22 East 5th Avenue

Heritage Designation and HRA

Referred from the March 8, 2016 Public Hearing

CITY OF VANCOUVER

Cemco Electronics – Archival Photos

22 East 5th Avenue
Cemco Electronics Manufacturing Factory

Council Motion

At Public Hearing on March 8, 2016 Council passed the following motion:

> THAT the application "HERITAGE DESIGNATION AND HERITAGE REVITALIZATION AGREEMENT (HRA): 22 East 5TH Avenue (Cemco Electrical Manufacturing Company Factory)", be referred to the Regular Council meeting on April 5, 2016, as Unfinished Business;
>
> FURTHER THAT staff provide further technical analysis on the impact to the adjacent solar panels under the existing zoning and through the proposed building.

This presentation provides additional information requested at the public hearing.

Site Diagram

31 East 5th Avenue

Solar Panels

22 East 5th Avenue

North

Summary

Additional analysis of the proposed development and the potential impacts on the solar panels installed at 31 East 5th Avenue has been completed as follows:

- shadow analysis of the proposed development in the early spring and late fall at noon and 2 pm;
- potential power which could be generated by solar panels over the course of a year; and
- potential impact if adjacent properties were developed under outright height provisions of the existing I-1 zoning.

Summary of Height and Shadow Analysis

- The outright permitted height in the I-1 Zoning District Schedule is 60 feet;
- The application for 22 East 5th Avenue proposes a height of 83 feet although this will be required to be reduced to 78 feet as a condition of approval of the development permit; and
- A comparative analysis of a building at the outright (60 feet) and proposed (78 feet) heights and the resultant shadow impacts on the site at 31 East 5th Avenue has been completed.

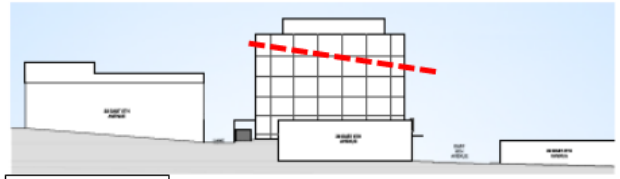
Building Elevations

West Elevation

North Elevation

60 foot height limit (dashed line)

