instead of purchasing it from outside sources, but I will assume the responsibility of saying that unless you can purchase from outside sources, after charging interest and depreciation and everything which is properly chargeable to such motor equipment and appliances as may be necessary for you to utilize outside power, you must not pay more than $25 per annum per horse-power, and only upon your average load and not upon your maximum load, and with no stand-by charges! I will, however, place a minimum limit upon your load factor; that is to say, your average horse-power requirement should be at least 60 per cent. of your maximum load. Or, in other words, with a maximum of 100 horse-power and a minimum of 20 horse-power—or a load factor of sixty per cent.

In your plant you would contract to pay $1,500 per year and no more. For, obviously, if it can be shown conclusively that you can produce your power on this basis, at this price—why should you pay a higher price than this for it from some outside source?

Whatever you may pay to outside sources in excess of this price represents just that much dead loss in your business, and when you consider that a reduction in your fixed charges of even $2 per day is equivalent to your going to your bank and paying off $10,000 of oustanding six per cent. paper you will realize that the earning power of money, like the latent heat in coal, is fraught with great possibilities, when given the proper treatment.

Power Company's View.

Now let us take the point of view of the power company, which sells its power as a public utility. Some think that the development of water powers will solve this great problem of power cost. But it has already proved itself a difficult problem. In the first place water powers are not always located at desirable points. Let us take a hypothetical case. Suppose we develop a water power with a maximum of 100,000 horse-power. Our total investment will amount to at least $65 per horse-power initial cost, or say $6,500,000. We contract to deliver power to thousands of users. Our whole equipment is designed and installed, with all our transmission lines, our transforming stations with all the local equipment required at points of destination; our management and our organization are based upon $6,500,000 actual investment. We will say that our peak load; that is, the top notch of our output each 24 hours, reaches the 100,000 horse-power mark.

It is safe to say that the load plot, that is a diagram showing the horse-power output at each hour during the 24 hours, will average not more than 40,000 horse-power. In other words, the total amount of power we sell equals a load factor of forty per cent.

Now 40,000 horse-power multiplied by $65 per horse-power (initial cost) equals only $2,600,000, and you will see at once that the price which must be charged per annum per horse-power must be an amount sufficiently high so that an average output of 40,000 horse-power (or $2,600,000 of our investment) will earn a return sufficient to carry the entire $6,500,000. This is the condition which usually prevails when a water-power is developed and expanded into a public utility.

On the other hand, if a water power is developed for local use, by an individual concern, obviating the necessity of long transmission losses and the low average horse-power output, you will readily see that, under these conditions, water power serves its best and most practicable purpose. The ten best water power developments in the world—including the cheap water powers of Canada—show an average cost of $10 to $12 per annum per horse-power. This is cost, not the price at which the power is sold.

Suppose, after allowances for transmission, transformer losses, fixed charges and a fair profit, it were delivered to the consumer for $20 per horse-power on the usual flat rate basis. You contract to pay for a certain amount of power whether you use it or not (say 100 horse-power). At the end of the year you will find that since your own load factor will probably not average over sixty per cent (for you, as well as the big power company, have your peak load and your minimum load and, consequently, your average horse-power requirement), what you have paid for what you have actually gotten equals $33.33 instead of $20. Because $20 multiplied by 100 horse-power equals $2,000, and $2,000 divided by your actual average load of 60 horse-power equals $33.33 per horse-power, or, sixty-five per cent. more per annum per horse-power than the rate named in your contract. You pay the power company $1,200 for power you do get, and $800 for power you do not get.

The Gas Company—a public utility—charges you for the exact amount of gas you use and no more. The Water Company—a public utility—does the same. Even the Street Railway Company charges you only when you ride. Now when a power company elects to expand itself into a public utility, on what theory has it the right to demand this premium of $800, this sixty-five per cent. for something it does not deliver? Is it because "the power is there, if you want it?" Then, so is the gas "there if you want it!" So is the water. Is it because of the power company's low per cent. of load factor? Then why have not the Gas Company and the Water Company an equal right to make the consumer pay the difference between their average output and their maximum capacity?

The answer is—that the sale of power—as a public utility—is a new enterprise. The consumer has overlooked the importance of this department. Hence the power companies make hay while the sun shines.

But there are exceptions where the average load factor in a plant is equal to and more than the minimum amount of power contracted for; but these exceptions are few, and you will find that a public power company avoids such contracts.

Now, just one final word. The key to this whole question is the load factor, the average actual horse-power required throughout the day's run. Do not confound this with your maximum horse-power requirement.

When you talk of "so much per horse-power per annum," I insist that it be based upon the average horse-power and not the maximum rating. And I insist that with a load factor of sixty per cent. it should not cost you—whether you make it yourself or purchase it from the outside—more than $25.

Discussion.

My answer to the point "when a power company sells power through a meter, making no other charge except a certain rate per kilowatt hour," its charge is so exorbitant that it can well afford to waive all other considerations.

On such a basis the power company usually charges from five to ten cents per kilowatt hour, and taking the average manufacturing day of ten hours and 300 days in the year, a charge of five cents per kilowatt hour is equal to $100 per annum per horse-power; or if ten cents per kilowatt hour is charged, the power company gets $200 per annum per horse-power for the amount of current actually delivered.

Since it can be conclusively demonstrated that the manufacturer can produce his own power—and that too on the average horse-power basis—for $25 per annum per horse-power, it is evident that if current is purchased from a power company through a meter only, the charge paid by the consumer is from four to eight times higher than he can produce it for himself.

This also answers the point raised that the power company is entitled to a return on its total investment (which of course, is conceded), but it is certainly not entitled to many times a just return on its investment.

Haiti has long been known as a country which has important resources capable of extensive development, even though its area is somewhat limited. Among its riches are the extensive iron ore deposits, which are now attracting considerable attention. The Government of Haiti, according to the "Bulletin" of the American Republics, has just granted a valuable concession for the exclusive right and privilege of exploiting these deposits in the district of Limonade, and it seems probable that further concessions will be presently granted that will develop other valuable fields of ore.