

Evaluation of IFC/GEF Poland Efficient Lighting Project (PELP)

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The IFC/GEF Poland Efficient Lighting Project (PELP) is a residential compact fluorescent lamp (CFL) market transformation program, funded by the Pilot Phase of the Global Environment Facility and administered by the International Finance Corporation of the World Bank Group. It offers subsidies to CFL manufacturers with Polish production/assembly facilities, under the condition that they lower the price of a specified number of CFLs each year and ensure that these price reductions are passed on to Polish consumers. The subsidized CFLs are sold through retail outlets across the country, while supplies last. This two-year program assumes that low consumer awareness, newness of the product, and high product cost serve as barriers to wider acceptance of CFLs among consumers. PELP's operating premise is that a temporary price subsidy at the manufacturer level will result in (1) significantly increased sales, thereby enhancing consumer awareness and familiarity with CFLs, and (2) lowered CFL prices due to economies of scale and a larger consumer demand base. While prices are expected to increase again after the subsidy ends, they are not expected to return to pre-program levels.

The evaluation of the program focuses on estimating the greenhouse gas (GHG) emissions reductions of the program, both from PELP's direct impacts and from its market transformation impacts.

Direct program impacts are being estimated using site-specific data and the following simple engineering algorithm:

$$\text{GHG reductions} = \text{Total program sales} \times \text{Change in wattage/installation} \times \text{Hours of operation} \times \text{Persistence factor} \times \text{Free ridership factor} \times \text{Spillover factor} \times \text{Transmission and distribution loss factor} \times \text{GHG conversion factor}$$

Direct Sources for Direct Impacts Estimation:

Total program sales: Proof-of-purchase documentation provided by manufacturers in order to receive their incentives, interviews with wholesalers and retailers, participating manufacturer's sales data

Change in wattage/
installation: Product response cards, on-site PELP-CFL installation purchaser surveys, data from an ancillary load/T&D impacts study conducted on a separate CFL pilot program in two smaller cities

Hours of operation: Product response cards, on-site PELP-CFL installation purchaser surveys, data from an ancillary load/T&D impacts study conducted on a separate CFL pilot program in two smaller cities

Persistence factor: On-site PELP-CFL purchaser surveys, special persistence on-site PELP-CFL survey to be conducted approximately one year after PELP-discounted CFLs are no longer available

Free ridership factor: On-site PELP-CFL purchaser surveys, on-site retailer surveys, interviews with participating and non-participating manufacturers and wholesalers, participating manufacturers' sales data

Spillover factor: On-site PELP-CFL purchaser surveys

Kwh-to-GHG

conversion factor: Polish energy organization

Free drivership and market transformation impacts resulting from the program are being estimated, using essentially the same approach, supplemented by data on a host of market change indicators developed from surveys with CFL retailers, wholesalers and manufacturers; participating manufacturers' sales data; general consumer surveys, PELP-CFL purchaser surveys, and secondary research.

Types of market change indicators that are being tracked include the following:

- Several types of changes in consumer attitudes, perceptions, and behavior
- Changes in retailer behavior, perceptions, stocking practices, and projections
- Changes in wholesaler behavior, perceptions, and projections
- Changes reflected in manufacturers' sales data
- Changes in media treatment of CFLs

Data from these indicators are being used to provide evidence that:

- Changes in CFL sales are occurring
 - Number of CFLs sold in Poland
 - Availability of CFLs in Poland
 - Increased awareness and installation of CFLs among Polish consumers
- These changes are of a permanent nature
- Some percentage of these changes are a result of this program

The poster presentation at the Conference will explore:

- Issues surrounding conducting evaluations in Poland
- Preliminary research data analysis
- Lessons learned from PELP for similar programs, to date
- Lessons learned regarding the practical issues of estimating market transformation impacts