NYSEIA solar research

THE IMPACT OF PREVAILING WAGE EXPANSION ON SOLAR PHOTOVOLTAIC PROJECTS IN NEW YORK STATE

NEW YORK SOLAR ENERGY INDUSTRIES ASSOCIATION

Research Paper No. 1

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EXECUTIVE SUMMARY

1. Based on data provided by NYSEIA member firms, Prevailing Wage requirements have resulted in solar project cost increases of between 10 to 20 percent on average in New York State due to increases in labor costs related to site work, panel mounting, electrical labor, landscaping and security.

2. In general, the inflationary impact of Prevailing Wage requirements on solar projects is most pronounced in the residential and small commercial sector. Smaller rooftop systems (less than 25 kW-dc capacity), which made up 37 percent of installations in 2018, experience average increases of 20.3 percent, equating to an increase in price of roughly $5,600 for a residential customer. Smaller commercial projects (25–250 kW-dc) experience a similar average increase of 15.8 percent, which amounts to an additional burden of $18,750 for a 50 kW-dc system.

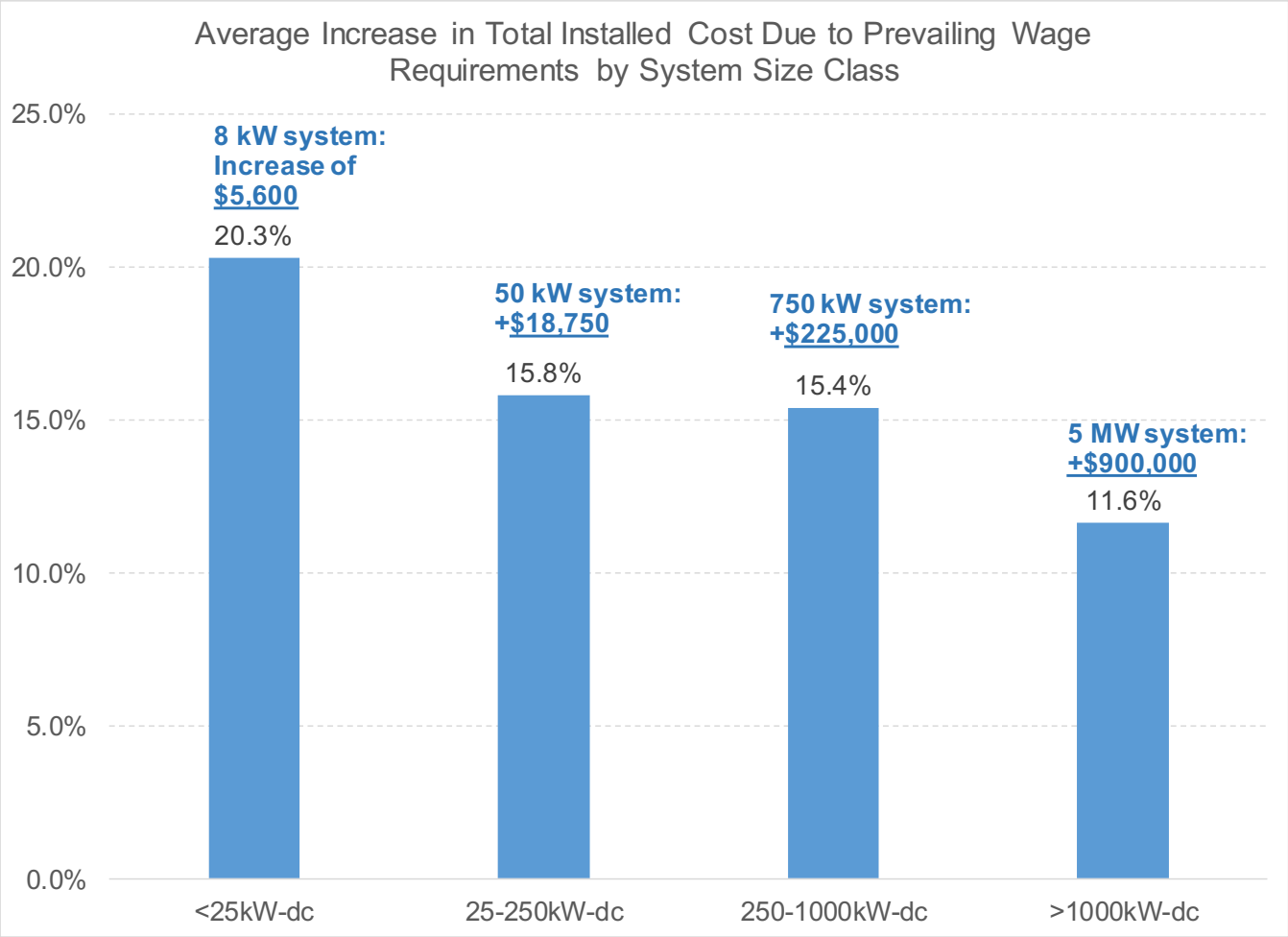
3. The cost impact of Prevailing Wage requirements on larger-sized projects (250 kW-dc capacity and above), which made up 56 percent of 2018 installations, is generally less than for smaller projects, but still highly significant, with an average increase of 13 percent. For a 5 MW-dc community solar project, this would amount to an additional cost burden of more than $900,000 (see Figure 1)—a sufficiently high increase so as to lower the financial rate of return for projects in this segment to the point where it is no longer feasible to develop them, and current NYSERDA incentives have not been designed with Prevailing Wage requirements in mind.

