess revenue requirement.

finance the acquisition premium. In other words, there is likely a mismatch between the revenue requirement and the cost of service for MPDA's transmission business due to deviations in both the size of the debt against the size of its rate base and also the allowed return on capital versus the actual cost of debt. Whether the mismatch results in an over-collection or under-collection of revenue to fund MPDA's transmission cost of service will depend on the acquisition price and the actual borrowing cost of MPDA.

In the Reference Case assumption, the acquisition multiple of 1.5x NBV, combined with the allowed return on capital of 8.0% for MPDA's transmission business, and the cost of debt starting at 5.1%, would result in slight positive net income for MPDA's transmission business as the gap between the allow return and the cost of debt is slightly larger than the cost of debt to finance the asset acquisition, including the premium over NBV (original rate base).

7.3.6 Growth rate of regulated T&D assets in the future

Under the Reference Case assumptions, debt issued by MPDA for capital investments in the future would be tax exempted. As tax-exempt debt represents a lower cost financing source to MPDA, the amount of capital investment over time becomes a major driver of lower revenue requirements and therefore ratepayer benefits.

The growth rate of the electric grid, from a financial modeling perspective, has two drivers: how much capex is made each year, and the rate of depreciation of the existing assets. The net growth rate is defined as the capex less the depreciation of existing assets in each year.

For depreciation, the impact assessment model uses the five-year (2014-2018) average historical depreciation rate as a percentage of the rate base for CMP and Emera Maine. The average depreciation rate is approximately 3% per year. In other words, the weighted average economic life of the electric grid's assets is approximately 33 years.

For future capex, LEI's Reference Case assumption uses the rate base weighted average capex for CMP and Emera Maine provided by CMP's capital expenditure budget (2019-2023) and Emera Maine's forecasted capex for 2019-2028, extended over the modeled period. This capex forecast, as a percentage of the existing rate base, is approximately 6.5% per year.⁹⁴ Given the historical 3% depreciation, this implies a Reference Case assumption of average net real rate base growth rate of approximately 3.5%.⁹⁵

⁹⁴ Note that this report only focuses on the level of T&D capex invested by MPDA or the IOUs. Other ISO-NE transmission owner's investments would also impact Maine ratepayer's rates due to socialization of transmission rates in New England. However, LEI assumes such investment decisions would be made independent of whether MDPDA is created or not, therefore such investments do not affect the results in the analysis as the impact assessment model focuses on the marginal difference between the Status Quo and MPDA.

⁹⁵ This is higher than the historical nominal rate base growth rate of approximately 3.2% for CMP and Emera Maine.

As the purpose of the impact assessment model is to identify the difference between the Status Quo scenario and the MPDA scenario, the growth rate for capital investment in the electric grid is assumed to be the same under both scenarios and driven by external factors. It is possible that the pattern of capital investment, in the real world, could differ between an IOU and the MPDA. However, it is premature to try and establish how the investment profile may differ. As such, LEI relied on the same capital investment assumption for both scenarios. This assumption allows us to focus on a more important dimension of the capital investment and its impact on ratepayer benefits of the MPDA: namely how the financing benefits of a tax-exempt, non-profit entity could benefit ratepayers.

7.3.7 Management fee

As discussed in Section 4, LD 1646 §4003.3. states that MPDA will retain a qualified contractor to provide operations and administrative services. The contractor, as a “nongovernmental entity” is likely to be a for-profit company that will not provide its services to MPDA at cost. One comparable example is the services provided by PSEG Long Island toward LIPA. As of the end of 2018, PSEG Long Island provides operating services to LIPA’s electric transmission and distribution system under an operating service agreement. Under the agreement, PSEG Long Island receives “reimbursement for pass-through operating expenditures, a fixed management fee, and an incentive fee contingent on meeting established performance metrics.”⁹⁶ Inclusive of the incentive fee, the management fee earned by PSEG Long Island is approximately \$77 million per year⁹⁷ or slightly less 1% of LIPA’s total rate base.

In the impact assessment model, LEI estimated a management fee range as the percentage of MPDA’s rate base before including the acquisition premium, ranging from 1% to 4.5% (using LIPA and the UK example presented in Section 6.1 as a reference) which would result in a pre-tax profit that is similar to the net income earned by CMP and Emera, combined.

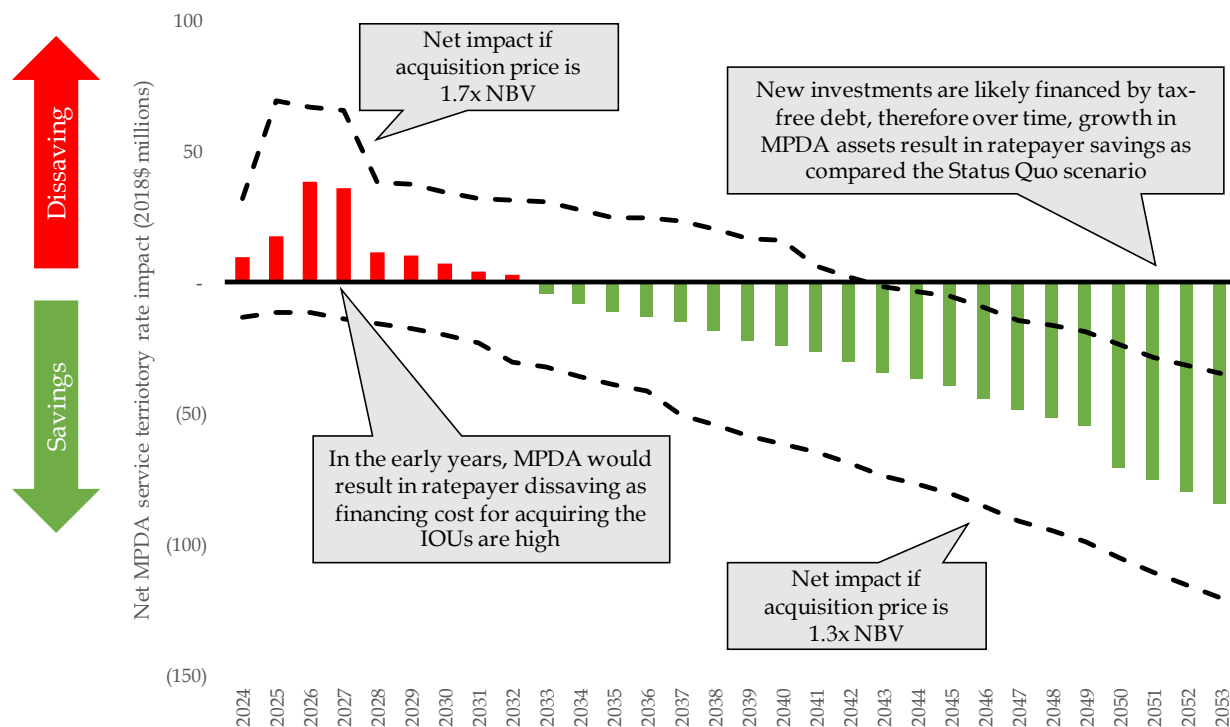
7.3.8 Reference Case results

The net impact to ratepayers is represented in the form of net present value over a short-term (10 years) and long term (30 years) using a real discount rate of 3.5%. For example, under the Reference Case assumption, the annual rate impact to MPDA ratepayers would start from \$9 million in 2024 (in 2018\$), which means MPDA would result in a \$9 million ratepayer dis-savings relative to a world where CMP and Emera Maine continue to operate as IOUs in the year 2024, and moving to negative \$4 million (in 2018\$) by 2033, meaning MPDA operations would result in a \$4 million savings to ratepayers in the year 2033.

⁹⁶ PSEG 2018 10-K. Page 13

⁹⁷ LIPA, 2019 Proposed Budget. November 2018 <www.lipower.org/wp-content/uploads/2018/11/NEW-COMBINED-WEB-BUDGET-POSTING.pdf>

Figure 16. Annual MPDA ratepayer impact (under Reference Case assumptions), 2018 \$ millions



Source: LEI analysis, summarize here Reference Case assumptions

For the first 10 years of the analysis, the net present value of MPDA's ratepayer impacts would result in a revenue requirement increase of \$118 million, or \$12 million per year. This means that future rates would be higher under the MPDA Scenario than under the Status Quo Scenario over the 10-year timeframe (holding all else constant). However, if we extend the NPV analysis to 30 years, ratepayers are projected to enjoy savings of \$236 million under MPDA ownership and operation, which is equal to an annualized benefit of \$8 million per year over 30 years.