South (Lane) Elevation

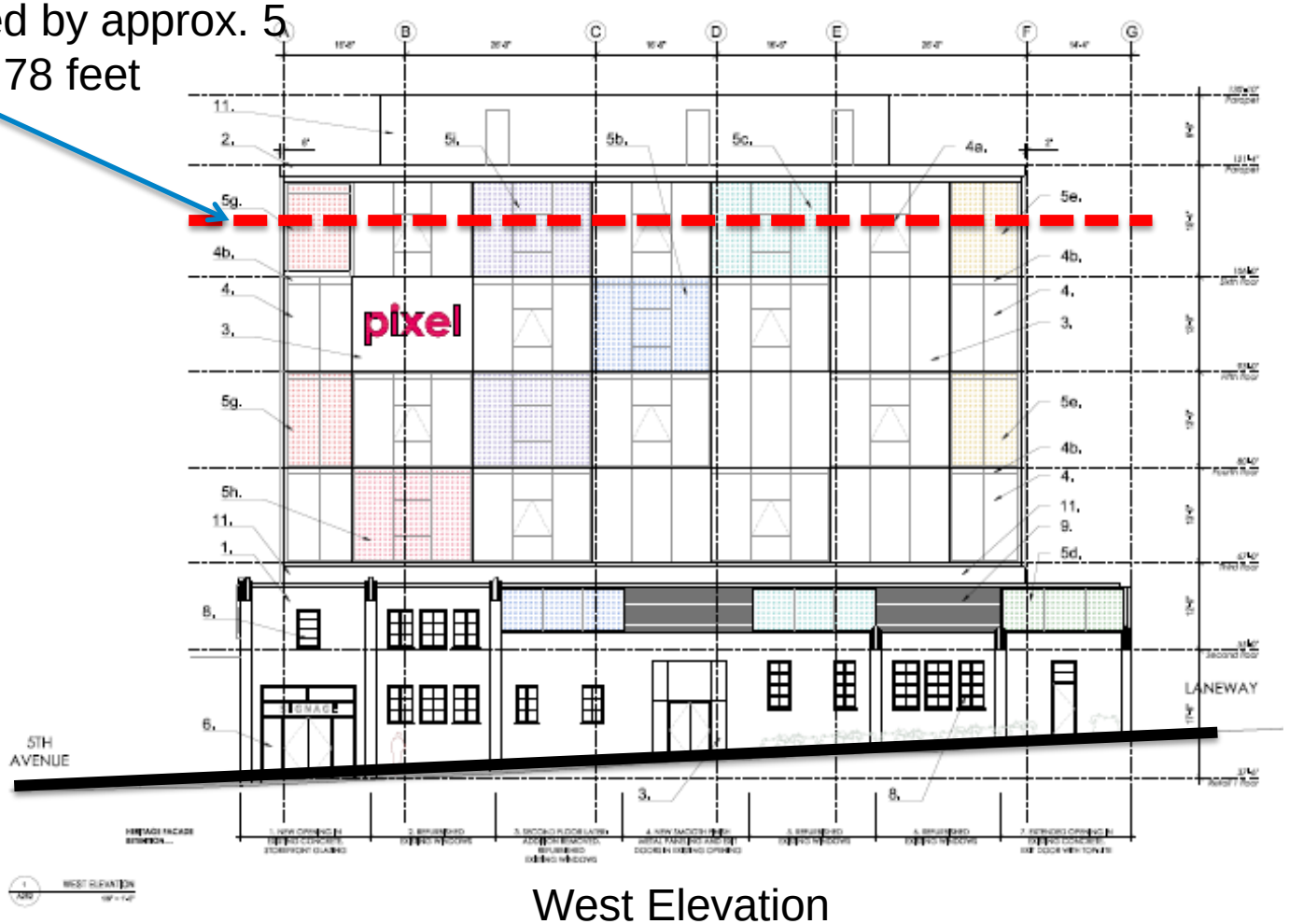


East Elevation

The height envelope slopes across the site