4. Without a broad exemption for renewable energy projects, or a commensurate increase in state support (such as through the NY-Sun Megawatt Block Program), huge numbers of solar projects in New York State will no longer be economical, resulting in a significant pullback in solar photovoltaic (PV) deployments.

5. In addition to inflating project costs, Prevailing Wage mandates are also likely to dramatically expand administrative burdens to demonstrate compliance, which would further slow down deployment rates, shift business from smaller local developers to larger firms, and eventually lead to many small and mid-sized residential, commercial and industrial solar developers shuttering their operations.

6. Given (i) New York's clean energy procurement goals (70 percent of electric generation by 2030) and decarbonization targets for its electric sector (100 percent carbon-free by 2040), as well as the goals of the recently introduced Climate and Community Protection Act (100 percent carbon-free emissions across the economy by 2050); (ii) the fact that more than 40 percent of New York's electricity in 2017 was produced from fossil fuel–based generation; and (iii) the limited technological options for electric sector decarbonization in New York going forward, there is an urgent need for the state to significantly accelerate its deployment of solar energy systems compared to historical levels. The pullback effect of imposing Prevailing Wage requirements on a large majority of solar PV projects will hence pose a significant risk to the state's decarbonization goals, especially as they pertain to the electric sector.

Figure 1: Average Current Increase in Total System Cost Due to Prevailing Wage Requirements by System Size



Source: New York Solar Energy Industries Association (NYSEIA)

1. INTRODUCTION

1A. Scope and Context

This study was prompted by the fact that the New York State Legislature is considering legislation to extend Prevailing Wage law requirements. Specifically, Senate Bill S1947[1], which was introduced in the 2019–2020 Legislative Session, seeks to amend Section 220 of New York's Labor Law to expand the scope of projects subject to the state's Prevailing Wage requirement. Its Assembly counterpart is Bill A1261[2]. Both bills explicitly require "public works" projects to pay Prevailing Wage rates and define "public work" to include "construction paid for in whole or in part out of public funds."[3] The bills go on to define "public funds" to include both "payment of money or the equivalent of money, including the issuance of bonds and grants, by the state or a public entity, or a third party acting on behalf of and for the benefit of the state or public entity, directly to or on behalf of the public works contractor, subcontractor, or developer" as well as "money loaned by the state or public entity that is to be repaid on a contingent basis."[4]

Given that in its current form, many—if not all—solar PV projects developed in New York that receive NYSERDA incentives and/or Green Bank financing could fall under the scope of this legislation, NYSEIA undertook this study with the aim of better informing stakeholders in the solar industry—namely, solar project developers, administrators, regulators and legislators—on the probable impacts of expanding Prevailing Wage legislation on solar project economics, solar PV deployment rates in New York, and the feasibility of meeting the state's clean energy, decarbonization and greenhouse gas emissions targets. To accomplish this, NYSEIA surveyed member firms on both wage-related and non-wage factors associated with Prevailing Wage

[1] https://www.nysenate.gov/legislation/bills/2019/s1947.
[2] https://www.nysenate.gov/legislation/bills/2019/a1261.
[3] Ibid. at §2 (m).
[4] Ibid. at §2 (n).

requirements, with data on wage-related cost increases collected from both historical and modeled projects.

2. BACKGROUND

2A. Prevailing Wage in New York State

In theory, the Prevailing Wage is one that is either given to the majority of workers of a specified occupation, or is the average wage of all of an occupation's workers within a specified locale. New York State has had a Prevailing Wage law since 1894[5] (also written into the State Constitution in 1938[6]) which requires payment of Prevailing Wage for all "public work" projects regardless of dollar value,[7] and sets Prevailing Wage and benefit rates at levels required by union collective bargaining agreements.[8] The law also effectively requires contractors on public projects to organize and assign work as required by union rules.[9]

2B. Current Application of Prevailing Wage to NY Solar Projects

Currently, the New York State Department of Labor (NYSDOL) applies a three-prong test[10] to determine whether a particular project is public work and subject to the Prevailing Wage requirements of Labor Law § 220 and Article I, §17 of the State Constitution. First, a public agency must be a party to a contract involving the employment of laborers, workpersons, or mechanics. Second, the contract must concern a project that primarily involves construction-like labor and is paid for by public funds. Third, the primary objective or function of the work product must be the use or other benefit of the general public.

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[5] New York State Labor Law §220 (http://public.leginfo.state.ny.us/lawssrch.cgi?NVLWO:)
[6] New York State Constitution Article I, §17 (https://www.dos.ny.gov/info/constitution.htm)
[7] Ibid.
[8] Ibid.
[9] Ibid.
[10] https://labor.ny.gov/workerprotection/publicwork/PW_faq1.shtm.

Under the application of New York's Prevailing Wage law as stated above, two classes of solar PV projects currently fall under the scope of Prevailing Wage requirements:

1. Systems where the owner of the system or off-taker of the energy produced by the system is a government entity. Solar energy systems installed on public schools and municipal government buildings are examples of this class of systems.
2. Utility-scale projects developed under the large-scale renewable solicitation process by the New York State Energy Research and Development Agency (NYSERDA) from 2017 onward. These are generally utility-scale, transmission-level solar farms with nameplate capacity over 20 MW-dc developed by larger (in many cases out-of-state) developers.

