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DAY LOADS FOR CENTRAL STATIONS AND HOW TO INCREASE THEM.*

BY J. A. KAMMERER.

At no period since the inception of the electric light-
ing industry have central station managers and opera-
tors taken such a deep interest in all the details of their
plants. As an evidence of this, there is no more en-
couraging sign than the constant desire by operators
for the most complete information concerning, and a
fuller understanding of, the apparatus they are using.
This interest is not exhausted by enquiring and becom-
ing familiar with the different points in the apparatus
they are using, but is extended to the underlying prin-
ciples of the relation between the cost of producing elec-
tric current, and the compensation received therefrom.
Study of this relation is being logically and systemati-
cally undertaken, and is more and more made a basis
upon which the earning capacity of the plant is calcu-
lated. The result of this movement is making itself felt
in no small measure by those pioneers in electric lighting
work who are now profiting by their experience and
reaping the first benefits of the departure from old lines
of conducting electric lighting business. The ruinous
effects of many of these old business methods are now
largely recognized by central station managers, and their
energies are being directed to retrieve what has been

lost in the past in this respect. They are re-arranging
their plants, or are completely reconstructing the same,
with more efficient apparatus. One of the first ques-
tions asked by a pioneer central station manager, when
he desires to purchase a new piece of apparatus is,
"What is its efficiency?" not "What is the price?" He
knows that the true value of everything in connection
with central station work, in fact, with the entire plant,
is "efficiency" or cost of operation, and "quality" or
cost of repairs. His whole work must be to make the
plant more efficient, and less expensive to operate and
repair, and hence more remunerative in order to pay a
dividend on the invested capital. This is being brought
about in part by the reconstruction and rearrangement
of the central stations, and is the first and essential step,
but the effort does not stop at this work.

Other means of procuring remunerative return for
energy expended and capital invested must be and is be-
ing sought. Increase of rates cannot be looked for,
therefore additional income at present, or at even less
rates, must be obtained. Such additional revenue must
be obtained from increased and prolonged use of cur-
rent, to obtain which, means of having current used for
other purposes than illumination must be found, and
consequently use in the day-time or a "day load," as it
is called, must be secured. It is claimed, and it must
be admitted with some truth, that because the particular
business of electric lighting companies is night work,
they should not look for a day load, any more than a
woolen mill or any other kindred industry should look
for a night load. This at first blush looks reasonable,
but were the margins on the woolen mills or other com-
modities as small as they are in most of our cities and
towns on electric lighting, the woolen mill would either
have to close up, or make its plant investment work day
and night to make ends meet. Then here is where the
dividing line can be clearly drawn. The one industry
or industries can exist because the margin of profit on
their product is sufficiently large to pay a reasonable
return on the capital invested by operating their plant
at its maximum output only 10 or 12 hours out of 24.
On the other hand a central station operating a lighting
load only is handicapped because it cannot procure a
maximum load for even 2 hours out of the 24. Its maxi-
mum investment is therefore only exerting its full earn-
ing power for less than 2 hours instead of 10 or 12 hours
daily.

The aim then must be to place electric lighting
central station business on the same footing as any
other industry, by making the plant investment work a
greater number of earning hours in each twenty-four.
To accomplish this there must be, in addition to its regu-
lar work, a day load for the lighting plant. The opera-
tion of a day service for electric lighting prevails only
in a few of our larger cities. This is usually had, how-
ever, by a separate service, necessitating the investment
in and operation of two systems, one for lighting and
one for power—which is too expensive for small central
stations, and still leaves the question of the maximum in-

*A paper read before the Canadian Electrical Association.