West Elevation

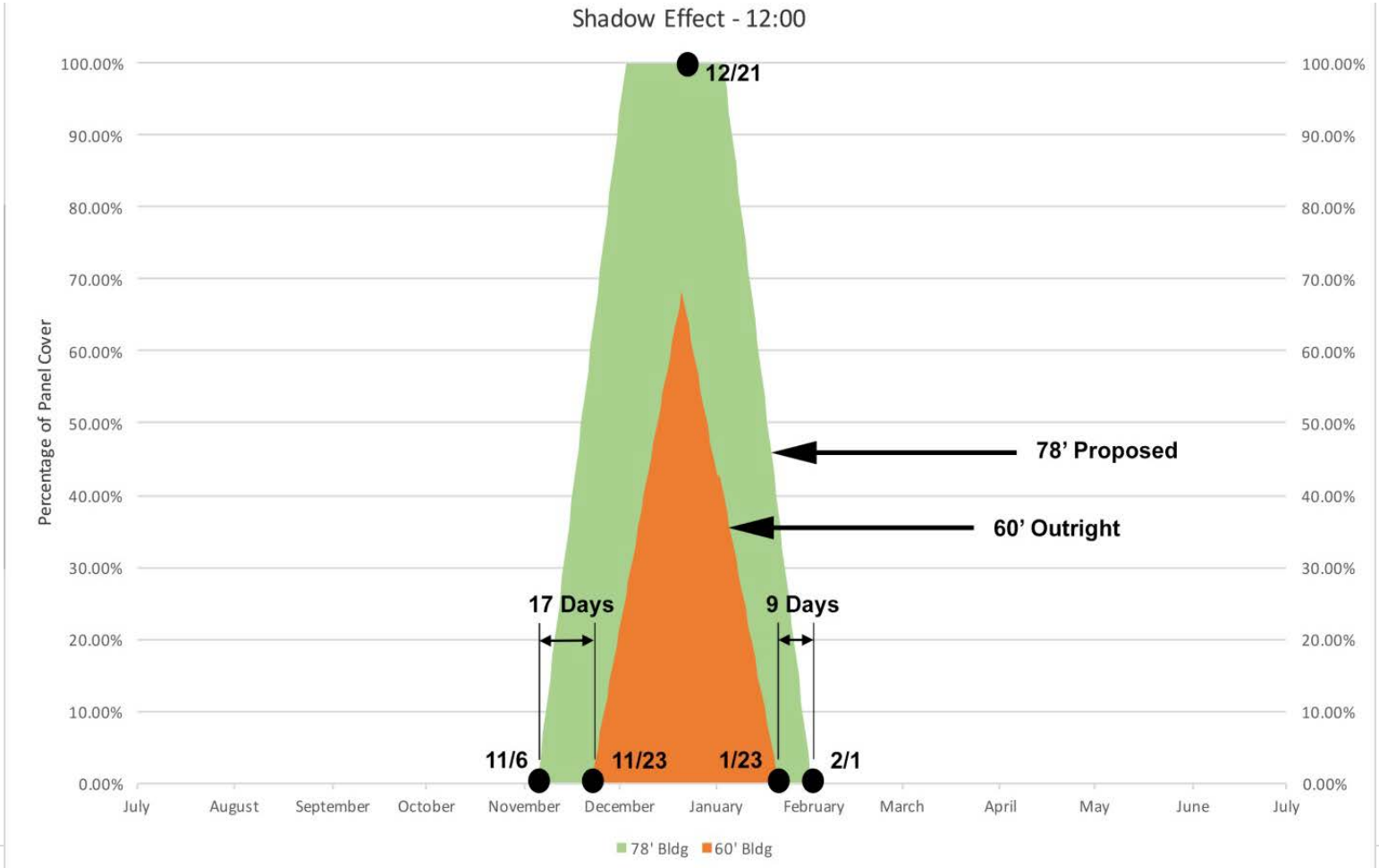
Building Height to be reduced by approx. 5 feet to 78 feet