A detailed macroeconomic analysis is beyond the scope of this study. However, stakeholders should recognize that electric rates can impact Maine's economy. It is generally understood that higher electric rates in the short term can detrimentally impact some commercial and industrial electric customers that are highly dependent on electricity as a key input to their production process and also effect how businesses evaluate the opportunity to move to Maine.⁹⁸ This can potentially lead to negative ramifications for Maine residents employed by these companies – for example, the level of output in certain electricity-usage heavy industries may decrease due to

⁹⁸ EIA data shows that Maine has the lowest electricity costs in the New England region, but has relatively high electricity costs on a national basis. Maine's manufacturing sector (i.e. aerospace/transportation equipment and paper manufacturing) directly competes against other manufacturers in regions outside of New England. This makes the sector particularly sensitive to electric costs, as noted in the *Maine Economic Development Strategy 2020-2029*, issued by the State of Maine, Department of Economic and Community Development.

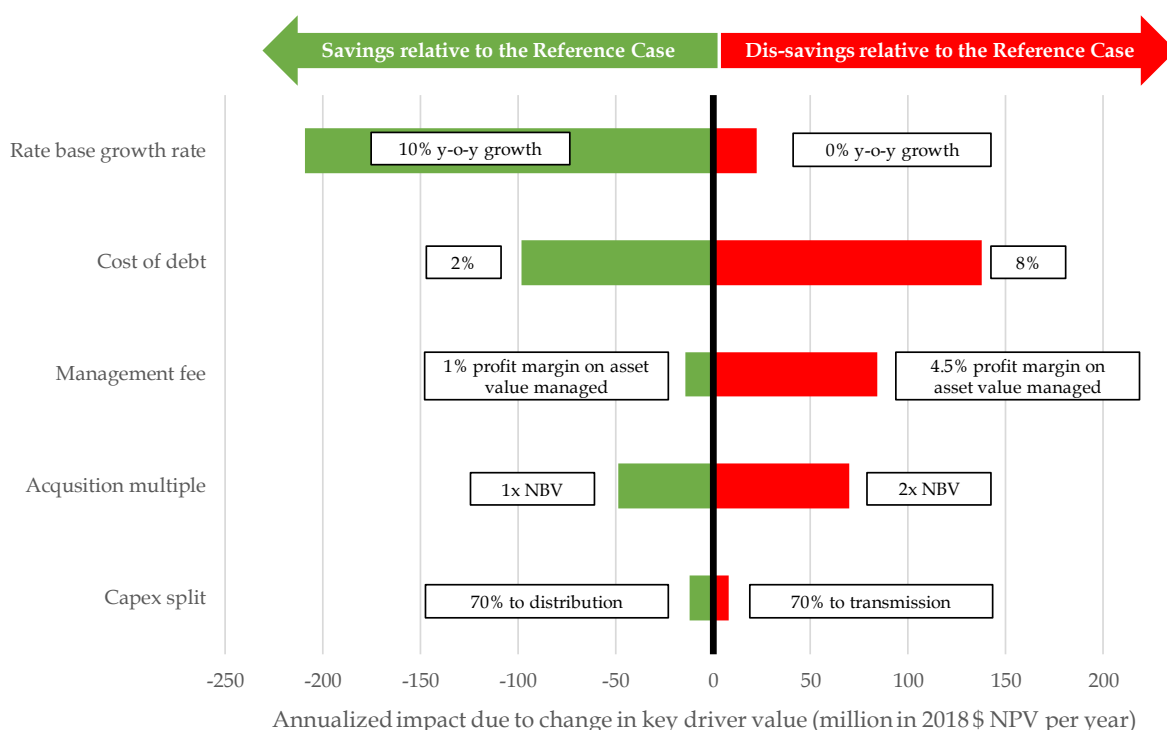
higher costs, or some businesses may move to lower electricity cost regions. The forecasted electricity rate decrease over the time term may not be sufficient to offset the economic impacts caused by a short-term rate increase.

7.4 Testing alternative assumptions for key drivers

By changing the assumed value of a specific driver and iterating the impact assessment model, it is possible to identify the contribution of each driver on ratepayer impacts. Figure 17 presents the 30-year annualized ratepayer impact (relative to the Reference Case) across varying assumptions for key drivers. Although each driver was tested in isolation, this “single-factor” analysis provides some useful insights about which drivers are important and the relative magnitude of long-term ratepayer savings or dis-savings.

Overall, future rate base growth rate has the largest impact on expected ratepayer savings or dis-savings over the 30-year timeframe. If the expected rate base growth rate is high (e.g. 10% per year), then formation of MPDA would likely result in ratepayer savings even if other factors, such as the management fee or acquisition multiple, are not favorable to ratepayers. Cost of debt is also an important variable. For example, if the interest rate (cost of debt) is expected to be high, but other factors remain consistent with the Reference Case assumptions, formation of MPDA could result in dis-savings for ratepayers over the long term.

Figure 17. Ratepayer impacts for alternative assumptions for key drivers (based on NPV over 30 years, using 3.5% discount rate)



Source: LEI analysis

Note: Cost of debt includes both nominal borrowing cost and impact of tax-exempt financing

Although the analysis tested each driver in isolation of other drivers, there may be circumstances where future conditions lead to correlated changes in multiple drivers. For example, under a high economic growth environment, Maine may experience a combination of high rate base growth and high cost of debt (for example, if economic growth motivates capital investment and also causes high interest rates). The chart above does not present the outcomes of such combinations; however, the results documented in two-factor sensitivities can be instructive. Specifically, on the relationship between rate base growth and cost of debt, please refer to Appendix C. The ratepayer impacts from the MPDA under a high rate base growth environment and high cost of debt environment would be reflected in the upper right hand portion of the sensitivity tables in Figure 35 and Figure 36 (on page 93) and therefore suggest large dis-savings for electric ratepayers.

7.5 Sensitivity analysis

The impact assessment model relies on several key assumptions that drive the revenue requirement, level of expense, and capital structure of MPDA. These key assumptions depend on certain conditions of the Maine electric grid that are currently not known (e.g. how much capital investment is required, the acquisition premium, future interest rates and whether tax-exempt financing would allow for a lower cost of debt, etc.) Some of these uncertainties will be resolved at a later stage of the municipalization process (e.g. acquisition price of the IOU assets); some uncertainties could also be narrowed down through additional analyses (e.g., clarification of the tax status of MPDA's debt by a tax expert). Therefore, in this section of the report, the LEI presents a number of sensitivities that highlight how the assumed values for two key drivers may interact to impact future ratepayer savings or dis-savings.⁹⁹

⁹⁹ Sensitivity analysis can be conducted on three or more key drivers interacting with each other at the same time. However, such sensitivity results are not easily visualized in a two-dimensional manner.

How to interpret LEI's sensitivity analyses

The results of these sensitivity analyses are presented in a two-dimensional table or sensitivity matrix, as seen below. The values in the tables reflect annualized ratepayer impacts over a 10-year or 30-year period, discounted to the start of the modeling horizon (2024) using the specified discount rate. The units are in 2018 dollar millions.

X-axis presents values for Driver A....

Y-axis presents values for Driver B...		1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2
	10%	(98)	(84)	(70)	(55)	(40)	(24)	(10)	17	37	52	73
	9%	(90)	(76)	(62)	(49)	(34)	(19)	(4)	21	40	56	76
	8%	(81)	(68)	(54)	(41)	(26)	(12)	11	25	44	58	82
	7%	(73)	(60)	(47)	(35)	(20)	(7)	16	30	47		
	6%	(65)	(53)	(41)	(29)	(15)	(1)	20	34	49		
	5%	(59)	(47)	(36)	(24)	(9)	3	24	36	50		
	4%	(52)	(41)	(31)	(17)	(5)	6	25	37	57	77	
	3%	(47)	(37)	(26)	(14)	(2)	13	27	45	64	77	95
	2%	(42)	(33)	(23)	(10)	0	15	28	51	62	80	92
				(20)	(8)		16	28	50	61	78	89
				(18)				49	59	76	86	

Cells in green are savings (beneficial to ratepayers)

White cells are around the breakeven point (neutral to ratepayers)

Red cells are net increase in rates (unfavorable to ratepayers)

For example, in the top left cell with value (98), the sensitivity matrix is reporting an annualized ratepayer savings of \$98 million (in 2018 \$ terms) based on the combined conditions of Driver A being set to 1, and Driver B being set to 10%.

For the top right cell with value 73, the matrix is reporting an annualized ratepayer dis-savings of \$73 million per year in 2018 \$ terms under the combined conditions of Driver A being set to 2 and Driver B being set to 10%.

7.5.1 Analysis of acquisition cost and rate base growth rate's influence on ratepayer impacts

The level of rate base growth has a significant long-term influence on the possibility of ratepayer savings from formation of the MPDA. In general, a high rate base growth could create savings for future ratepayers (when comparing the MPDA Scenario with the Status Quo Scenario), but it is important to keep in mind that this may mean higher rates than today. LEI modeled capital investment through a rate base growth rate. The growth rate has a compounding effect and therefore the cost of debt associated with rate base growth (and any advantages that MPDA would have over IOUs in financing such rate base growth) would build up over time.