It is worth noting that for both types of solar projects currently requiring Prevailing Wage, the decision on whether or not to go ahead with development is not particularly sensitive to the cost increase and administrative complexity introduced by Prevailing Wage mandates. The first class of systems—i.e. where the owner or off-taker is a government entity—falls under the traditional scope of Prevailing Wage legislation and at least a part of the increased cost is passed on and absorbed by the customer. The development of a second class of systems—namely, large solar farms—is solicited by NYSERDA under the Clean Energy Standard, and the state will similarly absorb some of the cost increases associated with Prevailing Wage requirements. Moreover, the firms developing these projects, being large infrastructure developers, have the experience, sophistication and administrative infrastructure necessary to comply with New York's Prevailing Wage requirements.

This is almost certainly not the case with the solar installation market at large in New York, where the customer is generally a private entity whose decision-making process will be critically sensitive to the increased price that Prevailing Wage requirements would drive, and where the large majority of developers are small and mid-sized firms lacking the experience and resources required to demonstrate compliance.

3. PREVAILING WAGE IMPACTS ON SOLAR PROJECTS

3A. Cost Impact

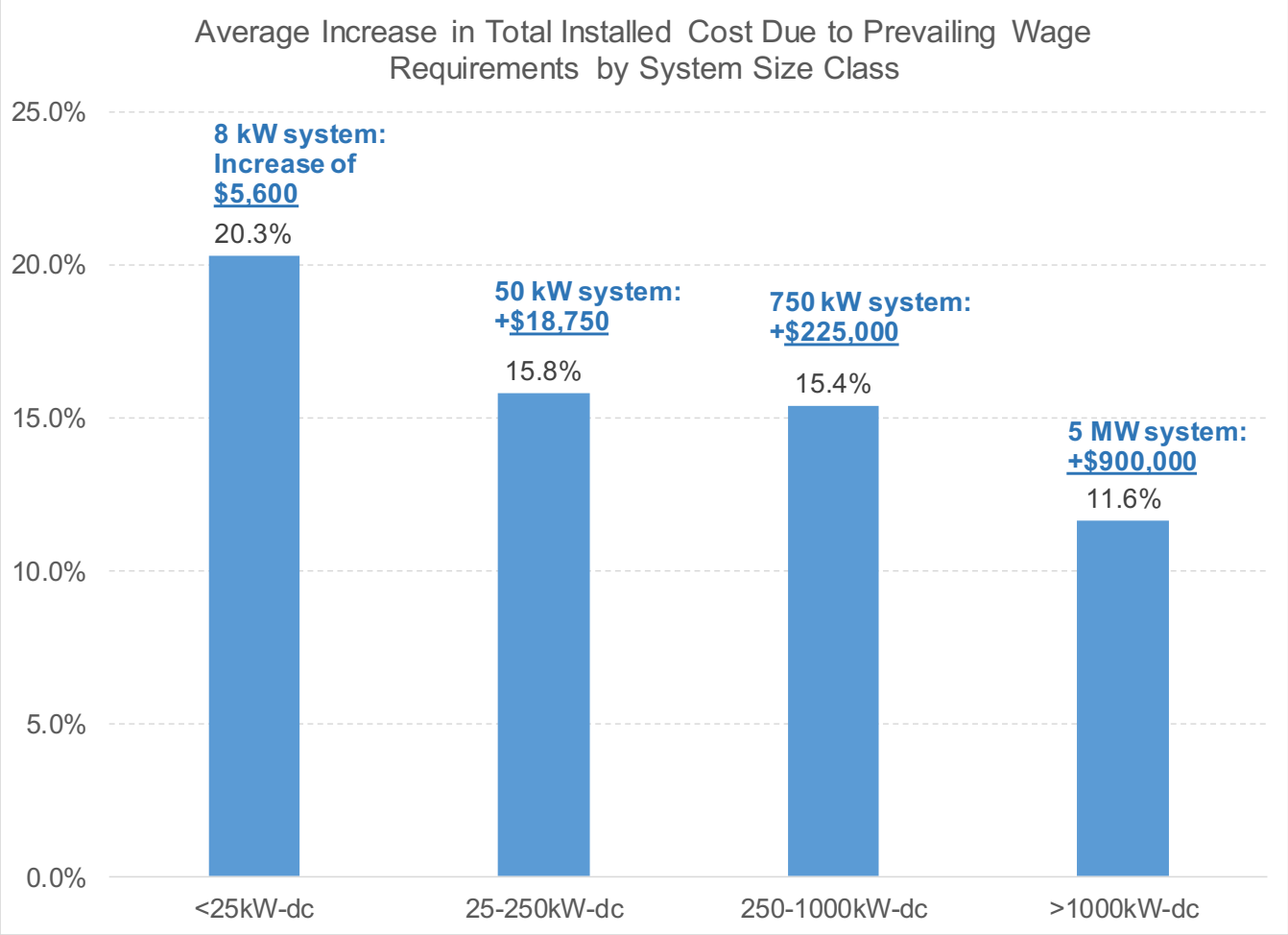
From November 2018 through March 2019, NYSEIA surveyed its member firms on both wage-related and non-wage factors associated with Prevailing Wage requirements, with data on wage-related cost increases collected from over 25 historical and modeled projects. All surveyed projects reported some level of increase stemming from the higher wage rates associated with Prevailing Wage, with the lowest increase (5.3 percent) reported for a utility-scale, ground-mounted system developed in upstate New York and the highest (40.0 percent) reported for a small pergola-style system developed in New York City with significant steel erection. As concerns the development and construction of solar PV systems, the following types of work generally come under the purview of Prevailing Wage requirements:

