



- **Figure GG-3.** Reporter-Designed Projects Utilize Your Own Measured or Engineering Data
Along with Physical and Default Data.

**Case 1: Rarotonga Coconut Cream, Inc.—
Estimation Methods**

RCCI limited its quantitative analysis to the obvious effects; estimation of the annual emissions reductions associated with its project was simple. First, it estimated the annual emissions associated with the project. This was simply its annual distillate oil consumption multiplied by the default emissions factor for distillate oil supplied by the guidelines' supporting documents. Second, for the reference case, RCCI multiplied its reference case annual electricity use by the default electricity emissions factor for its state, multiplied its reference case annual residual oil use by the default residual oil emissions factor, and summed the two to arrive at total emissions for the reference case. Its total reported emissions reductions were the difference between the reference case emissions and the project case emissions.

RCCI was pleased that it was able to do its entire analysis based on data it had readily at hand, that is, its fuel and electricity use records from before and after the project, and the default emissions factors provided by the guidelines.

**Case 2: Rural-Urban Office Managers, Inc.—
Estimation Methods**

ESCO, the contractor for RUOMI, had primary responsibility for preparing the voluntary report for the DOE program. ESCO knew that because of the complexity of the project it could not derive estimates using default data provided in the Guidelines' supporting documents. The project managers

turned to the supporting document for the residential and commercial buildings sector to identify the recommended methods for gathering data for their type of project. They found that the recommended methods included approaches very similar to ones they had previously used to measure energy savings in complex projects. After a full year of measuring and monitoring, they summarized the energy-use data, and performed calculations to derive the difference between the project energy use and the reference case energy use.

Applying the natural gas and electricity emissions factors supplied as default data, they converted the estimated energy reductions to estimated emissions reductions.

**Case 3: Illinois Ohio Unlimited: Estimation
Method**

IOU recognized two distinct parts to its emissions reductions estimation process. First, it needed to evaluate the direct electricity system emissions for both its reference case and project case. Second, it wanted to estimate the emissions associated with manufacturing the PVCs. Tackling this latter point first, IOU contacted a prospective PVC supplier for any information on emissions associated with the PVC manufacturing process. The supplier, it turned out, had commissioned a report that estimated not only the direct carbon dioxide emissions associated with the manufacture of PVCs, but also the emissions associated with the supply of raw materials—steel, aluminum, chemicals, and electricity—that were used in PVC fabrication. Had this

information not been available, IOU would have had to decide whether or carry out this study itself or not quantify this effect at all, possibly affecting the credibility of its project report.

IOU then turned to the electricity system emissions effects of its project. The project reduced emissions that would have occurred had IOU purchased its electricity from IPP. Additional production from IPP for daytime peaking would have been generated by a natural gas combined cycle unit. IOU developed a single conversion factor for the emissions per kWh that would have occurred for electricity from IPP's system. This meant that as the peak daytime demand grew over time, IOU would be able to estimate that portion of the emissions for the reference case that was attributable to IPP, that is, how much higher IPP emissions would have been had IOU relied on purchased power.

The new PVC system was designed to meet the growth in demand over the next decade. But because the PVCs would be generating at full capacity immediately, they would actually displace some of IOU's current daytime generating capacity. The marginal unit in IOU's generation equipment was an oil-fired turbine generator. IOU developed a conversion factor for the emissions per kWh that would have occurred from that unit, if its production had not been partially displaced by the solar power system.

In summary, the IOU emissions reductions estimation consisted of three major components. First, at the start of the project there was an initial emission of carbon associated with the production of the PVC