Another driver that creates time-specific impacts is the acquisition cost. A higher acquisition cost (denominated in terms of a multiple greater than 1.0x NBV) can lead to higher rates in the short term. However, with time, as the initial debt is paid off, and new debt is incurred (to finance capital investment), the effect of the acquisition multiple on the overall revenue requirement will decrease in scale.

LEI considered the short-term versus long-term tradeoffs for electric ratepayers using a two-factor sensitivity analysis, covering a range of acquisition costs (from 1.0x to 2.0x multiple of Emera Maine's and CMP's NBV) and various future capital investment trajectories (ranging from 0% to 10% year-over-year growth rate in rate base). In both Figure 18 and Figure 19 below, the x-axes represent the acquisition price as a multiple of net book value changes in each modeled sensitivity case, while the y-axes represent the different rate base year-over-year growth rate (over all the years modeled) used in each sensitivity case. All other assumptions remain constant and are based on the values presented in Figure 13 for the Reference Case. The key difference between Figure 18 and Figure 19 is the timeframe over which the annual savings and dis-savings are accumulated. Figure 18 looks out over the first 10 years of MPDA operations, while Figure 19 considers a 30 year timeframe and therefore includes savings or dis-savings that may occur over the long term.

The result of this sensitivity analysis shows that in the short term (Figure 18), a low rate base growth rate (below 5% a year) combined with a high acquisition price (over 1.5x NBV multiple) would result in rates going up under the MPDA Scenario as compared to the Status Quo Scenario (in other words, a net cost to ratepayers over this period). If the acquisition cost is above 1.7x NBV, then even at a very high rate base growth rate of 10% per year, ratepayers would be facing a rate increase under the MPDA Scenario versus the Status Quo Scenario.

Over the long term (Figure 19), a rate base high growth rate of over 7% a year would deliver ratepayer savings even if the acquisition multiple is as high as 2x NBV. The main reason that LD 1646 can still result in ratepayer savings under high growth rate and high acquisition multiple is the availability of tax-exempt financing for new capex. The higher the rate base growth rate, the more MPDA would reduce financing costs relative to the IOUs through issuing more tax-exempt debt. If the tax-exempt debt is not available at all to the MPDA, the conclusions around expected ratepayer benefits would change drastically.

The short-term and long-term impacts of these two drivers on ratepayers can be observed through a direct comparison of Figure 18 and Figure 19. In both figures, as the key drivers move from top left to the bottom right (i.e. an increase in the acquisition cost and a decrease in the rate base growth rate), the values in the cells increase, meaning the ratepayer impact moves from savings (benefits) to dis-savings (costs). The primary takeaway is that the red area is much larger in the short term (Figure 18) than the long term (Figure 19). In addition, the general level of the ratepayer savings (based on the absolute size of the values in green highlighted cells) is much smaller in the short term as compared to the long term. These two observations highlight the conditions that contribute to intergenerational impacts. The Project Team does not have view as to the acceptability of such intergenerational issues; rather, this is something that the Legislature will need to evaluate and opine on.

Figure 18. Short-term (10-years) annualized MPDA net impact – acquisition cost vs rate base growth rate (2018 \$ million per year)

		Acquisition value as multiple of NBV										
Rate base y-o-y growth rate		1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2
	10%	(98)	(84)	(70)	(55)	(40)	(24)	(10)	17	37	52	73
	9%	(90)	(76)	(62)	(49)	(34)	(19)	(4)	21	40	56	76
	8%	(81)	(68)	(54)	(41)	(26)	(12)	11	25	44	58	82
	7%	(73)	(60)	(47)	(35)	(20)	(7)	16	30	47	61	83
	6%	(65)	(53)	(41)	(29)	(15)	(1)	20	34	49	62	82
	5%	(59)	(47)	(36)	(24)	(9)	3	24	36	50	66	88
	4%	(52)	(41)	(31)	(17)	(5)	6	25	37	57	77	95
	3%	(47)	(37)	(26)	(14)	(2)	13	27	45	64	75	95
	2%	(43)	(33)	(23)	(10)	0	15	28	51	62	80	92
1%	(39)	(30)	(20)	(8)	2	16	28	50	61	78	89	
0%	(35)	(26)	(18)	(6)	4	17	37	49	59	76	86	

Figure 19. Long-term (30-years) annualized MPDA net impact – acquisition cost vs rate base growth rate (2018 \$ millions per year)

		Acquisition value as multiple of NBV										
Rate base y-o-y growth rate		1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2
	10%	(247)	(235)	(223)	(211)	(199)	(187)	(175)	(158)	(144)	(132)	(117)
	9%	(204)	(192)	(181)	(170)	(158)	(146)	(134)	(118)	(105)	(93)	(79)
	8%	(160)	(149)	(138)	(127)	(116)	(104)	(89)	(78)	(65)	(54)	(39)
	7%	(127)	(116)	(106)	(95)	(84)	(72)	(58)	(46)	(34)	(23)	(9)
	6%	(101)	(91)	(80)	(71)	(60)	(49)	(35)	(24)	(12)	(1)	12
	5%	(80)	(70)	(61)	(51)	(40)	(31)	(17)	(7)	4	16	31
	4%	(63)	(54)	(45)	(35)	(26)	(16)	(4)	6	19	34	49
	3%	(52)	(42)	(33)	(24)	(13)	(3)	9	22	40	53	73
	2%	(45)	(35)	(26)	(13)	(5)	7	17	36	47	65	78
1%	(39)	(30)	(21)	(9)	(0)	13	22	40	55	72	81	
0%	(33)	(25)	(17)	(6)	3	15	31	48	57	70	78	

Note: Cells with an outlined black border reflect the range covering the Reference Case assumptions. Results above assume a 3.5% real discount rate.

7.5.2 Relationship between the cost of debt (borrowing cost) and acquisition cost

The Reference Case assumption assumes the MPDA would face the same interest rates on debt Emera has enjoyed historically. The interest rate environment will drive the cost of borrowing and therefore the financing advantage of the MPDA. The y-axis in this sensitivity matrix refers to the non-tax-exempt debt rate for the IOUs (under the Status Quo Scenario) and the MPDA (under the MPDA Scenario). This means as the value of the y-axis changes, both the IOUs' and MPDA's

future borrowing costs change. In other words, the sensitivity analysis captures how interest rates affect expected ratepayer savings and dis-savings).

Figure 20. Short-term (10-years) annualized MPDA net impact – acquisition cost vs borrowing cost (2018 \$ millions per year)

Cost of debt of Emera Maine equivalent credit rating	Acquisition value as multiple of NBV										
	1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2
8%	31	49	78	102	121	140	158	175	192	209	227
7%	(1)	19	37	64	80	103	120	137	152	168	183
6%	(28)	(13)	0	18	34	60	74	95	110	124	139
5%	(52)	(42)	(31)	(21)	(7)	3	19	33	57	72	91
4%	(76)	(68)	(59)	(51)	(43)	(35)	(26)	(14)	(6)	2	17
3%	(99)	(93)	(87)	(81)	(74)	(68)	(62)	(56)	(50)	(44)	(38)
2%	(121)	(117)	(113)	(109)	(105)	(101)	(97)	(93)	(89)	(86)	(82)

Figure 21. Long-term (30-years) annualized MPDA net impact – acquisition cost vs borrowing cost (2018 \$ millions per year)

Cost of debt of Emera Maine equivalent credit rating	Acquisition value as multiple of NBV										
	1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2
8%	35	51	84	105	126	141	155	169	182	195	207
7%	(0)	16	31	55	74	93	112	128	141	153	165
6%	(32)	(19)	(7)	5	19	36	55	73	88	103	118
5%	(59)	(50)	(42)	(33)	(23)	(13)	(3)	9	24	39	55
4%	(87)	(80)	(72)	(65)	(58)	(52)	(45)	(37)	(30)	(24)	(14)
3%	(112)	(107)	(102)	(97)	(92)	(87)	(81)	(76)	(71)	(66)	(62)
2%	(133)	(130)	(127)	(124)	(121)	(118)	(115)	(112)	(109)	(106)	(103)

Note: Cells with an outlined black border reflect the range covering the Reference Case assumptions. Results above assume a 3.5% real discount rate.

As one would expect, with higher the interest rate, the smaller the annualized ratepayer benefits under the MPDA Scenario. Since a large portion of LD 1646's benefits stem from the MPDA's lack of return on equity, as interest rates increase, the differential between the cost of debt and cost of equity narrows.¹⁰⁰ Therefore, if the macroeconomic conditions result in a higher interest rate environment, the expected benefit of LD 1646 would decrease.