- Site work
- Panel mounting
- Low-voltage electrical work
- Medium-voltage electrical work
- Landscaping
- Fencing
- Lighting
- Security systems

Figure 2 presents average reported percentage increases in total installed costs for four different classes of systems: (i) Under 25 kW-dc nameplate capacity (residential rooftop); (ii) 25–250 kW-dc (small commercial rooftop systems); (iii) 250–1,000 kW-dc (mid-sized commercial and industrial, both rooftop and ground-mounted); (iv) Greater than 1 MW-dc (large commercial and community solar projects, predominantly ground-mounted). As shown, the residential sector reported seeing the highest inflationary impact, with an average increase of 20.3 percent. Systems between 25–250 kW-dc, representing the small and mid-sized commercial and industrial (C&I) segments reported an average increase of 15.8 percent, with

a similar result for systems between 250–1,000 kW-dc (15.4 percent). Finally, systems sized at 1 MW-dc higher, representing larger C&I, community solar and utility-scale projects, also reported double-digit declines of 11.6 percent on average, with individual projects seeing increases ranging from 5 to 20 percent.

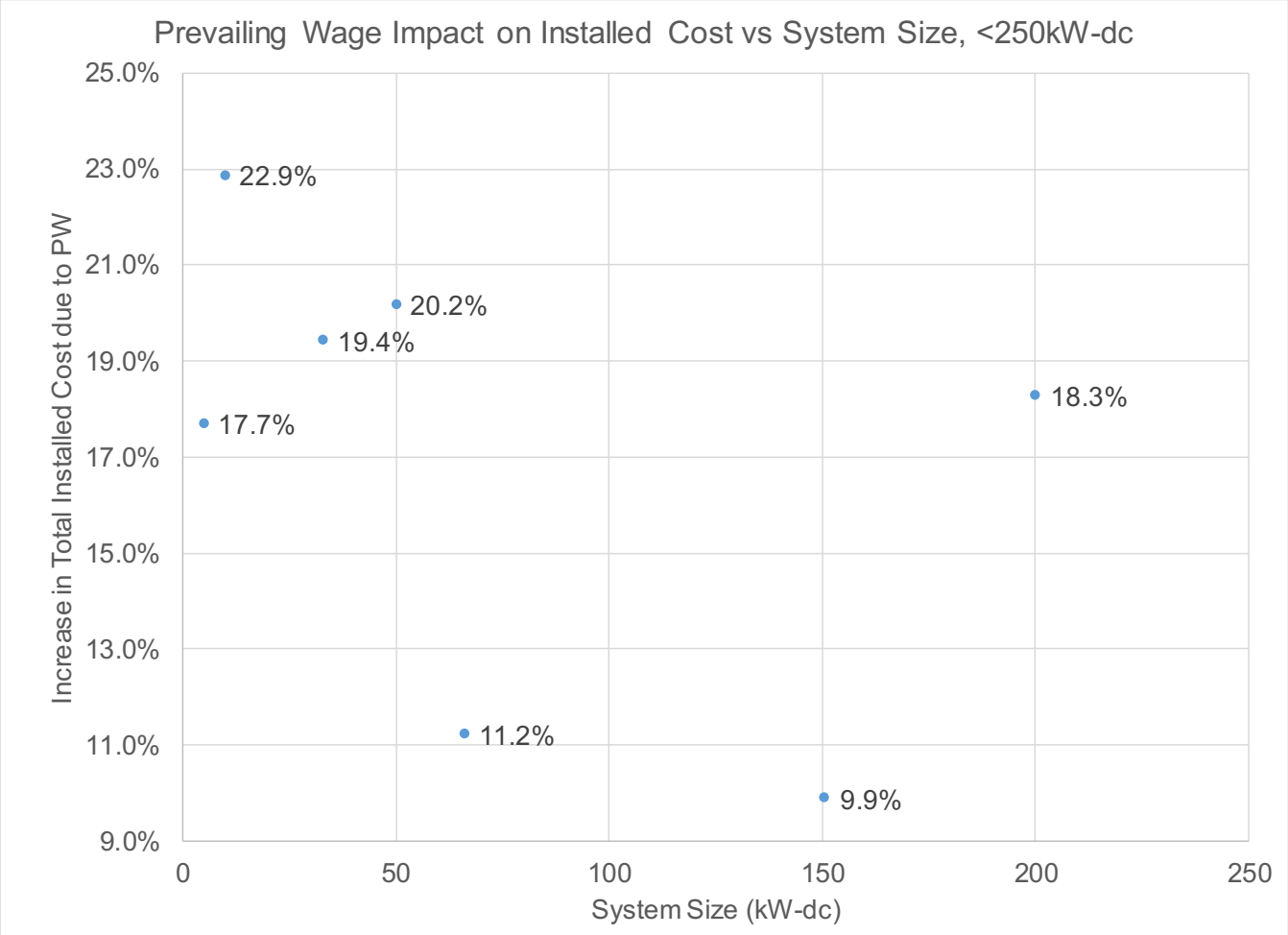
Figure 2: Average Current Increase in Total System Cost Due to Prevailing Wage Requirements by System Size Class



Source: New York Solar Energy Industries Association (NYSEIA)

