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DOCUMENTATION FOR USERS:  
AUDIENCE, CONTENT, AND LANGUAGE

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ABSTRACT

When a technology such as solar energy enters the everyday world, the documentation about it must also become part of the technology transfer. The challenge in creating publications about technical subjects for semi-technical people or for popular use is to be both accurate and interesting. The process of creating this documentation should begin by carefully defining the audience and aiming the publication at it. To a large extent, the audience determines both the content and the language that will be used.

INTRODUCTION

Technical reports written by engineers or scientists for their colleagues use a vocabulary intended to impart specific information about a technology. Using acronyms and phrases familiar to those within the field, these reports are formidable to any outsider--whether a layman or fellow technical person from another discipline. When a technology such as solar energy begins to enter the everyday world, the documentation about it must also enter that world and become a part of the technology transfer.

The challenge in creating documentation about technical subjects for nontechnical people is to be both accurate and interesting. The first step in planning any kind of publication about such a subject is to envision the audience, the user.

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AUDIENCE

The fundamental question here is simply--Who is going to read the publication?

If you want to write a handbook on how to size photovoltaic systems, the audience at which you are aiming probably consists of architects, designers, maybe engineers--in other words, a semi-technical, well-educated reader. However, one basic assumption that must be made is how much this reader knows, first about electricity and second about photovoltaics. Do you assume a great deal of familiarity with photovoltaics, a little knowledge about solar energy, or are you introducing this reader to a new technology?

Motorists see a 164-foot-tall white wind turbine in the middle of the Texas desert and stop to find out what it is. A brochure is needed to tell them about vertical-axis wind turbine technology. Who is the "reader" in this instance, and what does he want to know? A good guess is that he is mildly curious about what the turbine is and what it does, and it is probably safe to assume the same audience as the daily newspaper--a reader at the eighth-grade level who knows nothing about the technology.

Congressmen, people in government agencies, decision-makers at different levels who have an interest in learning about a solar technology are somewhere between the passing motorist and the architect in their interest in the publication and its technology. The publication written for these people must serve as a briefing on the subject, with enough detail to inform, not so much as to confuse.

Once the issue of audience has been thought through and a target reader can be assumed, everyone concerned with the publication can envision it more clearly--technical person,

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writer, designer, illustrator. What should be included, and what omitted, the level of language, and the style relate directly to the intended audience.

Unfortunately, too many publications are written because someone thought information was needed about a technical subject, and the last thing ever considered was the human being who would pick up the documentation and read it. The most successful publications about technical subjects written for non-technical readers begin with a planning session to define the intended audience and to acquaint everyone on the project with the person for whom the documentation is being created.

### CONTENT

Having targeted a certain reader, the next important decision to be made in planning the documentation is how much information to include--and to omit.

For technical people, used to exact definitions and precision, writing for the layman can be more of a problem than it might appear. In imagining his colleagues' censure when they read the publication, the technical person often feels he must somehow include all the fine points of the technology even in a report aimed at someone who knows nothing about it. By doing so, he may satisfy the colleague, but he is bound to confuse the reader. A reader who does not know what a solar cell is will not follow allusions to distinctions between concentrators, one-sun, and thin-film cells.

Although an initial decision can be made about the minimum amount of information that must be conveyed, problems with what to include and, often more important, what to omit usually surface as the documentation is being written. If a reader can be found who fits the target audience, use that person to screen the document. He will tell you when you are including detail he does not need in order to understand the technology, detail that is confusing rather than enlightening. Lacking the reader, try to ask yourself when you are making a distinction, for example between deep-cycle and shallow-cycle batteries, whether the reader really needs to be aware of this detail. Would "battery" suffice in a general description of a photovoltaic system?

If the detail must be included but does not fit well as part of the text, consider breaking it out as a sidebar. Sidebars are short pieces of text about specialized topics, usually set off from the text in boxes or as shaded items. They can and often do include drawings or photographs to illustrate the information. They are ideal for the technical-transfer-type of publication, because detail that is at a different level of complexity than the text can be included in them. For example, within a report that has a fairly high level of technical information on photovoltaic systems, sidebars can be used to explain basic concepts of the technology.

Including a glossary of terms is another device that will assure the reader who is less familiar with the topic than the targeted audience can use your report. The reader who knows the terms can skip the glossary; the reader who doesn't will appreciate it.

### LANGUAGE

Appropriate language and style in a publication are closely related to the intended audience.

Pretentious language is never appropriate --it muddles a publication that is trying to explain something technical to a non-technical reader. It also muddles technical reports, which lend themselves to bombastic writing. The reason for this may be that many authors do not consider plain English adequate to explain their technical subject.

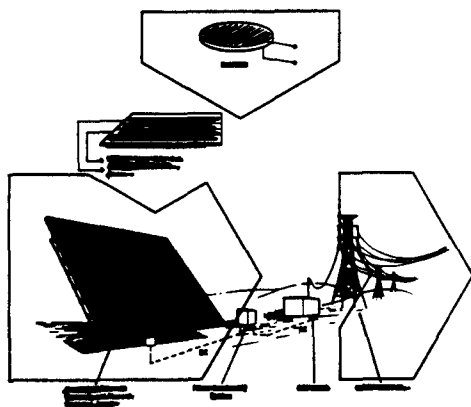
### Formal English vs. Bombast

Formal written English--as opposed to colloquial English--is appropriate to any publication. Formal English means appropriate use of words and grammar. Bombastic writing means inappropriate use of the language--and that includes saying something in a convoluted way to make it sound "more formal." The definition of bombast is a grandiloquent, inflated style.