7.5.3 Impact of MPDA's ability to raise tax-exempt debt

LEI's observations around the tax code and its applicability to MPDA have not been reviewed by a tax expert. As such, LEI considered alternative assumptions around the tax-exempt status of the

¹⁰⁰ The cost of equity may also increase in a high-interest rate environment, but this movement is rare and not always on a 1-to-1 ratio.

debt of MPDA. Furthermore, the Project Team recommends the Legislature engage with a tax expert to verify precise interpretations of the tax code and seek expertise on calibrating the structuring of the debt related to the acquisition and associated financing arrangements to minimize the costs of the debt to ratepayers. Such tax and financing studies can also help the Legislature identify any additional legal requirements for MPDA to obtain a tax-exempt financing status and maximize LD 1646's ratepayer savings through more optimized financing arrangements.

The impact of tax-exempt debt can be examined by comparing three sensitivity results:

1. **Base taxation sensitivity:** Initial debt for acquisition is not tax-exempt, but future debt for capex is tax-exempt up to an annual volume cap, presented in Figure 22, which is the same as Figure 19.
2. **No tax-exemption sensitivity:** All debts issued by MPDA are not tax-exempt, as presented in Figure 23.
3. **All tax-exemption sensitivity:** All debts issued by MPDA are tax-exempt, presented in Figure 24.

As most of the impact of tax-exempt status would be driven by future capex, in this sensitivity analysis, LEI only focuses on the long term (30-year) NPV calculation, although the values are presented in annualized terms. Between these three figures, Figure 24 has the largest green area (which denotes ratepayer savings), while Figure 23 has the least. This outcome is expected, because when all debt raised by MPDA is tax-exempt, the overall cost of capital of MPDA would be lower than the two other cases, leading to the largest ratepayer benefit.

Figure 22. Long term (30-years) annualized MPDA net impact – acquisition cost vs rate base growth rate – Base taxation sensitivity (2018 \$ millions per year)

		Acquisition value as multiple of NBV										
		1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2
Rate base y-o-y growth rate	10%	(247)	(235)	(223)	(211)	(199)	(187)	(175)	(158)	(144)	(132)	(117)
	9%	(204)	(192)	(181)	(170)	(158)	(146)	(134)	(118)	(105)	(93)	(79)
	8%	(160)	(149)	(138)	(127)	(116)	(104)	(89)	(78)	(65)	(54)	(39)
	7%	(127)	(116)	(106)	(95)	(84)	(72)	(58)	(46)	(34)	(23)	(9)
	6%	(101)	(91)	(80)	(71)	(60)	(49)	(35)	(24)	(12)	(1)	12
	5%	(80)	(70)	(61)	(51)	(40)	(31)	(17)	(7)	4	16	31
	4%	(63)	(54)	(45)	(35)	(26)	(16)	(4)	6	19	34	49
	3%	(52)	(42)	(33)	(24)	(13)	(3)	9	22	40	53	73
	2%	(45)	(35)	(26)	(13)	(5)	7	17	36	47	65	78
	1%	(39)	(30)	(21)	(9)	(0)	13	22	40	55	72	81
	0%	(33)	(25)	(17)	(6)	3	15	31	48	57	70	78

Note: Cells with an outlined black border reflect the range covering the Reference Case assumptions. Results above assume a 3.5% real discount rate

Figure 23. Long term (30-years) annualized MPDA net impact – acquisition cost vs rate base growth rate – No tax-exemption sensitivity (2018 \$ millions per year)

		Acquisition value as multiple of NBV										
Rate base y-o-y growth rate		1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2
	10%	(155)	(143)	(130)	(118)	(105)	(92)	(80)	(62)	(47)	(33)	(17)
	9%	(129)	(117)	(105)	(93)	(81)	(68)	(56)	(39)	(25)	(13)	4
	8%	(103)	(91)	(80)	(68)	(56)	(44)	(28)	(16)	(3)	9	27
	7%	(83)	(71)	(59)	(48)	(36)	(25)	(10)	2	15	28	43
	6%	(68)	(57)	(47)	(36)	(23)	(11)	4	14	26	40	53
	5%	(56)	(46)	(36)	(25)	(14)	(4)	11	22	35	48	63
	4%	(46)	(37)	(27)	(16)	(6)	6	18	30	48	62	79
	3%	(39)	(29)	(20)	(8)	1	15	26	48	64	83	97
	2%	(35)	(26)	(15)	(4)	6	18	28	51	67	81	97
1%	(32)	(23)	(14)	(2)	8	20	29	56	65	82	90	
0%	(29)	(21)	(12)	(2)	9	20	43	55	65	77	84	

Figure 24. Long term (30-years) annualized MPDA net impact – acquisition cost vs rate base growth rate – All tax-exemption sensitivity (2018 \$ millions per year)

		Acquisition value as multiple of NBV										
Rate base y-o-y growth rate		1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2
	10%	(272)	(263)	(253)	(244)	(235)	(225)	(216)	(207)	(197)	(188)	(178)
	9%	(231)	(219)	(210)	(201)	(192)	(183)	(174)	(165)	(156)	(147)	(137)
	8%	(184)	(175)	(167)	(158)	(149)	(140)	(132)	(123)	(114)	(105)	(97)
	7%	(150)	(141)	(133)	(125)	(117)	(109)	(101)	(91)	(83)	(74)	(66)
	6%	(122)	(114)	(107)	(99)	(91)	(83)	(75)	(67)	(59)	(50)	(40)
	5%	(100)	(92)	(85)	(78)	(70)	(63)	(56)	(48)	(40)	(32)	(22)
	4%	(82)	(75)	(68)	(61)	(54)	(47)	(40)	(32)	(25)	(18)	(9)
	3%	(70)	(63)	(56)	(49)	(41)	(35)	(28)	(20)	(12)	(5)	4
	2%	(60)	(54)	(47)	(40)	(33)	(27)	(20)	(10)	(4)	4	13
1%	(52)	(46)	(39)	(33)	(27)	(20)	(14)	(5)	2	12	19	
0%	(43)	(38)	(33)	(27)	(21)	(15)	(8)	(1)	7	15	22	

Note: Cells with an outlined black border reflect the range covering the Reference Case assumptions. Results above assume a 3.5% real discount rate.

Over the 30-year modeled timeframe, the impact of the “no tax-exemption” sensitivity has a smaller change as compared to the “all tax-exemption” sensitivity. Moving from the Reference Case taxation sensitivity to the no tax-exemption sensitivity only increases the annualized costs (i.e., increasing ratepayer dis-savings) in the range of \$4 million to \$100 million per year. In comparison, moving from the base taxation sensitivity to the all tax-exemption sensitivity, the

annualized benefit (i.e., increase in ratepayer savings) is increased by \$10 million to \$70 million per year.¹⁰¹

7.5.4 Contractor's management fee

The level of management fees has a significant effect on LD 1646's net ratepayer impact, as demonstrated in the sensitivity analysis on different levels of management fees as a percentage of assets under the contractor's management versus the rate base growth rate, presented in Figure 25 and Figure 26.

If we only focus on the short term (10 years), as shown in Figure 25, a high management fee would generally render MPDA to be unattractive to ratepayers. This is because potential savings created by MPDA would be paid to the contractor as a management fee. However, over the long term, as shown in Figure 26, if the forecasted rate base growth is high, benefits created from MPDA's low cost of capital, especially through tax-exempt financing of capex, would outweigh the cost of a higher management fee.

Figure 25. Short term (10-years) annualized MPDA net impact - management fee vs rate base growth rate (2018 \$ millions per year)

		Management fee as % of assets under management							
		1.0%	1.5%	2.0%	2.5%	3.0%	3.5%	4.0%	4.5%
Rate base y-o-y growth rate	10%	(49)	(24)	0	25	50	75	99	124
	9%	(42)	(19)	4	27	50	73	96	119
	8%	(33)	(12)	8	29	50	71	92	113
	7%	(26)	(7)	12	31	50	69	88	107
	6%	(19)	(1)	16	33	50	68	85	102
	5%	(12)	3	19	35	50	66	82	97
	4%	(8)	6	20	35	49	63	77	91
	3%	(0)	13	26	38	51	64	78	90
	2%	3	15	27	38	50	61	73	85
	1%	6	16	27	37	48	58	69	79
	0%	7	17	26	36	45	55	65	76

Note: Cells with an outlined black border reflect the range covering the Reference Case assumptions. Results above assume a 3.5% real discount rate.

¹⁰¹ It should be noted that when considering these various financial savings due to tax-exemption, certain government entities would collect less capital gain or income tax revenues. For tax-exempt debt, income taxes paid towards the federal government would decrease. The implications for Maine are more nuanced. For simplicity, LEI's calculation of tax-exempt debt savings assumes the Maine state income tax rate of 8.93% in the calculations. However, if the bearer of the MPDA bond is domiciled outside of Maine (for example, in a state without state income tax), then the savings from tax-exempt debt may be lower, but it also means the Maine state government would not be impacted by less income tax being collected.