West Elevation

Shadow Impacts at Noon

Diagram 1: Daylight Shadowing Impact on the Solar Panels at 31 East 5th Avenue at Noon



Summary of Impact on Daylight Access at Noon

Table 1: Summary of Impact on Daylight Access per Annum

Condition	Estimated Daylight Exposure Measured at Noon
No shadow	100%
60 foot building	96 %
78 foot building	89%
Difference	-7%

Potential Power Generation

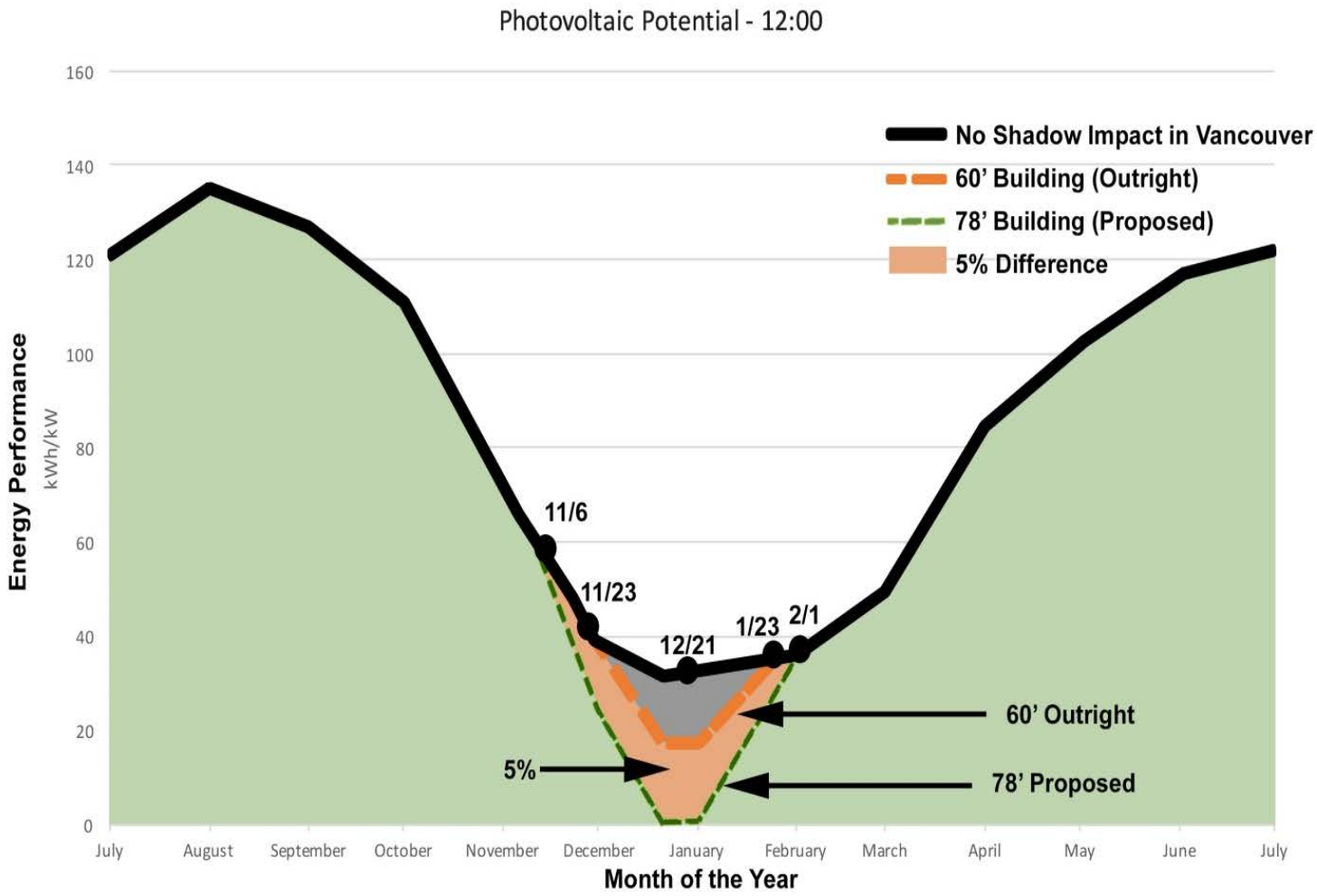
Analysis measuring the impact on the “Photovoltaic Potential” or “PV Potential” was also completed (based on reference material available through the National Research Council of Canada).