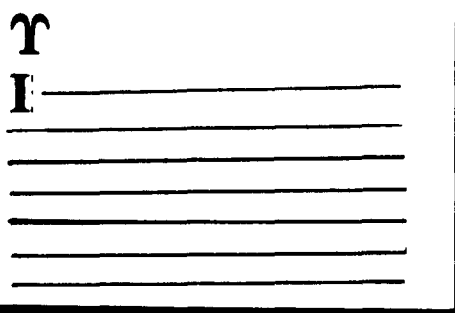
For example, a simple concept such as "before sunrise" can be rewritten "prior to the availability of the solar resource." This is a made-up example of bombastic writing that some think is formal writing,

## EXAMPLES OF SIDEBARS

### PHOTOVOLTAICS: CONVERTING SUNLIGHT TO ELECTRICITY



Two examples of sidebars are shown. The full-page type on the left explains a concept in detail. A boxed item, such as that below, usually emphasizes or calls something out. Illustrations enhance these explanatory inserts.



and published technical reports are full of such phrases. Beware of pulling them into publications intended to interest the layman in your technology.

Some of the major elements that make a style pretentious are in the phrase above. Employing Latinisms such as "prior to" instead of the native English "before," "implementation" instead of "beginning," and "fabrication of" for "make" is one that is seen quite often. Using such constructions as "the availability of," "the initiation of," "the utilization of" is another. It is much more straightforward to write "before beginning the experiment" than the all-too-commonly used "prior to the implementation of the experiment." Why the sun has become "the solar resource" is a question beyond the scope of this paper, but the reason must relate to inflated writing.

### Structure

When writing about a technology, do not make the language itself a barrier to

understanding. Just because technical terms and concepts are included does not mean the structure of the language must be altered accordingly. After writing a paragraph or two explaining a technical subject to a nontechnical reader, imagine using those words exactly to explain the technology to your next-door neighbor. Often, trying to say what you have been writing will simplify the prose.

A scientist or engineer who has written some text that is confusing can almost always explain the same passage in perfectly plain and lucid English. Asked why he didn't write it that way to begin with, he will usually be somewhat puzzled, because the notion seems to be firmly held that one does not write at all the way one talks. Writing about technology is explaining that technology to another person. If the technology is clear to the writer, it should also be clear to the reader--and in plain English.

## Vocabulary

Vocabulary is another concern. What is familiar terminology in the solar community may be meaningless jargon to the outsider. Array, heliostat, efficiency of a cell, grid-connected, transients, and BOS, for example, mean nothing to those not in solar energy or have other connotations. In creating documentation about a technology, make sure terms are defined, either in a sidebar, glossary, or in the text.

The definition can be worked into a sentence without becoming overly long, for example, "We pioneered the development of heliostats, mirrors that track the sun..." Most readers do not know that "the grid" is the network of electric utility lines from power plants, and they need to be told what "grid-connected systems" are; "A system that is linked to the utility line, a grid-connected system..." Here again, the assumption of audience is important in determining those terms that need to be defined.

## Acronyms

Particularly in writing for nontechnical people, avoid acronyms. A reader who is working at understanding the technology will balk and finally give up if he has to remember a list of acronyms on top of everything else. You do not have to repeat the exact term over and over; "the receiver" is adequate once you have introduced the "direct absorption receiver," and it is much kinder than DAR.

Especially annoying to any reader is the use of an acronym that will not be repeated until some 5 or 10 pages later, or is perhaps never used again in the report. Question the necessity of using every acronym, and avoid them unless they stand for terms that are truly used over and over.

## Noun Trains

Strings of nouns without any punctuation or other clues as to their relationship are basic to technical reports. It may be, as some technical people argue, that colleagues understand these constructions, but for those readers--even technical ones--outside the field, they create a lack of precision and comprehension. These trains of nouns not only jar the ordinary reader, they may confuse, if not annoy him.

We would hope never to see the following title in a technical-transfer publication, but people used to such constructions may have become somewhat immune to the confusion that is caused by this kind of title:

10 MWE SOLAR THERMAL CENTRAL RECEIVER  
PILOT PLANT MIRROR MODULE CORROSION  
TORQUE TUBE DAMAGE AND VENT TUBE  
ASSESSMENT SURVEY

Beware the noun train if you have three nouns in a row. To keep your reader interested, rewrite a sentence such as, "Initial system design includes potential load size and solar insolation determination." A suggested rephrasing is, "The initial design of the system includes a determination of the load's probable size and of the insolation." Use hyphens, the possessive case, and the little word "of" to let your reader know exactly what you intended to say, without any ambiguity as to the relationship of one word to another. For example, "automatic salt outlet temperature control" could mean at least three different things depending on how the words are assumed to hang together. An author owes his reader precision in using the language; noun trains are confusing and misleading. Where else but in "technical" writing would you find "Beam Quality Error Sources" and "Classified Waste Disposal Injury" as titles?

Trains of nouns are ambiguous and they violate the natural flow of English. If they hurt technical reports, they are fatal to technology-transfer publications.

The point in publishing information about a technology is to have people read and understand what you write. They are not likely to be willing to work very hard to determine your meaning; they are more likely to give up. A straightforward approach and simple English will do much toward capturing the intended reader no matter how complex the topic.

## SUGGESTED GUIDES

The American Heritage Dictionary, New York: Houghton-Mifflin, latest edition. This dictionary is especially helpful because of its advice on usage for often misused words.

C.T. Brusaw, G.J. Alred, W.E. Oliu, Handbook of Technical Writing, New York: St. Martin's Press, second or latest edition. An easy-to-use reference book, arranged alphabetically by topic, this handbook contains both grammar and usage.