Figure 26. Long term (30-years) annualized MPDA net impact – management fee vs rate base growth rate (2018 \$ millions per year)

		Management fee as % of assets under management							
		1.0%	1.5%	2.0%	2.5%	3.0%	3.5%	4.0%	4.5%
Rate base y-o-y growth rate	10%	(238)	(187)	(135)	(83)	(32)	20	72	123
	9%	(189)	(146)	(102)	(59)	(15)	28	72	115
	8%	(139)	(104)	(69)	(34)	1	36	71	106
	7%	(101)	(72)	(44)	(15)	14	42	71	99
	6%	(72)	(49)	(26)	(2)	21	44	67	91
	5%	(49)	(31)	(12)	8	27	45	64	83
	4%	(32)	(16)	(1)	14	30	45	61	76
	3%	(15)	(3)	10	23	35	48	61	74
	2%	(4)	7	17	27	38	48	59	69
	1%	4	13	22	30	39	48	56	65
	0%	8	15	23	30	37	44	51	59

Note: Cells with an outlined black border reflect the range covering the Reference Case assumptions. Results above assume a 3.5% real discount rate.

Under the Reference Case assumptions, LEI expects the contractors' agreement terms would utilize performance reward/penalties to enhance MPDA's customer services, while the contractor would likely face limited financial risk in operating & maintenance expense and capital investments; LEI assumed the management fee would be 1.5% of the value of assets under management. As presented in Figure 25 and Figure 26, if the rate base growth rate is relatively low (< 3%), then a small increase in management fee would reduce the likelihood of LD 1646 resulting in ratepayer benefit. Therefore, the management contract design would play an important role in LD 1646's long-term impact.

Under the Reference Case assumptions, if IOUs in the Status Quo would be paying the state income tax rate of 8.93% while MPDA's contractor would also pay the same tax rate on the management fee it receives,¹⁰² then the Maine government would receive \$267 million less tax revenue on a NPV basis (at 3.5% discount rate) over a 10 year period (2024 to 2033), and \$800 million less on NPV basis over a 30 year period (2024 to 2053).¹⁰³

In fact, if both the IOUs and MPDA's contractor pay the same effective tax rate, then the Maine government would inevitably face tax revenue reductions unless MPDA's contractor earns a level

¹⁰² This assumes all of the management fee payments are profits to the contractor.

¹⁰³ It should be noted that this is a theoretical tax impact calculation assuming that the IOUs would be paying the full amount of state tax without any exemptions. In practice, the IOUs could be paying a lower effective tax rate than the 8.93% state income tax rate, which would result in a smaller tax revenue impact by MPDA.

management fee that is the same as the pre-tax profit of the IOUs combined. In the long run, such reductions in tax revenue would lead to a reduction in public services or increases in taxes.

The sensitivity analyses presented in this paper suggest that creating MPDA under a high rate base growth rate and/or a low cost of debt environment would result in more ratepayer savings than the loss in tax revenue – however, such conditions are not certain.

7.5.5 Discount rate

As the net impact of LD 1646 varies over time and would be in effect measured in decades, the discount rate used to calculate the net present value for impact comparison between scenarios would be a key driver of the impact assessment model's conclusion. If the discount rate used is low, then the economic impact far out in the future would have a higher impact in present value terms as compared to a high discount rate.

A differing view regarding the appropriate discount rate reflects a different perspective on how publicly mandated use of funds should be evaluated. For those in favor of a lower social discount rate, they may evaluate LD 1646's impact from a social project and/or policy perspective. For those in favor of using a higher discount rate, they may argue that the formation of MPDA is similar to investing in a T&D project, and therefore the discount rate used to evaluate LD 1646 should be reflective of the risk of T&D operations as a commercial investment.

Under the Reference Case assumptions, LEI used a real discount rate of 3.5%. This is based on the discount rate used by the US House of Representatives Committee on Transportation and Infrastructure's assessment of Portsmouth Harbor and Piscataqua River New Hampshire and Maine Navigation Improvement Project conducted in 2015, which estimate the real discount rate to be 3.375%.¹⁰⁴ LEI considers this discount rate to be reasonable because it was recently used by a governmental entity to assess an infrastructure project located in Maine over a long period of time (50 years in this Portsmouth Harbor project) and was specifically stated that it is a real discount rate (as opposed to a nominal discount rate).

Alternatively, a higher discount rate is also considered. When assessing the long-term expected rate of return on pension plans investments, the City of Portland, Maine reported that the long-term expected real rate of return for infrastructure investment to be 5.3%.¹⁰⁵ This level of discount rate is also close to the expected return on investment by a long-term investor of infrastructure projects.¹⁰⁶ LEI assumed around this discount rate to be 5.5% for the high discount rate scenario.

¹⁰⁴ House Document 114-47. "Portsmouth Harbor and Piscataqua River New Hampshire and Maine Navigation Improvement Project." July 16, 2015.

¹⁰⁵ City of Portland, Maine. "Comprehensive Annual Financial Report for the Fiscal Year Ended June 30, 2018."

¹⁰⁶ For example, the iShares Global Infrastructure ETF 10-year nominal total return is 6.94% <<https://etfdb.com/etf/IFRA/#etf-ticker-profile>>. Given the historical average inflation of 1.75% in the US, the implied real return of investing into such infrastructure ETF would be 5.19%.

Figure 27 and Figure 28 presents the sensitivity analyses discussed in Section 7.5 (directly comparable against Figure 18 and Figure 19), but instead of using a 3.5% real discount rate, a 5.5% real discount rate is used when calculating the NPV.

Figure 27. Short-term (10-years) annualized MPDA net impact – acquisition cost vs rate base growth rate using 5.5% real discount rate (2018 \$ millions per year)

		Acquisition value as multiple of NBV										
Rate base y-o-y growth rate		1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2
	10%	(87)	(74)	(61)	(48)	(34)	(21)	(8)	17	36	49	68
	9%	(80)	(68)	(55)	(43)	(29)	(16)	(3)	21	38	52	70
	8%	(72)	(60)	(48)	(36)	(23)	(10)	12	24	41	54	75
	7%	(65)	(53)	(42)	(30)	(18)	(5)	16	28	44	57	76
	6%	(58)	(47)	(37)	(26)	(13)	(1)	19	31	46	57	75
	5%	(52)	(42)	(32)	(21)	(8)	3	22	33	46	60	80
	4%	(47)	(37)	(27)	(15)	(5)	6	23	34	52	69	86
	3%	(43)	(33)	(23)	(12)	(2)	12	25	41	57	68	86
	2%	(39)	(30)	(21)	(9)	0	14	25	46	56	72	83
	1%	(35)	(27)	(18)	(7)	2	15	26	45	55	70	80
0%	(31)	(24)	(16)	(5)	3	15	33	44	53	68	77	

Figure 28. Long term (30-years) annualized MPDA net impact – acquisition cost vs rate base growth rate using 5.5% real discount rate (2018 \$ millions)

		Acquisition value as multiple of NBV										
Rate base y-o-y growth rate		1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2
	10%	(169)	(159)	(150)	(141)	(131)	(122)	(113)	(99)	(88)	(78)	(67)
	9%	(141)	(132)	(123)	(114)	(105)	(95)	(86)	(73)	(63)	(53)	(42)
	8%	(112)	(103)	(94)	(86)	(77)	(68)	(56)	(47)	(37)	(28)	(16)
	7%	(90)	(81)	(73)	(65)	(56)	(47)	(36)	(27)	(17)	(8)	3
	6%	(72)	(64)	(56)	(49)	(40)	(32)	(20)	(12)	(3)	6	16
	5%	(58)	(51)	(43)	(36)	(27)	(19)	(9)	(1)	8	17	29
	4%	(47)	(40)	(33)	(25)	(17)	(10)	(0)	8	18	30	41
	3%	(39)	(31)	(24)	(17)	(9)	(0)	8	19	33	43	57
	2%	(34)	(27)	(19)	(10)	(3)	6	14	29	37	51	60
	1%	(29)	(23)	(16)	(7)	0	10	17	31	42	55	62
0%	(25)	(19)	(13)	(5)	2	12	24	36	43	54	60	

Note: Cells with an outlined black border reflect the range covering the Reference Case assumptions. Results above assume a 5.5% real discount rate.

By comparing the results in Figure 27 against Figure 18 and Figure 28 against Figure 19, it can be seen that the break-even points (i.e. cells in white) are largely in the same positions on the chart,

even though the numerical value of the annualized savings/dis-savings would change.¹⁰⁷ The meaning of this observation is that using a higher real discount rate does not directionally change the net impact of LD 1646. Based on LEI's analysis, under the Reference Case assumptions, only at a discount rate higher than 9.8% would LD 1646 result in overall ratepayer dis-savings over a 30-year NPV term.