- The data takes into account average weather conditions and atmospheric conditions as well as the seasonal amount of solar energy exposure and

- The performance is higher in the summer and lower in the winter months.

Impact on Power Generation at Noon

Diagram 2: Impact on Power Generation Potential - Noon

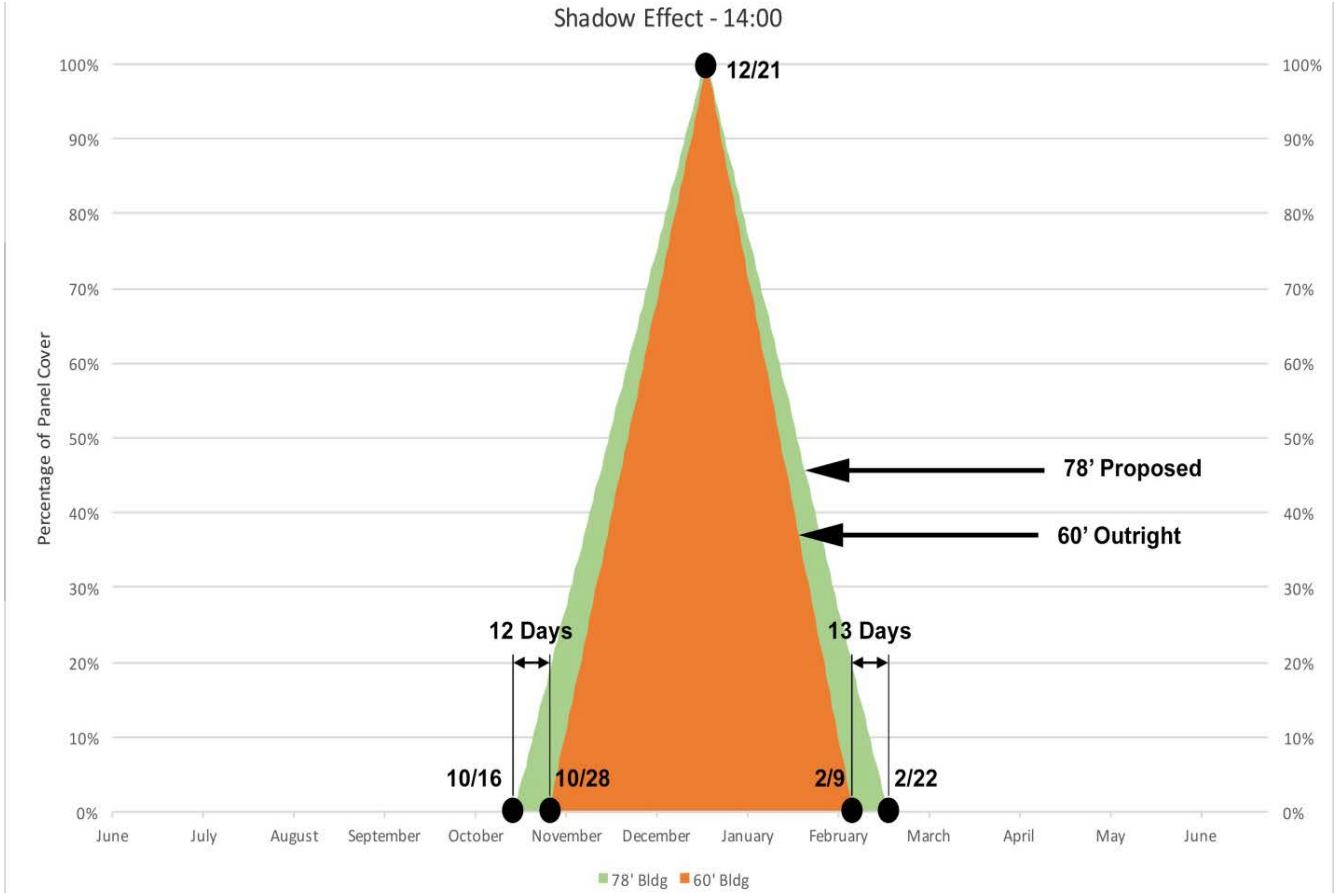


Summary of Impact on Power Generation at Noon

Table 2: Impact on Solar Power Generation Potential at 31 East 5th Avenue

Condition	Estimated Impact on Solar Power Potential
No shadow	100%
60 foot building	98 %
78 foot building	93 %
Difference	-5%

Diagram 3: Daylight Shadowing Impact on the Solar Panels at 31 East 5th Avenue at 2pm