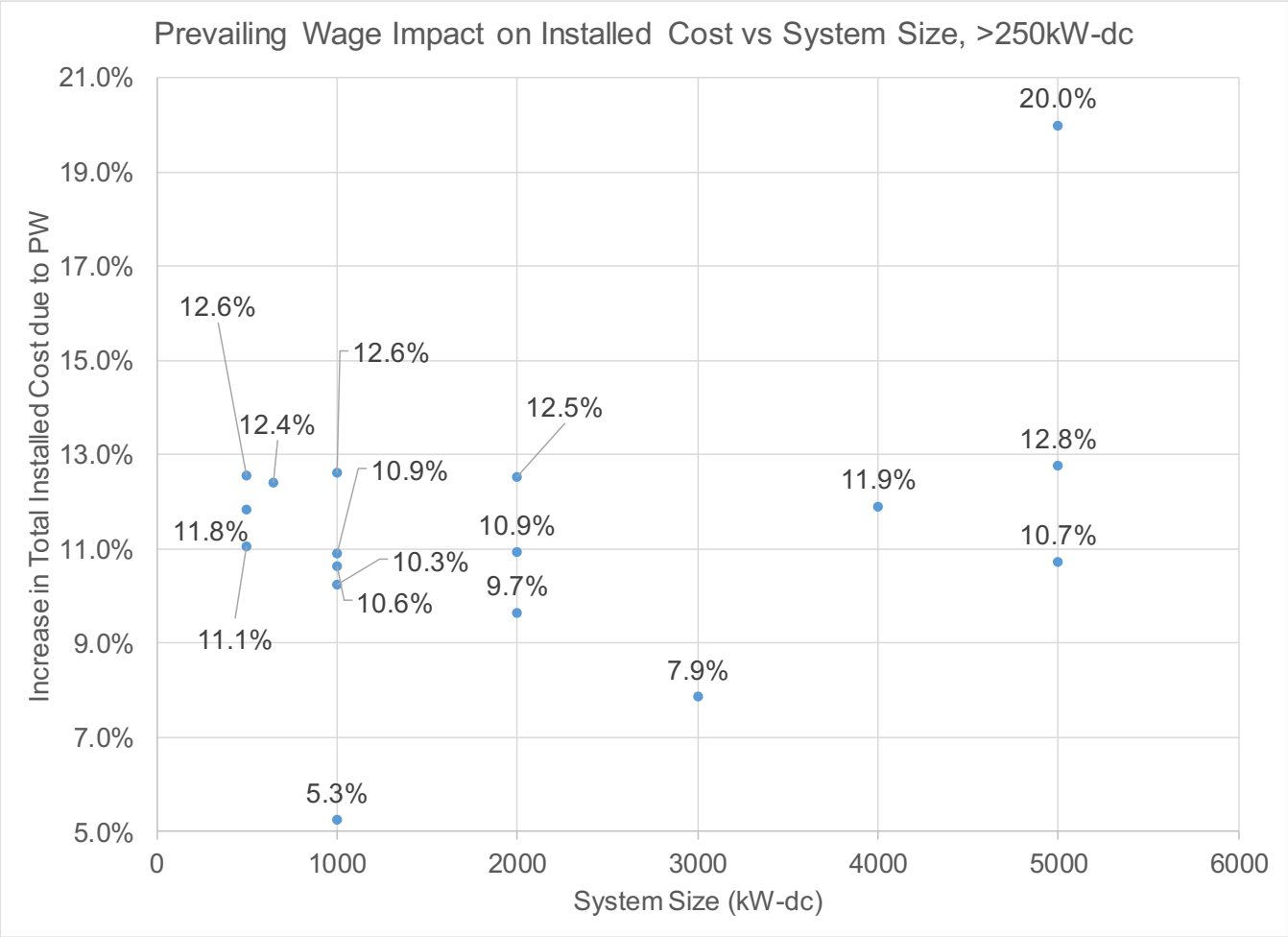
Figures 3 and 4 present a fuller range of reported Prevailing Wage–induced cost increases on a scatter plot, showing how the cost burden as a percentage of total installed cost varies by system size. As can be seen, there is a generally inverse relationship between system size and the reported cost increase associated with Prevailing Wage, especially for smaller systems (Figure 3). Cost increases for most larger systems, shown in Figure 3, also show the same relationship, but are generally in a range of 10 to 13 percent for most projects.

Figure 3: Prevailing Wage Impact on Installed Cost vs System Size, Capacity 250 kW-dc or Lower



Source: New York Solar Energy Industries Association (NYSEIA)