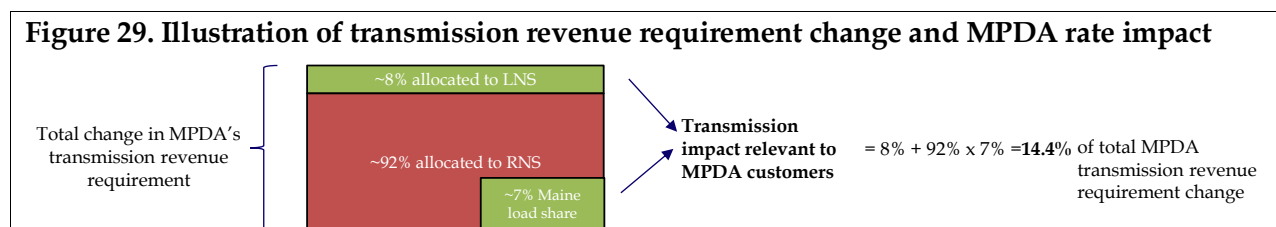
7.5.6 Transmission capital investment versus distribution capital investment

While the previous sensitivity analysis has shown the importance of rate base growth rate towards LD 1646's ratepayer impact, the type of capex (transmission or distribution) would also affect the impact of LD 1646. As discussed in Section 5.2, the IOUs have a transmission rate revenue requirement that is calculated differently from the distribution rate regulation requirement, and such difference would even be greater if MPDA is created.

From the ratepayer perspective, change in transmission rate revenue requirement also has a different impact than the change in distribution rate requirement. This is because ISO-NE socializes much of the transmission rates through the RNS mechanism under ISO-NE's OATT, as discussed in Section 2.3.

Under the current transmission rate design, approximately 92% of transmission revenues earned by the Maine IOUs are RNS revenue, while the remaining 8% are Local Network Service ("LNS") charges. RNS rates are determined based on the sum of all Pooled Transmission Owners' ("PTOs") RNS revenue requirement, and then allocated to ISO-NE ratepayers based on their region's share of the 12-month average of all monthly regional network loads. Historically, Maine's share of regional network load is around 7% of ISO-NE's load.

If MPDA continues to be part of ISO-NE and transmission rate allocation method remains the same, then a \$1 change in transmission revenue requirement would only translate to less than \$0.15 of rate impact to MPDA customers, as demonstrated in Figure 29.



Given this "socialization" effect of transmission revenue requirement change, capex spending into transmission would have a smaller effect on LD 1646's rate impact than the same amount of capex spending into distribution assets. One possible option the Maine legislature can consider is to amend LD 1646 such that only the distribution part of CMP and Emera Maine is acquired,

¹⁰⁷ In theory, the longer the time horizon, the higher the uncertainty. Therefore, it is possible to use different discount rates for the short-term and long-term forecasts. For simplicity, LEI is measuring the same project but over different sub-periods, so the same discount rate is used for comparison.

and MPDA would become a distribution only company. However, the current operating synergies, if any, between the transmission and distribution business may be disrupted and it may be costly to separate the distribution and transmission operations of the companies.

The Reference Case assumptions used in the impact assessment model assumes a 53:47 split between future transmission and distribution capital investment, which is based on that split in Emera's and CMP's forecasted investment plan. However, if the future of the electric grid requires more investments towards the transmission network (e.g. large deployment of offshore wind), then the impact of MPDA could vary from that presented in the Reference Case. Figure 30 and Figure 31 present a comparative analysis of LD 1646's impact to ratepayers under a 70% capex allocation towards transmission versus 70% capex allocation towards distribution.

Figure 30. Long-term (30-years) annualized MPDA net impact – acquisition cost vs rate base growth rate – 70% capex allocated to transmission (2018 \$ millions per year)

		Acquisition value as multiple of NBV										
		1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2
Rate base y-o-y growth rate	10%	(169)	(159)	(150)	(141)	(131)	(122)	(113)	(99)	(88)	(78)	(67)
	9%	(141)	(132)	(123)	(114)	(105)	(95)	(86)	(73)	(63)	(53)	(42)
	8%	(112)	(103)	(94)	(86)	(77)	(68)	(56)	(47)	(37)	(28)	(16)
	7%	(90)	(81)	(73)	(65)	(56)	(47)	(36)	(27)	(17)	(8)	3
	6%	(72)	(64)	(56)	(49)	(40)	(32)	(20)	(12)	(3)	6	16
	5%	(58)	(51)	(43)	(36)	(27)	(19)	(9)	(1)	8	17	29
	4%	(47)	(40)	(33)	(25)	(17)	(10)	(0)	8	18	30	41
	3%	(39)	(31)	(24)	(17)	(9)	(0)	8	19	33	43	57
	2%	(34)	(27)	(19)	(10)	(3)	6	14	29	37	51	60
	1%	(29)	(23)	(16)	(7)	0	10	17	31	42	55	62
0%	(25)	(19)	(13)	(5)	2	12	24	36	43	54	60	

Figure 31. Long-term (30-years) annualized MPDA net impact – acquisition cost vs rate base growth rate – 70% capex allocated to distribution (2018 \$ millions per year)

		Acquisition value as multiple of NBV										
		1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2
Rate base y-o-y growth rate	10%	(345)	(330)	(316)	(302)	(286)	(271)	(256)	(236)	(220)	(201)	(186)
	9%	(285)	(271)	(257)	(243)	(228)	(213)	(199)	(180)	(163)	(148)	(133)
	8%	(223)	(210)	(196)	(182)	(169)	(155)	(137)	(123)	(107)	(93)	(79)
	7%	(174)	(161)	(148)	(135)	(122)	(109)	(91)	(78)	(63)	(50)	(35)
	6%	(139)	(126)	(114)	(100)	(88)	(74)	(58)	(45)	(32)	(19)	(3)
	5%	(110)	(98)	(87)	(74)	(62)	(50)	(34)	(22)	(8)	5	21
	4%	(87)	(76)	(66)	(54)	(42)	(29)	(16)	(4)	13	30	47
	3%	(68)	(59)	(49)	(35)	(25)	(10)	2	22	41	56	77
	2%	(56)	(46)	(34)	(23)	(13)	1	12	34	48	66	82
	1%	(47)	(38)	(26)	(15)	(3)	8	18	47	57	72	86
0%	(39)	(30)	(22)	(10)	1	13	32	49	59	74	82	

Note: Cells with an outlined black border reflect the range covering the Reference Case assumptions. Results above assume a 3.5% real discount rate.

There are two main observations from the result of this sensitivity analysis. First, if the forecasted rate base growth rate is low, then whether most of the capex is investing in transmission or distribution does not materially influence LD 1646's ratepayer impact. Second, if the forecasted rate base growth rate is high, then allocating capex towards distribution would result in more ratepayer benefits relative to allocating capex towards transmission.

The magnitude and type of future investment are therefore critical to estimating the long-run costs and benefits associated with the MPDA. This report, therefore, recommends the Maine Legislature commission an engineering study to forecast the type and quantity of T&D capital investment likely needed in the future.

7.6 Taxes paid by MPDA

LD 1646 also states that MPDA should be exempt from all taxation by the State or locality (although payments in lieu of taxes for local property should continue to the extent the MPDA's revenues exceed current expenditures and any necessary reserves). The plain reading of LD 1646 appears that MPDA can continue to pay local property taxes, if its Board so wishes (and therefore collects the requisite sums from electric ratepayers).¹⁰⁸

For the purpose of modeling MPDA Scenario's tax payment versus the Status Quo Scenario in the impact assessment model, MPDA is considered a tax-exempt entity for state and federal income taxes, while the property taxes that are currently paid by the IOUs would continue to be paid by MPDA. The net result is that MPDA only differs from the IOUs by being an income tax-exempt entity, which results in a lower revenue requirement if all other factors are being held constant. Note that MPDA would also hire a contractor and pays the contractor management fee. And as such, the contract could be paying taxes to the State of Maine (and Federal government). The tax revenues received by the taxation authorities from the contractor may offset some of the lost tax revenues from the IOUs' business. The magnitude of the offset will depend on the effective tax rates of the IOUs versus the contractor and the relative size of the pre-tax net income generated by the IOUs from their realized returns versus the pre-tax net income generated by the contractor from its management fee, as discussed in Section 7.5.4.

Another potential impact on tax revenue is Maine's sales tax. Maine has a 5% sales tax, but there are numerous exemptions for electricity sales: for example, the first 750 kWh of monthly residential electricity consumption,¹⁰⁹ certain commercial activities, and 95% of the electricity use in manufacturing facilities¹¹⁰ are exempt. In LD 1646, related to tax exemption, it is written that "[n]otwithstanding any other provision of law, income of the authority, as a public

¹⁰⁸ A clarification from Representative Seth Berry to LEI on December 4, 2019 stated that he had intended that the local property tax payments would always be made.