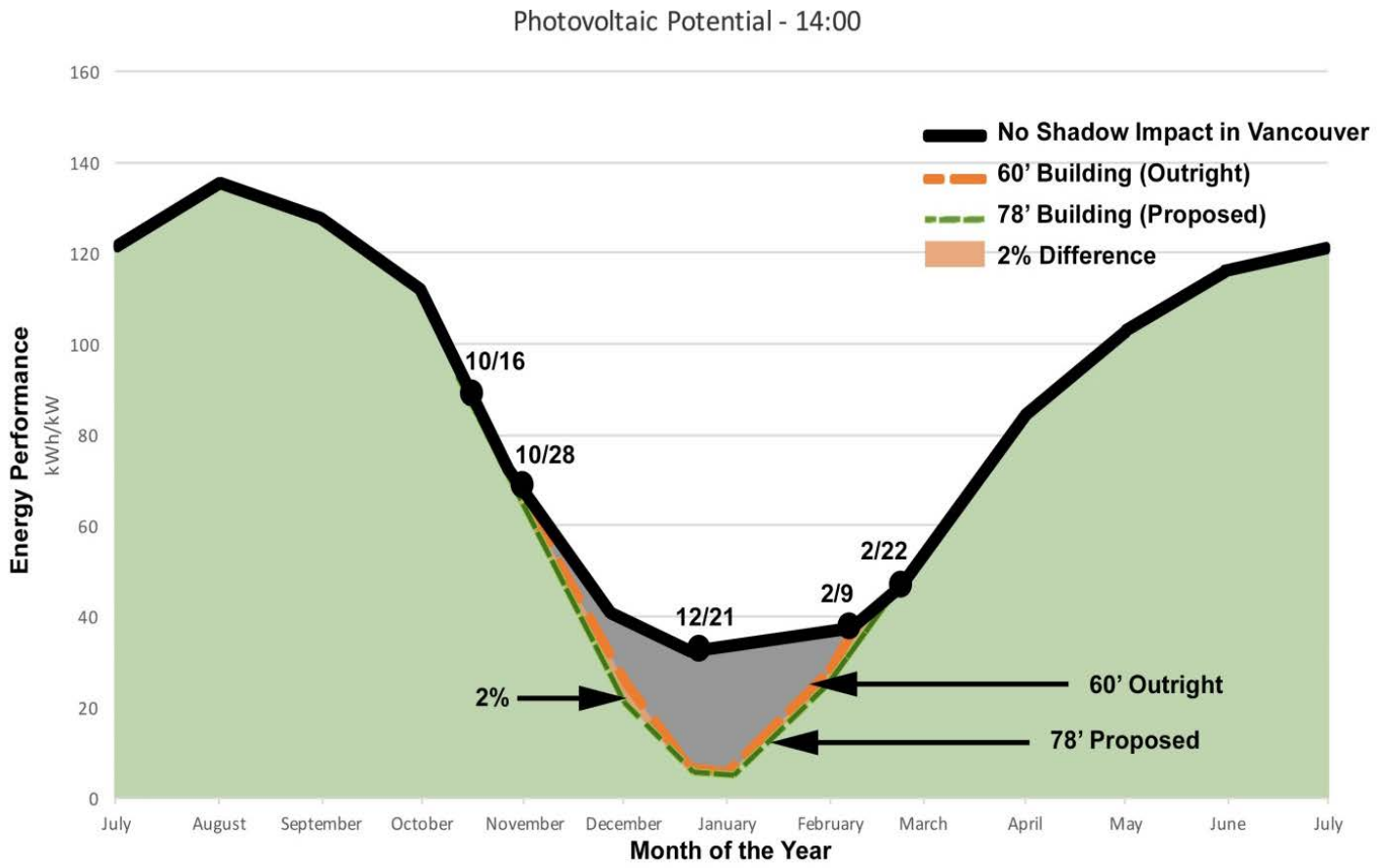


Summary of Impact on Daylight Access at 2 pm

Table 3: Summary of Impact on Daylight Access in Percentage Per Annum

Condition	Estimated Daylight Exposure Measured at 2 pm
No shadow	100%
60 foot building	90
78 foot building	88
Difference	-2%

Diagram 4: Impact on Power Generation Potential – 2pm



Summary of Impact on Power Generation at 2 pm

Table 4: Impact on Solar Power Generation Potential at 31 East 5th Avenue

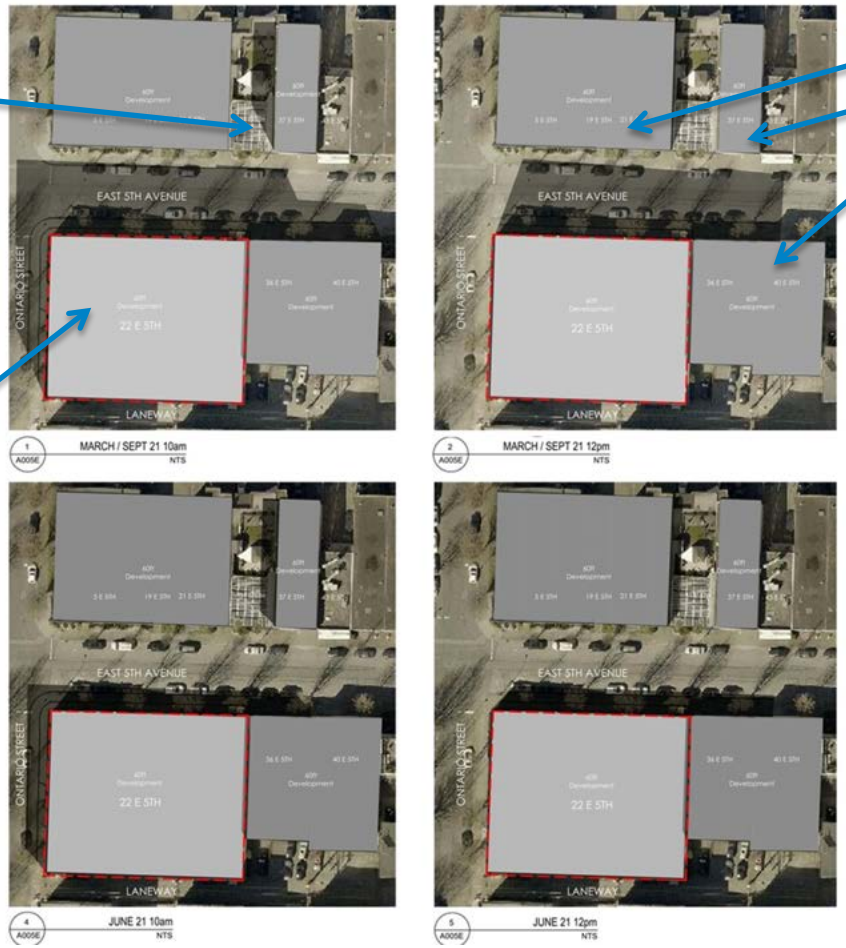
Condition	Estimated Impact on Solar Power Potential
No shadow	100%
60 foot building	94 %
78 foot building	92 %
Difference	-2%