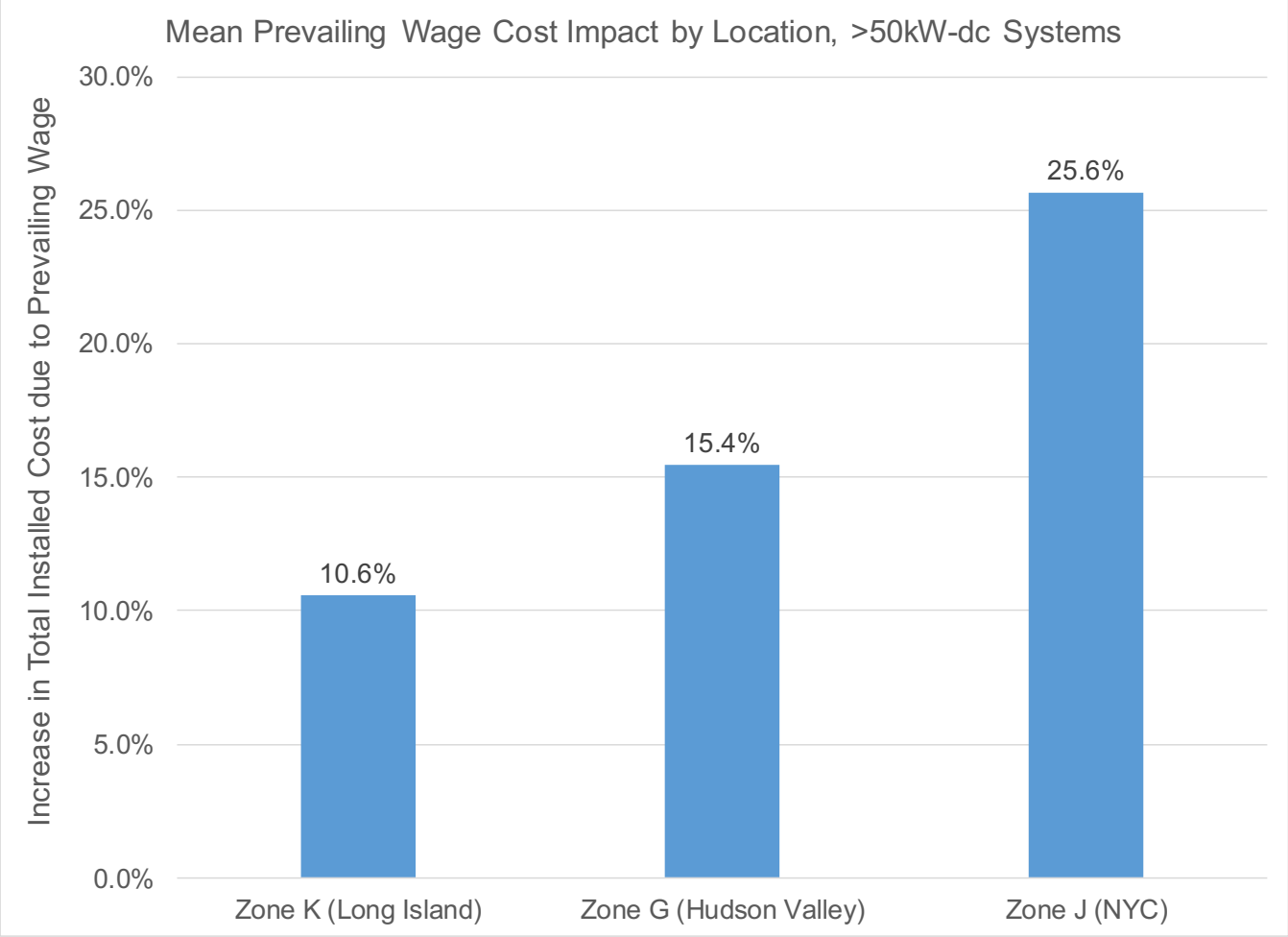
Figure 4: Prevailing Wage Impact on Installed Cost vs System Size, Capacity >250 kW-dc



Source: New York Solar Energy Industries Association (NYSEIA)

Figure 5 illustrates how the cost impact of Prevailing Wage requirements varies by geography for nonresidential systems. As shown, projects on Long Island reported an average increase of 10.6 percent for this segment, compared to 15.4 percent in the Hudson Valley and 25.6 percent in New York City.

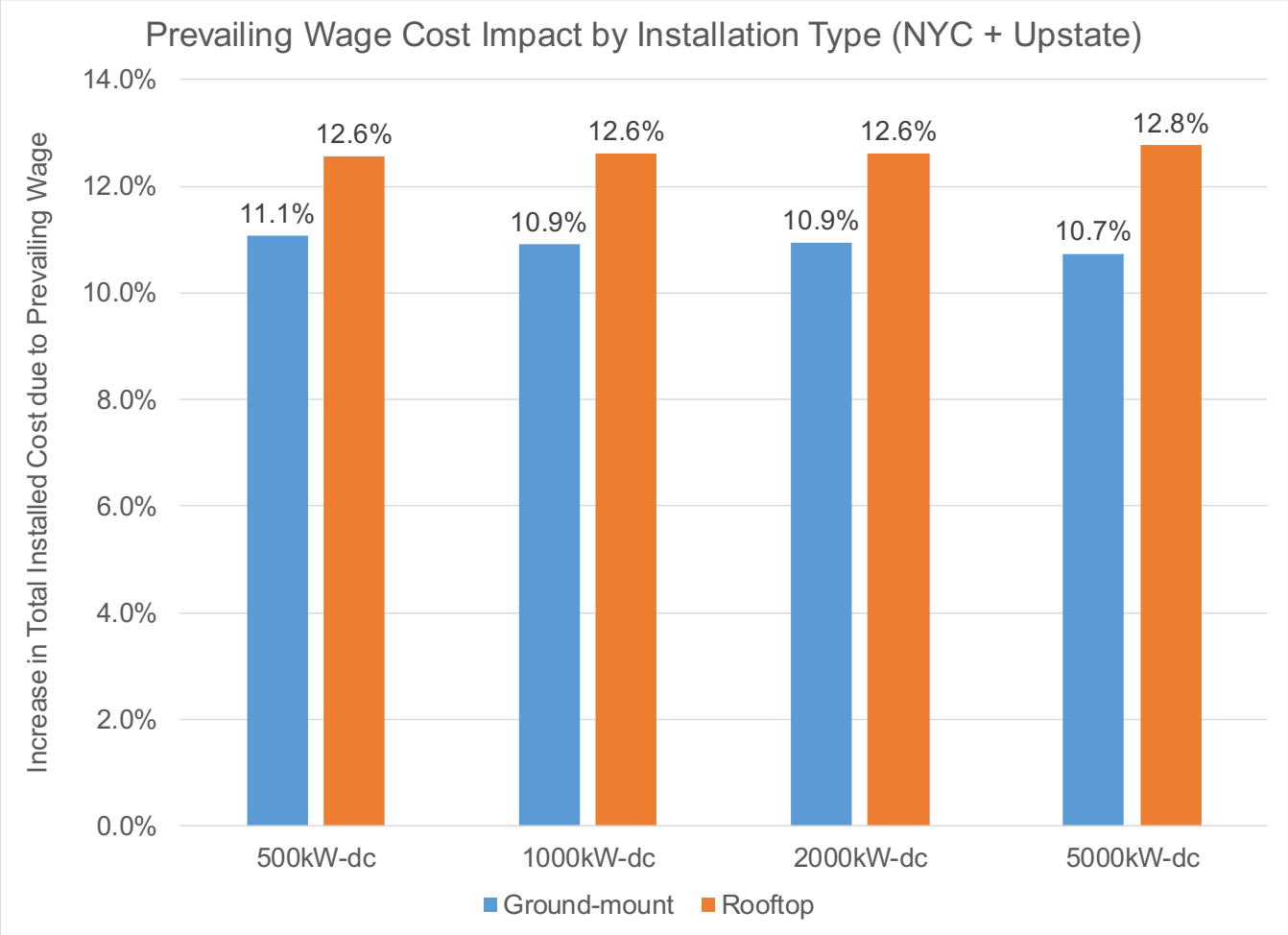
Figure 5: Prevailing Wage Cost Impact by Geography, >50 kW-dc Systems