¹⁰⁹ Maine Revenue Services Sales, Fuel and Special Tax Division. Instructional Bulletin No. 13. Last revised May 15, 2018. <<https://www.maine.gov/revenue/salesuse/IB1320180515.pdf>>

¹¹⁰ Maine Revenue Services, Sales/Excise Tax Division. "Industrial Users Blanket Certificate of Exemption." <<https://www.lesker.com/newweb/documents/tax-forms/me-form-st-a-117.pdf>>

instrumentality, is exempt from all taxation or assessment by the State or any political subdivision of the State.” LEI’s strict reading and interpretation of this paragraph suggests that the MPDA is exempt from income tax, but customers of MPDA are not exempted from sales tax charged of MPDA’s services. Furthermore, it is difficult to assess the impact of sales tax revenue because of the numerous exemptions in place. Therefore, this report does not include an impact analysis on sales tax exemption. As part of LEI’s gap analysis, LEI recommends the language in LD 1646 to be clarified as to whether the Legislature intended for MPDA to be sales tax exempt? In addition, the tax study previously recommended can also be used to evaluate options around the lost tax revenue, if it is material.

7.7 Other changes to operating expenses

LEI also looked into other possible changes to operating expenses due to LD 1646. Two costs that can be explicitly identified are the change in labor costs and the potential savings from joint costs shared by CMP and Emera Maine.

For labor costs, as discussed in Section 6.2, LEI estimates that the equivalency requirement would cost an additional \$3.8 million per year. In NPV terms, assuming the amount of unionized labor increases at a 2% rate per year,¹¹¹ this results in an operations & maintenance expense increase of less than \$3 million per year over 30-years, which is a small portion of the annualized impact relative to other drivers considered in this Section. To put this into context, \$3.8 million is less than 3% of CMP and Emera Maine’s fully loaded compensation for its employees in 2018.

From the perspective of unionized employees of MPDA, this increase in compensation may be more significant. There are currently approximately 850 unionized employees working for CMP and Emera Maine combined. A \$3.8 million increase in compensation would mean an average \$4,750 increase in wage of benefit per year, which is a non-trivial amount of additional compensation.

CMP and Emera Maine currently utilize shared services from their parent corporation, and such shared services are part of the revenue requirement of CMP and Emera Maine. Such services include insurance, human resources, internal audit, information technology, legal, and other corporate services. After MPDA acquires CMP and Emera Maine, it is possible to lower these shared services cost as only one set of these services is required.

As CMP is the larger entity, LEI assumed that the shared services cost for Emera can be eliminated under the MPDA scenario, meaning that the current shared services provided by CMP would be a good proxy for the costs that the contractor would require to service the customers of both IOUs. Under such an assumption, the cost of shared services can be reduced by approximately \$1.3

¹¹¹ Historically, Emera Maine has a labor cost growth rate of 1.8% over the past 15 years.

million per year,¹¹² which is a small portion of potential savings or dis-savings caused by LD 1646 relative to other key drivers.

¹¹² Based on data provided by Emera Maine on December 10, 2019.

8 Conclusions and Recommendations

It is apparent that the creation and the implementation of the MPDA, as contemplated by LD 1646, would be a major undertaking. As this report indicates, there are significant matters which require further research, analysis, and decision-making in order to set up the MPDA. The nine recommendations that address these matters can largely be categorized as (1) changes to the legislation on procedural matters (i.e. the acquisition process), (2) additional studies to be undertaken, or (3) clarifications or refinements to the language of LD 1646. Below, each of the recommendations is summarized based on the topic or section of the LD 1646 they refer to:

- **Creation, regulation, and Board selection process**
 - **Recommendation #1:** The Legislature may want to reconsider how Board members are selected (i.e. instead of being appointed, they could be elected by ratepayers directly), what the qualifications for Board members should have, and the establishment of standards of conduct for the Board (i.e. conflicts of interest). See Sections 4.1 and 4.2 for further details.
 - **Recommendation #2:** The Legislature may want to consider applying the same level of independent regulatory oversight (by the MPUC) over the MPDA as currently exists for the IOUs, especially if not customer-selected. See Section 4.3 for further details.
 - **Recommendation #3:** LD 1646 should include a provision directing the IOUs to timely file and pursue any required approvals under the FPA, including Section 203 and under Title 35-A, M.R.S.A., including Sections 1101 and 1104. See Section 4.3 for further details.
 - **Recommendation #4:** LD 1646 should clarify whether the MPUC is required to decide if service by MPDA is required by the public convenience and necessity, or by some other standard. See Section 4.1 for further details.
- **Acquisition of IOU assets and property**
 - **Recommendation #5:** A decisive resolution of the acquisition price in advance of any taking of assets by eminent domain is preferable. The report suggests an alternative process where the acquisition price determination precedes the transfer of assets and other startup arrangements. See Section 5.1 for further details.
- **Labor requirements**
 - **Recommendation #6:** Depending on which policy priority is more important to Maine - continuity of union employment or lower electric rates - the Legislature may want to amend the clauses in LD 1646 related to unionized labor. See Section 6.2 for further details.

- **Competitive solicitation of a private contractor**
 - *Recommendation #7:* The competitive tender and selection of an independent contractor will be a critical step in the formation of the MPDA and achievement of the intended objectives of LD 1646. The report suggests that the Legislature commission studies relating to the design of the competitive tender and contractual agreement. See Section 6.1 for further details.
- **Financing of MPDA**
 - *Recommendation #8:* Given that the magnitude and timing of ratepayer benefits depend on the tax treatment and the size of MPDA's debt, the Project Team recommends additional studies that (i) assess future capital investments needs for Maine's T&D systems, (ii) evaluate tax-related considerations for the MPDA, and (iii) consider financing alternatives with the help of a financial advisor (for example, the possibility of using securitization to finance the acquisition of assets). See Section 7 for further details.
- **Local property taxes**
 - *Recommendation #9:* LD 1646 language may need to be refined to clearly communicate the Legislature's intention around local property tax payments by the MPDA and applicability of sales tax. See Section 7.6 for further details.

8.1 Summary of recommended changes to the legislation

This report recommends four potential *changes* to LD 1646 for the Legislature to consider:

- Section 4002(1) of LD 1646 regarding Board selection that considers the possibility of ratepayers electing the Board as opposed to appointment by the Governor;
- Section 4003(5) of LD 1646 to provide for a clear process in which the MPDA would first settle on an acquisition price for the IOUs assets before proceeding with the transfer of assets and other startup arrangements;
- Section 4003(5) of LD 1646 depending on whether the Legislature would defer responsibilities of the protection of unionized labor to the MPDA Board to allow flexibility in rate-setting; and
- Section 4003(8) of LD 1646 to allow the MPUC to fully regulate the rates and investment plans of the MPDA in addition to the regulatory powers it currently has with respect to traditional COUs.

8.2 Summary of recommended studies

This report recommends four studies to be performed, as summarized in the table below. The benefit of completing these studies will be that the Legislature may be able to reduce uncertainty about the likely range and timing of benefits to electric ratepayers. In addition, the studies related to the competitive tender and structuring of the contractual agreement between MPDA and the contractor can also refine the roles and responsibilities of the MPDA and its agents, creating more certainty about the management and day-to-day operations of the T&D system, the costs thereof, and the benefits of such arrangements to ratepayers.

Figure 32. Further studies recommended to the Legislature

1	Study of various tax issues related to MPDA
2	Technical study on the future capex needs of Maine's T&D network
3	Financing study to design and optimize MPDA's capital structure
4	Study around the design of the competitive procurement process and optimal contractual agreement for the contractor

8.3 Summary of recommended clarifications to the Legislation

This report also recommends additional clarification of the language of LD 1646 as it relates to:

- Section 4002 of LD 1646 directing the IOUs to timely file and pursue any required approvals under the Federal Power Act, including Section 203;
- Section 4002 of LD 1646 on the applicability and relationship of Section 2102/2105 of 35-A M.R.S.A, specifically whether the MPUC is required to decide if service by MPDA is required by the public convenience and necessity, or by some other standard;
- Section 4005(1) of LD 1646 on whether the MPDA's sales will be fully exempt from Maine's sales tax; and
- Section 4005(2) of LD 1646 if MPDA has to keep payments in local property taxes the same as they would have been under IOU ownership or if they have the discretion to pay less (or more).

9 Appendix A: About the Project Team

9.1 London Economics International

LEI is a global economic, financial, and strategic advisory professional services firm specializing in energy and infrastructure. The firm combines a detailed understanding of specific network and commodity industries, such as electricity generation and distribution, with sophisticated analysis and a suite of proprietary quantitative models to produce reliable and comprehensible results. The firm's roots stem from the initial round of privatization of electricity, gas, and water companies in the UK in the late 1980s. Since then, LEI has advised private sector clients, market institutions, and government on policy initiatives, market and tariff design, asset valuation, market power, and strategy in virtually all deregulated markets worldwide. With over 25 years of experience working in New England, LEI is very familiar with electricity-related issues in the region. The firm also has a comprehensive understanding of the operational issues faced by the utilities and regulators alike.

