

Nonresidential Indoor Lighting December 2021 Addendum



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ADDENDUM

Prepared by Energy Solutions

Please submit comments to info@title24stakeholders.com.



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Addendum to Nonresidential Indoor Lighting – Final CASE Report

The Statewide CASE Team docketed the Indoor Lighting Final CASE Report in September 2020 and developed an addendum in March 2021.¹ In May 2021, the California Energy Commission (CEC) reached out to the Statewide CASE Team to better understand the economic analysis performed for the lighting power densities (LPD) submeasure. The Final CASE Report showed that the LPD submeasure resulted in a possible reduction in employment, which can be interpreted as job loss as a result of the measure. The Statewide CASE Team indicated the economic analysis showed reduced employment due to negative incremental costs associated with the updated LPDs.

The negative incremental costs associated with lower LPDs were calculated in terms of reduced equipment costs with the expectation that labor savings would be negligible. There are some cases where light levels decreased, but the same number of luminaires can be used, if the lighting designer deems this appropriate. In these cases, the luminaires have lower output and cost slightly less. In other cases where light levels have remained unchanged, the older lighting products have been replaced with lower cost, more efficient products. The original analysis ignored the possibility that project funds diverted from the lighting components (from the lower incremental costs) would be invested elsewhere within the building or in different commercial, industrial, or other nonresidential buildings. The original analysis assumed that less was spent on the lighting system, was not reinvested, and therefore, did not result in additional economic activity.

After discussing with CEC staff, the Statewide CASE Team updated the analysis by including the economic and labor benefits from the lower incremental costs by assuming the amount would be spent on other building improvements and projects. The updated, and more comprehensive analysis indicated that the LPD submeasure would likely result in an overall job increase. After completing the updates, the Statewide CASE Team shared the results with the CEC in May 2021.

The following sections below present the updated results from the economic analysis based on work completed by the Statewide CASE Team in May 2021.

¹ In March 2021, the Statewide CASE Team submitted the first addendum to the Final CASE Report which provided additional analysis for the multi-zone occupancy sensing in large offices submeasure. The first addendum presented new cost-effectiveness analysis for smaller office sizes and can be found on Title24stakeholders.com: https://title24stakeholders.com/wp-content/uploads/2021/03/2022-T24-Indoor-Lighting_Final-CASE-Report_Statewid-CASE-Team_w-Addendum.pdf

Updated Economic Analysis Incorporating Incremental Cost Savings

Estimated Impact on Construction, Building Designers, and Energy Consultants Sectors

The following tables include the updated values from the additional analysis performed by the Statewide CASE Team in May 2021. The tables below replace Table 47 and Table 48 in the Final CASE Report. The results illustrate that when it assumed that money saved is spent in other projects, employment increases versus decreases.

Section 3.2.4 in the Final CASE Report includes details on the economic impacts and analysis. However, note that the original analysis did not include the job creation impact from capital and operating expense savings, whereas this updated analysis includes these effects.

Table 1: Revised Table 47: Estimated Impact that Adoption of the Proposed Measure would have on the California Commercial Construction Sector

Type of Economic Impact	Employment (person)	Labor Income (\$)	Total Value Added (\$)	Output (\$)
Direct Effects (Additional spending by Commercial Builders)	6.9	\$456,256	\$604,567	\$1,000,000
Indirect Effect (Additional spending by firms supporting Commercial Builders)	1.5	\$109,168	\$173,915	\$335,541
Induced Effect (Spending by employees of firms experiencing “direct” or “indirect” effects)	3	\$169,009	\$302,400	\$493,712
Total Economic Impacts	11.4	\$734,433	\$1,080,882	\$1,829,253

Source: Analysis by Evergreen Economics of data from the IMPLAN V3.1 modeling software.

Table 2: Revised Table 48: Estimated Impact that Adoption of the Proposed Measure would have on the California Building Designers and Energy Consultants Sectors

Type of Economic Impact	Employment (person)	Labor Income (\$)	Total Value Added (\$)	Output (\$)
Direct Effects (Additional spending by Building Designers & Energy Consultants)	48	\$568,989	\$562,174	\$1,000,000
Indirect Effect (Additional spending by firms supporting Building Designers & Energy Consultants)	31	\$234,360	\$316,632	\$503,340
Induced Effect (Spending by employees of firms experiencing “direct” or “indirect” effects)	37	\$240,037	\$429,489	\$701,198
Total Economic Impacts	116	\$1,043,386	\$1,308,295	\$2,204,538

Source: Analysis by Evergreen Economics of data from the IMPLAN V3.1 modeling software.

Estimated Increase in Investment in California

In the Final CASE Report, the Statewide CASE Team estimated that the decrease in incremental costs associated with the regulatory change affecting indoor lighting power densities would lead to a decrease in businesses investment in California of **\$16,944,030**. The Statewide CASE Team has since conducted additional reviews and analysis of the regulatory change and has concluded that, while the regulatory change would indeed result in lower incremental costs, those savings may lead to additional economic activity by commercial and industrial building owners. As a result, the Statewide CASE Team has also revised its estimate of the impact that the regulatory change would have on business investment in California. The change in net business investment, CINB, is calculated as follows:

$$\text{CINB} = \text{FCS} \times \text{PIP} \times \text{NPDI}$$

Where,

FCS = First cost savings, \$

PIP = Proprietor income percent, which represents the proportion of the value of economic activity returned to business owners, dimensionless

NPDI = net private domestic investment, dimensionless

This calculation applies a 9.3 percent proprietor earning fraction, which represents 9.3 percent of the value of the economic activity that occurs in response to the \$1.2 billion in cost reductions and gets passed onto the proprietor's earnings. The remainder of the economic activity that occurs in response to the \$1.2 billion in cost savings goes towards wages and valued added economic output.

The Statewide CASE Team analyzed national data on corporate profits and capital investment by businesses that expand a firm's capital stock (referred to as net private domestic investment, or NPDI). Net private domestic investment is the total amount of investment in capital by the business sector that is used to expand the capital stock, rather than maintain or replace due to depreciation. Corporate profit is the money left after a corporation pays its expenses. As described in Section 3.2.4.4. of the Final CASE Report, the average NPDI is approximately 31 percent.

Change in Net Businesses Investment: $\$1,204,961,713 * 9.3\% * 30.9\% = \$34,617,471$

The updated estimate is that business investment would increase by approximately \$34.6 million.

Section 3.2.4.4 in the Final CASE Report includes more information on the change in estimated proprietor income.