Source: New York Solar Energy Industries Association (NYSEIA)

Figure 6 shows the differing levels of cost increases associated with rooftop and ground-mounted systems. As can be seen, rooftop systems report consistently higher levels of Prevailing Wage-related cost inflation (about 2 percent on average) than ground-mounted systems for projects of similar size and based in the same geography. This stems from the fact that labor generally makes up a higher percentage of the installed cost structure for rooftop projects, and residential solar developers in many New York counties are required to pay all labor hours at the journeyman electrician rate, which often runs in excess of $100 per hour when factoring in benefits such as payroll taxes (FICA) and Workers' Comp.

Figure 6: Prevailing Wage Cost Impact, Rooftop vs Ground-mounted Systems



Source: New York Solar Energy Industries Association (NYSEIA)

3B. Non-Wage Factors

In addition to paying significantly higher wage rates for multiple classes of development and installation work, Prevailing Wage requirements also impose significant burdens on solar developers in order to demonstrate compliance. Below are some examples of the administrative and record-keeping complexity associated with developing and installing solar energy systems in New York:

1. Firms must prepare, certify and submit weekly Certified Payrolls with a detailed breakdown by day of the time, rate, benefits and withholdings of every employee, in a specific form that must be signed by a company officer. Errors, incomplete information or failure to file can result in strict penalties.
2. Prevailing wage rates vary by county and even parts of counties, by time of day and shift, and whether the day in question is a weekday or weekend. Work after 5 PM can be at a higher rate. In residential solar, where a five-person crew can install a small system in a day, this could mean tracking five different pay rates for each day of the week as the crew moves around, say, the Capital District or Hudson Valley. Moreover, only on-job-site time is subject to Prevailing Wage, with the driving time between shop and job sites exempt. Consequently, it is not uncommon to have five to six different pay rates for a single installer in a single week.
3. The hourly value of benefits provided varies for each employee and must be calculated separately, depending on the number of vacation days they earn, whether they have selected individual, employee/spouse, or family health care, whether or not they participate in a 401(k) match, etc. All of the above factors must be accurately reflected on the weekly Certified Payroll.
4. To avail of the lower wage rates allowed for apprentice electricians, workers must be enrolled in a NYSDOL-certified apprenticeship program. For smaller installers that hire and train nonunion labor from the local community, this is not generally not a feasible option.

4. IMPACT OF EXPANDING PREVAILING WAGE REQUIREMENTS ON NEW YORK'S SOLAR MARKET

4A. Significant Inflation in Solar Project Costs and Prices

The data and analyses laid out in Section 3 of this study make it clear that an expansion in the scope of Prevailing Wage legislation would have a significant inflationary impact on project costs, and consequently, would increase the cost, affordability and attractiveness of solar energy for both businesses and customers.

Looking at the residential sector, one can approximately quantify this impact in dollar terms. Assuming a system nameplate rating of 8 kW at an original installed price of $3.50 per watt and a 20 percent increase in selling price induced by Prevailing Wage requirements on the residential sector as indicated by Figure 1, we arrive at an increase in system price of $5,600. For a middle-class homeowner in New York, this would be a prohibitively high increase. Similarly, an increase of 15 percent for a 50 kW small commercial rooftop system originally priced at $2.50 per watt would imply an overall increase of $18,750—a deal-breaking impact for a customer such as a church, auto garage, or a dry cleaner.

Even larger systems of capacity 250 kW-dc and above, which include medium and large C&I systems and community solar projects, and which made up 56 percent of solar deployments in New York in 2018, also report seeing double-digit increases of 13 percent on average. This amounts to an additional inflationary burden of around $200,000 for a 750 kW-dc commercial system (assuming original system cost of $2.00 per watt) and over $900,000 for a 5 MW-dc community solar system (assuming $1.50 per watt system cost). Given the sensitive economics and already compressed financial margin profile of these segments, this is no less significant a burden compared to smaller systems, and it would significantly influence developers' decision on whether to go ahead with such projects (see Section 4B below).