In addition to LEI's regional expertise, the company has been evaluating the advantages and disadvantages of various utility ownership and regulatory models globally for decades. This includes a recent evaluation of different utility ownership models and regulatory options for the state of Hawaii.¹¹³ LEI's work included a thorough review of alternative utility ownership and regulatory models, an evaluation of the pros and cons of each, including their respective costs and benefits, and an analysis of the impact that various ownership models could have on electricity rates in the next 30 years.

Most recently, LEI performed a study of the retail rates of Kansas electric public utilities.¹¹⁴ Specifically, LEI evaluated the effectiveness of current ratemaking practices and their ability to attract required capital investments and balance utility profits with public interest objectives and reliable service. LEI also explored options available to the State Corporation Commission and the Kansas Legislature to affect Kansas retail electricity prices to become regionally competitive while providing the best practicable combination of price, quality and service.

9.2 Peter Brown, Esq.

Peter Brown has practiced law and provided consulting services to public agencies for over 50 years. The areas of concentration in his law practice include the creation of rules and institutions for competitive electric power markets and their independent system operators, practice before the Federal Energy Regulatory Commission and numerous state regulatory authorities, and electric power rates and rate design for the production and transmission of electric energy. Peter was a principal in the development of governance and market rules for ISO -New England and the governance and market rules for the New York ISO and has litigated rate cases and related

¹¹³ See report at: <<https://energy.hawaii.gov/utility-model>>

¹¹⁴ See report at: <<http://estar.kcc.ks.gov/estar/ViewFile.aspx/S20200108144309.pdf?Id=1a3a31e5-e38d-4445-aada-1cd0170a7b85>>

issues before several public utility commissions. He has also argued cases in the United States Supreme Court, the D.C., 3rd and 2nd Circuit Courts of Appeal, and numerous state appellate courts and courts of original jurisdiction.

Peter has served as First Deputy Attorney General of Pennsylvania and Chief Counsel to the Pennsylvania Public Utility Commission. He has taught law at Villanova Law School and the University of New Hampshire School of Law including courses in antitrust and public utility regulation. He is a member of the New York, Massachusetts, New Hampshire and Pennsylvania Bars.

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11 Appendix C: Additional ratepayer impact sensitivity analyses

Section 7 focuses on the key drivers of LD 1646's ratepayer impacts, and how changes to those drivers will affect the magnitude of ratepayer savings or dis-savings in the future. This appendix covers two additional sensitivities to provide readers with a better understanding of how a lower IOU transmission ROE and evolutions in the future interest rate environment could impact ratepayers.

11.1 Implications from a lower transmission ROE for IOUs

As of the writing of this paper, FERC has issued an order for consideration of rehearing its new methodology for determining whether a public utility's ROE is just and reasonable.¹¹⁵

The potential implication of the hearing is that the IOUs' approved ROE for transmission would be lowered from the current ISO-NE level of 11.07%.¹¹⁶ However, it is unclear what level of jurisdiction FERC may have over municipal transmission owner's transmission rates. So, the change in IOUs' ROEs would not necessarily impact MPDA's transmission allowed return on capital. If the FERC decision results in a lower IOU ROE but keeps MPDA's transmission allowed return on capital to be 8%, it would reduce LD 1646's potential ratepayer impact. For example, if the FERC decision results in a 2% lower transmission allowed ROE for ISO-NE IOUs, the annualized impact of LD 1646 ratepayer's benefits would be lowered by \$4 million to \$6 million per year in 2018 dollars, depending on the time-horizon and real discount rate used.

Figure 33. Annualized LD 1646 ratepayer impact from a lower transmission ROE for IOUs

\$million per year in 2018\$ (negative is savings)		Real discount rate	
		3.5%	5.5%
Time horizon	Short term (10 years)	\$18	\$16
	Long term (30 years)	(\$2)	(\$0)

¹¹⁵ ISO-NE. "Executive Summary – Status Report of Current Regulatory and Legal Proceedings as of February 5, 2015" There is currently a rehearing request before FERC on ROE issues for New England transmission owners (Docket Nos. EL14-12-003, EL 15-45-000).

¹¹⁶ When FERC applied the revised base ROE methodology for the Midwest ISO transmission owner, it found that the ROE should be reduced from 12.38% to 9.88%. See American Public Power Association. *FERC adopts new base ROE methodology*. November 22, 2019.

11.2 Sensitivity analysis of future costs of debt versus rate base growth rate

Figure 34 and Figure 35 presents the sensitivity analysis for short- and long-term annualized ratepayer impacts related to rate base growth rate and cost of debt. The goal of this sensitivity analysis set is to test whether a high rate base growth rate can offset the negative impacts of a high interest rate environment.

LEI observes that in the short term, the rate base growth rate has limited influence on the overall direction of LD 1646's ratepayer impact (i.e. the green columns stays green, and the red columns stay red). However, in the long term, a differential pattern emerges. The positive impact of high rate base growth does not "kick-in" for several years when more investment is being financed through lower cost (tax-exempt) debt. Nevertheless, access to lower financing cost yields more ratepayer savings in the long term.

Figure 34. Short term (10 year) annualized MPDA net impact – rate base growth rate vs cost of debt (2018 \$ million per year)

		Initial cost of debt of MPDA						
Rate base y-o-y growth rate		2.0%	3.0%	4.0%	5.0%	6.0%	7.0%	8.0%
	10%	(176)	(129)	(81)	(30)	32	92	152
	9%	(162)	(117)	(72)	(24)	35	92	152
	8%	(146)	(105)	(62)	(17)	38	94	151
	7%	(131)	(93)	(54)	(11)	41	95	149
	6%	(118)	(82)	(46)	(5)	42	92	143
	5%	(106)	(73)	(39)	(0)	43	95	138
	4%	(94)	(64)	(33)	2	46	97	133
	3%	(84)	(57)	(28)	5	56	94	125
	2%	(75)	(50)	(23)	7	55	90	119
	1%	(67)	(44)	(20)	10	53	85	112
	0%	(59)	(38)	(16)	14	51	81	106

Note: Cells with an outlined black border reflect the range covering the Reference Case assumptions. Results above assume a 3.5% real discount rate.

Another observation from this analysis is that at a higher interest rate environment (for example, 200 basis point increase over Reference Case assumptions), ratepayer impacts are not favorable under the MPDA Scenario, even if rate base is growing at a high rate.

Figure 35. Long term (30-year) annualized MPDA net impact – rate base growth rate vs cost of debt (2018 \$ million per year)

		Initial cost of debt of MPDA						
		2.0%	3.0%	4.0%	5.0%	6.0%	7.0%	8.0%
Rate base y-o-y growth rate	10%	(437)	(360)	(278)	(195)	(105)	(9)	89
	9%	(362)	(296)	(226)	(153)	(74)	10	98
	8%	(288)	(233)	(174)	(111)	(43)	29	107
	7%	(230)	(183)	(133)	(79)	(18)	45	114
	6%	(183)	(143)	(101)	(53)	(0)	55	118
	5%	(147)	(112)	(76)	(35)	12	64	124
	4%	(118)	(88)	(56)	(20)	23	76	132
	3%	(95)	(70)	(41)	(7)	41	89	126
	2%	(77)	(56)	(30)	1	44	89	116
	1%	(62)	(44)	(22)	9	52	84	107
	0%	(48)	(34)	(16)	13	52	79	99

Note: Cells with an outlined black border reflect the range covering the Reference Case assumptions. Results above assume a 3.5% real discount rate.

Note that the above analysis (in Figure 34 and Figure 35) assumes a 1.5x NBV acquisition price for the IOU assets. Figure 36 below shows the results for ratepayers under a 1.2x NBV. This indicates that a lower acquisition price could allow for ratepayer savings even at a higher cost of debt. Generally, under a high interest rate environment, asset values would be lower (due to higher discount rate for future returns).

Figure 36. Long term (30-year) annualized MPDA net impact – rate base growth rate vs cost of debt – 1.2x NBV acquisition price (2018 \$ million per year)

		Initial cost of debt of MPDA						
		2.0%	3.0%	4.0%	5.0%	6.0%	7.0%	8.0%
Rate base y-o-y growth rate	10%	(450)	(381)	(305)	(231)	(152)	(67)	22
	9%	(375)	(316)	(253)	(188)	(120)	(45)	32
	8%	(300)	(251)	(199)	(143)	(87)	(24)	41
	7%	(240)	(200)	(157)	(110)	(60)	(7)	47
	6%	(193)	(159)	(123)	(85)	(42)	6	52
	5%	(156)	(127)	(97)	(64)	(28)	14	56
	4%	(128)	(104)	(76)	(48)	(17)	20	63
	3%	(104)	(85)	(62)	(36)	(7)	25	73
	2%	(86)	(69)	(51)	(28)	(1)	27	68
	1%	(69)	(57)	(41)	(23)	2	28	65
	0%	(55)	(44)	(33)	(19)	3	40	62

Note: Cells with an outlined black border reflect the range covering the Reference Case assumptions. Results above assume a 3.5% real discount rate.