Requirements for Selection of Effective Useful Life for Lighting Measures

Effective Useful Life (EUL) and Remaining Useful Life (RUL) of lighting technologies shall be based on the rated life of the applicable technology. EUL and RUL values for all types of lighting technologies (linear and compact fluorescent, HID, incandescent, LED, etc.) are calculated by dividing the installed product rated life by the annual hours of use. If it is impractical to utilize specific product rated life values a typical values may be utilized. Typical values must represent the expected value from the population of actual installed products taking into account their wattage values not a simple average available in the market or currently installed rated life values. For all but CFL lamps, there is also an adopted DEER maximum EUL in years. DEER default rated life values along with maximum EUL values are described below for each lighting technology type.

The Ex Ante database, accessible through READI, includes DEER and nonDEER technologies. DEER technologies are identified with "DEER2011" or "DEER2014" in the Technology Source field. NonDEER technologies have either "IOUnonDEER" or "EDnonDEER" as the Technology Source. Some of the lighting technologies included in the DEER/ex ante database include values for rated life. Guidance for applying these technologies and associated rated life values is provided below:

Screw-in Incandescent Halogen Lamps: These technologies are used as pre-existing early retirement or in ISP baseline calculations. Some of these technologies have listed rated life values which may be used only when that rated life represents the typical rated life of replaced technologies.

Screw-in and MR16 LED lamps: The rated life values in the database reflect the Commission staff disposition for screw-in LED lamp workpapers and as such shall be used for all program offerings of screw-in and MR16 LED lamps.

Screw-in Incandescent Lamps: DEER includes EUL records for commercial and residential incandescent lamps. The residential EUL is based upon a rated lamp life of 2,000 hours. The commercial EUL has a default rated lamp life of 10,000 hours; however it is expected that these values are highly variable based upon lamp shape and type. For early retirement measures, PAs will need to propose (via a workpaper submission) new values that represent alternative typical values for specific incandescent lamps being replaced, for Commission staff review and approval.

Screw-in Compact Fluorescent Lamps: CFLs shall have EULs based on one of the four current DEER EUL records. There are records with 6,000, 8,000, 10,000 and 12,000 rated life hours. PAs shall propose in workpapers the linkage between measures and DEER EUL records. Typically spiral CFLs have rated life of 10,0000 hours and sometimes 12,000 hours (and less is sometimes the case for certain manufacturers). A-lamp, reflector and globe CFLs have a typical rated life of 8,000 hours with some manufacturer models being 6,000 but rarely 10,000. Candelabra CFLs have typical rated life values of 6,000 with some models being 8,000. Dimmable lamps of all types can have rated life of the typical models or the next higher typical value (i.e., 10,000 instead of 8,000) however, there is substantial variation among manufacturers and models so

these products will require evidence to support a variation from the typical values mentioned earlier for each shape.

Induction and Permanently Wired LED Technologies: At this time, DEER does not include any EUL records for induction or permanently wired LED technologies. PAs shall propose (via a workpaper submission) EUL records for Commission staff review and approval for these technologies.

Linear Fluorescent Lamp+Ballast Measures: With the exception of measures that involve replacement of T12 lamps with magnetic ballasts, EUL records shall be selected based on the measure ballast technology. For measures involving the replacement of T12 lamps with magnetic ballasts, DEER requires the RUL of the baseline technology be based on the EUL of the baseline T12 lamp:

- Linear fluorescent technologies with electronic ballasts have EUL/RUL values based on typical electronic ballast rated hours. The DEER EUL has a default rated life of 70,000 hours for electronic ballasts and a maximum EUL of 15 years.
- T12 linear fluorescent technologies with magnetic ballasts have EUL/RUL values based on typical T12 lamp rated yours. The DEER EUL has a default rated life of 20,000 hours for T12 lamps and a maximum EUL of 15 years.
- All other linear fluorescent technologies with magnetic ballasts have EUL/RUL values based typical magnetic ballast rated hours. The DEER EUL has a default rated life of 45,000 hours for magnetic ballasts and a maximum EUL of 15 years.

HID Technologies: DEER includes EUL records for conventional HID technologies that use electronic ballasts. The EUL/RUL values are based on typical electronic ballast rated life of 70,000 hours with a maximum EUL of 15 years. PAs may propose (via a workpaper submission) alternate EUL records for Commission staff review and approval. For early retirement measures, PAs will likely need to propose (for Commission staff review and approval) EUL records for pre-existing technologies such as HID technologies that incorporate magnetic ballasts.