Build Out under Existing I-1 Zoning

Example of Build Out Shadow Analysis

31 East 5th Av
Solar Panels

22 East 5th Av



Hypothetical
Build Out

North

Diagram 5: Impact on Power Generation Potential – Noon

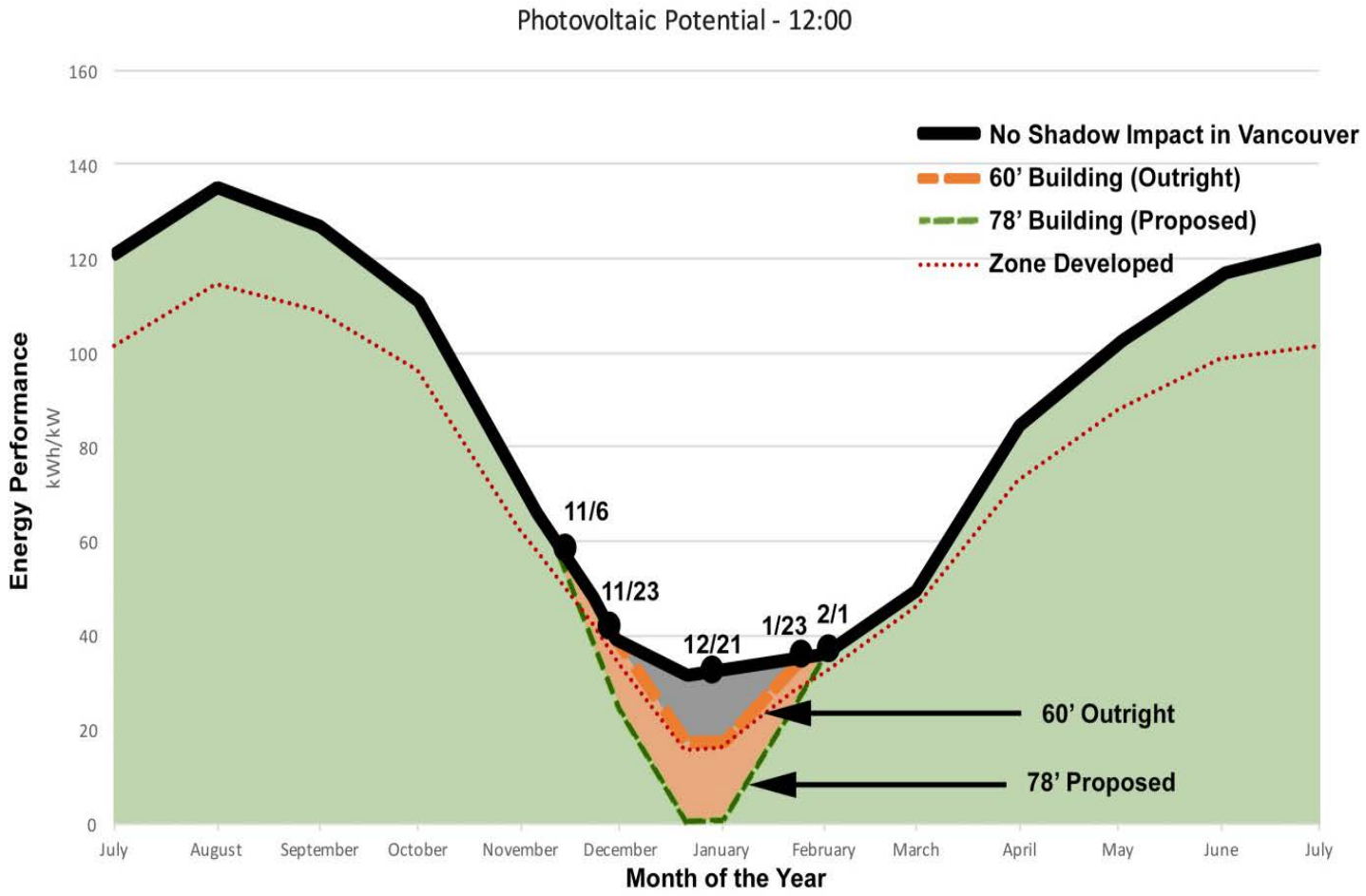
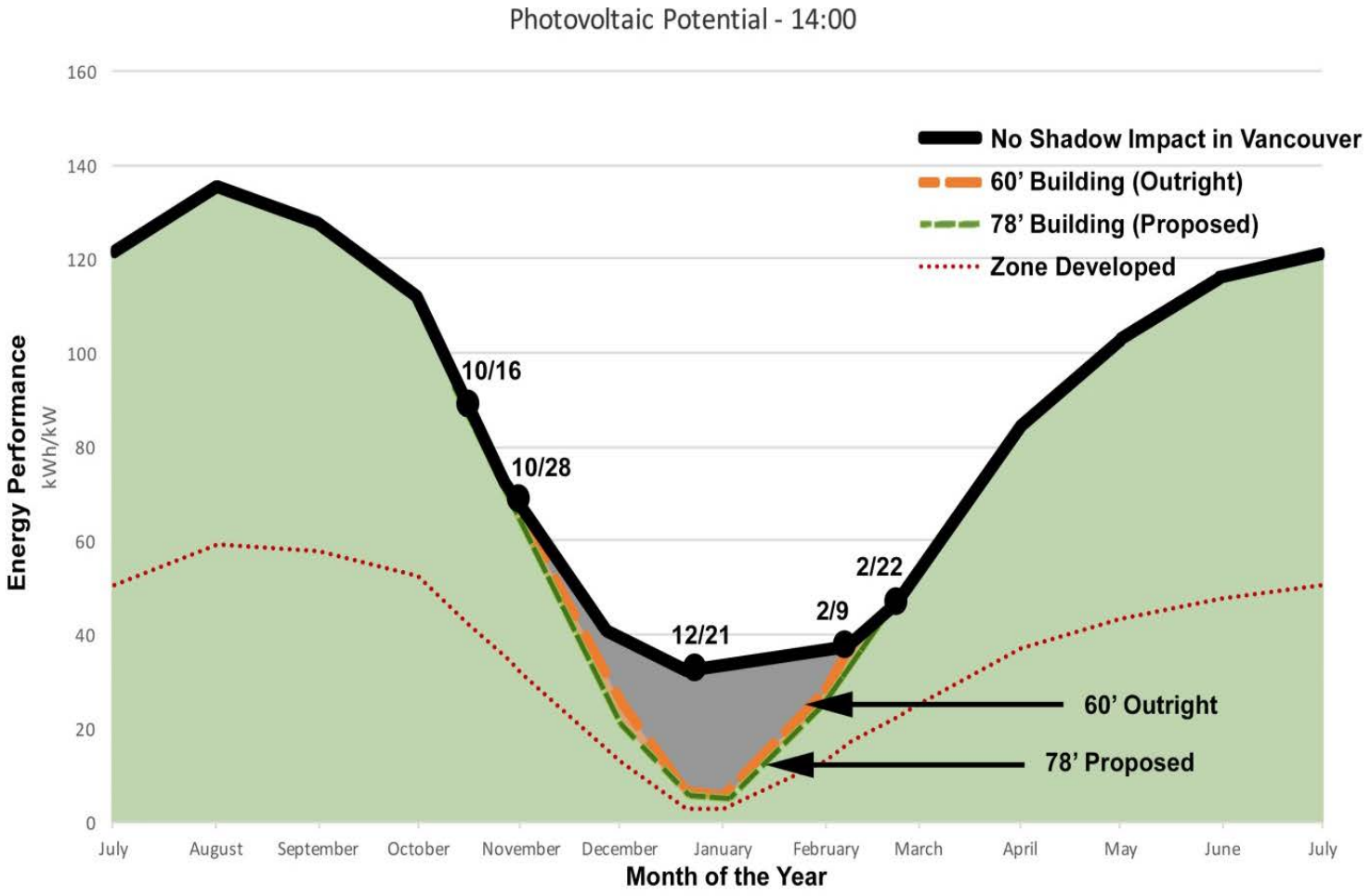


Diagram 6: Impact on Power Generation Potential – 2pm



Conclusion on Shadowing

Further shadowing analysis demonstrates the following:

- The proposal at 22 East 5th Avenue, with the required reduction in height to 78 feet, will only nominally impact solar panels installed on the two storey building at 31 East 5th Avenue (approximately 5% more than an outright building at 22 East 5th Avenue measured at noon, and 2% more when measured at 2 pm); and

- Outright development which will likely occur beside and around the building at 31 East 5th Avenue will have a considerable impact on these solar panels well in excess of that created by the project at 22 East 5th Avenue.

Heritage Value