4B. Dramatic Reduction in Solar Deployment

Given that project economics (whether expressed as savings, payback period, or rate of return) are the single most important determining factor in a developer or customer's decision to "go solar," the significant increases in the cost and price of solar projects that would ensue from an expansion of Prevailing Wage requirements would have a chilling effect on solar deployment trends in New York State. Current NYSERDA incentives for solar projects, which have been critical to solar growth in New York, were not designed or modeled with Prevailing Wage requirements in mind, and without a broad exemption for renewable energy projects or a commensurate increase in state support (such as through the NY-Sun Megawatt Block Program), huge numbers of solar projects in New York State would no longer be economical, resulting in a significant pullback in solar PV deployments. The residential and small commercial segments, which together made up more than 40 percent of New York's solar installations in 2018 and reported average cost increases of more than 20 and 15 percent respectively, would almost certainly have to pass on a large portion of the imputed increase in cost to prospective customers, for whom the overall value proposition of "going solar" would be significantly less attractive and compel them to consider other options for their energy needs.

For larger-sized projects, be they utility-scale C&I or community solar projects, the impact on deployment trends would be similarly damaging. A typical solar project in the megawatt-plus capacity range earns a rate of return somewhere in the 8 to 12 percent range: a system cost increase of 13 percent, which is the average reported for this segment, would be a sufficiently high increase so as to lower the financial rate of return for projects in this segment to the point where it is no longer feasible to develop them, as in almost all cases, the resulting increase would cause projects to not meet internal rate of return requirements necessary to gain investor interest. This is especially true of the burgeoning community solar market, which faces significant economic pressure from changes to compensation as a result of the Value of Distributed Energy Resources value stack tariff, which arguably undervalues local generation and has created significant complexities for project financing.

4C. Lost Business, Layoffs and Closures for Smaller Solar Firms

The solar developer industry in New York is mainly composed of small and mid-sized firms lacking experience in Prevailing Wage contracting and the administrative infrastructure to comply with its requirements. These firms tend to hire from the local community, training their largely nonunion employees to perform a variety of tasks that are not defined by specialized trade classifications and detailed work rules. Mandating Prevailing Wage requirements on this class of businesses would limit the number of installers to mostly large, union contractors that have the bookkeeping resources to provide Certified Payroll, with smaller shops being kept out. The net effect of expanding Prevailing Wage legislation in the context of New York's solar installation market, therefore, will be to shift businesses from smaller, local firms to large, national firms based out-of-state that are staffed to handle the extensive administrative requirements of public bidding, contracting and compliance. Eventually, this would lead to many small and mid-sized residential, commercial and industrial solar developers in New York—the historical backbone of the solar industry in the state—downsizing or shuttering their operations.

4D. Risk of Missing Targets Relating to Climate Change, Decarbonization and Clean Energy

Recognizing that climate change poses severe existential and economic risks and the limited time frame in which to address them, New York has introduced a set of targets relating to clean energy procurement goals (70 percent of electric generation by 2030[11]) and decarbonization targets for its electric sector (100 percent carbon-free by 2040[12]). Currently, a full 41 percent of electricity produced in New York comes from burning fossil fuels like oil, coal and natural gas, and that number increases to 70 percent downstate,[13] which lacks the hydropower resources of upstate and where wind power is difficult to site. To decarbonize New

[11]New York Clean Energy Standard. https://www.nyserda.ny.gov/All-Programs/Programs/Clean-Energy-Standard
[12] NYS FY 2020 Executive Budget. https://www.budget.ny.gov/pubs/archive/fy20/exec/book/briefingbook.pdf
[13] "2018 Power Trends," NYISO. https://www.nyiso.com/documents/20142/2223020/2018-Power-Trends.pdf/4cd3a2a6-838a-bb54-f631-8982a7bdfa7a

York's electric grid by 2050, therefore, will require dramatically increasing the share of renewable technologies in a relatively short period of time. To compound the issue, the state's clean energy technology options going forward are limited; the state is not blessed with abundant geothermal resources and hydropower potential has been largely tapped out. Going forward, the onus thus lies on solar and wind power to lead New York towards an emissions-free energy future.

However, despite record-breaking levels of deployment in 2018, NYSEIA estimates that solar energy currently contributes just 1.5 percent of the state's overall electricity generation. To achieve a contribution of even 10 percent by 2030—hardly a radical target—will require deploying almost 10 gigawatts of solar in the next decade—more than seven times the amount that has been installed to date. In other words, for solar to play any meaningful role in a carbon-free economy will require deploying an order of magnitude more than we have seen to date. The pullback effect of imposing Prevailing Wage requirements on a large majority of solar PV projects will hence pose a significant risk to the state's decarbonization goals, especially as they pertain to the electric sector, and threaten to undermine New York's position as a national and global leader in combating climate change.

About NYSEIA

Founded in 1994, New York Solar Energy Industries Association (NYSEIA) is the only statewide membership and trade association dedicated solely to advancing solar energy deployment in New York State. NYSEIA proudly represents hundreds of businesses across New York that employ thousands of workers throughout the solar value chain. Led by an active board of directors, NYSEIA strives to achieve significant, long-term, and sustainable growth of solar energy in New York State.

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