

TOTAL ENERGY SYSTEMS

REPORT OF THE
VIRGINIA ADVISORY LEGISLATIVE COUNCIL

To
THE GOVERNOR

And
THE GENERAL ASSEMBLY OF VIRGINIA



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COMMONWEALTH OF VIRGINIA
Department of Purchases and Supply
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TOTAL ENERGY SYSTEMS

REPORT

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THE VIRGINIA ADVISORY LEGISLATIVE COUNCIL

Richmond, Virginia
November 7, 1969

TO: HONORABLE MILLS E. GODWIN, JR., *Governor of Virginia*

and

THE GENERAL ASSEMBLY OF VIRGINIA

I. INTRODUCTION

The concept of total energy is perhaps best illustrated by the example of a ship at sea which contains its own source for generating power and furnishing heating, cooling and other services. Transfer this example to land at a shopping center or industrial plant where energy is generated on the premises and heating and cooling are furnished as a by-product, and you have the basic idea of a modern total energy operation.

Today's year-round demand for heating and cooling services and advances in the construction of the machinery used in total energy systems have created a larger potential market for such installations today than existed before.

Nevertheless, developers in Virginia have hesitated to use total energy because of uncertainty concerning its status under our Utility Facilities Act. If the Act is applicable, the total energy developer would need a certificate from the State Corporation Commission and have to demonstrate that existing utilities cannot supply the need for electricity in his development. If the Act does not apply, the developer could go ahead without advance approval. As it stands now, the Act is ambiguous and the State Corporation Commission has offered no interpretation of the Act on this point.

The question whether or not to amend the Utility Facilities Act was clearly posed for the first time in the 1968 General Assembly by Senate Bill No. 82 which added language to the Act designed to exempt from the Act companies operating utility facilities on the premises and furnishing utilities to tenants on the premises. The Bill failed to pass, but led to Senate Joint Resolution No. 58, the directive for this study, which reads as follows:

Resolved by the Senate of Virginia, the House of Delegates concurring, That the Virginia Advisory Legislative Council is directed to make a study of the use, the economic benefits and the need for regulation of total energy, which is defined as a system furnishing electric service together with heating and cooling services generated at a central plant installed on the premises to be served. The Council shall complete its study and report to the Governor and the General Assembly not later than September one, nineteen hundred sixty-nine.

Pursuant to this directive, the Council appointed a Committee to conduct an initial study and report to it. Council member and Senator,

Edward E. Willey of Richmond, was appointed Chairman. Appointed to serve with him were: Delegate George B. Anderson, Danville; Joseph E. Blackburn, Counsel, Chesapeake and Potomac Telephone Company, Richmond; Rodham Delk, Attorney, Smithfield; Overton D. Dennis, Jr., Dominion Oil Company, Inc., Richmond; Senator Robert C. Fitzgerald, Fairfax; Charles M. Hailey, Falls Church; William Martin Johnson, Wiley and Wilson, Consulting Engineers, Lynchburg; H. E. Lordley, Director, Public Utilities, Richmond; Roland C. Luther, United Pocahontas Coal Company, Bluefield; Delegate Theodore V. Morrison, Jr., Newport News; R. G. Roop, Petroleum Marketers, Inc., Richmond; Earl J. Shiflet, Executive Manager, Virginia Association of Electric Cooperatives, Richmond; Chester Starkey, Commonwealth Natural Gas Corporation, Richmond; and W. S. White, Appalachian Power Company, Roanoke. Mr. Anderson was elected Vice-Chairman by the Committee, and the Division of Statutory Research and Drafting, represented by Mary Spain, served as counsel to it.

The Committee held several executive meetings, toured the total energy facility at Turfland Mall in Lexington, Kentucky, conducted a well-attended and informative public hearing in January, consulted frequently with representatives of the State Corporation Commission and surveyed other states to ascertain their statutory and regulatory treatment of total energy systems.

The Committee submitted its report to the Council and we have reviewed and studied it with care. We now submit the following recommendations and report:

II. RECOMMENDATIONS

- A. The Utility Facilities Act should be amended to reflect what is generally understood to be the present law and expressly to exempt total energy operations run by companies exclusively for their own use.
- B. The Act should also exempt certain total energy installations involving service to tenant customers, provided that the installation and customers are located on a single tract of property and the electricity is paid for as part of the rent.
- C. Installations exempted from the Act which serve one hundred or more tenants should be subject to State Corporation Commission regulatory jurisdiction.

III. TOTAL ENERGY DEFINED

Before giving the reasons in support of the above recommendations, a brief description of the way total energy works is in order.

Total energy involves the production of power at the point where it will be consumed, while traditional electric utilities generate power at one point and transmit it over a distance to consumers. With either system, there is a basic fuel (usually gas or oil for total energy and coal or residual oil for electric utilities), generating equipment, and a certain proportion of wasted fuel or heat as a by-product of the electricity that is generated. Total energy recovers a portion of the wasted heat for heating, cooling and other special uses.

The developer in choosing between a total energy installation and the purchase of electricity from a utility would have to decide whether

the savings inherent in the ability to recover waste heat will offset the substantial initial investment in the equipment necessary for a total energy operation and whether total energy will compare favorably with the purchase of electricity from a utility and operation of usual heating and cooling equipment.

Generally speaking, total energy is not economical for the man with a small business or a homeowner. Testimony at the public hearing said total energy could be feasible for a project as small as 20,000 square feet, but the more typical installation at a shopping center, dormitory or hospital runs to 100,000 square feet and far larger installations have been developed.

The key to total energy is the heat recovery feature which on-site generation of power permits.

We do not endorse or recommend the concept of total energy for any given situation, but we do believe there is sufficient potential in this concept to warrant clarification of existing law so that developers may consider the use of total energy if it appears economically beneficial.

IV. REASONS FOR RECOMMENDATIONS

Our basic recommendations are to permit the construction of total energy without the need to obtain a certificate under the Utility Facilities Act and to provide for regulation of larger total energy projects by the State Corporation Commission so that the consumers at such projects will have the protection afforded regular utility consumers.

A. Exemption from the Utility Facilities Act.

We were persuaded that the present state of the law discourages construction of total energy installations whenever there may be third party consumers involved. While it is arguable that the Utility Facilities Act does not apply to such an installation, the cost of an installation and litigation are so high as to discourage a test case on the question of the Act's applicability.

Moreover, we were convinced that the only way to give developers the option to use total energy would be an exemption under the Utility Facilities Act. The expense and difficulty of obtaining a certificate of public convenience and necessity and of showing that the established certificate holder cannot provide required power needs in the area would, we believe, effectively rule out consideration of the use of total energy by developers.

The reasons presented by proponents of total energy to the Committee which support our recommendation to exempt total energy facilities from the Act included the following:

1. Commercial investors looking at Virginia may be discouraged by the unavailability of total energy as a development feature.
2. Total energy is a more efficient use of the basic fuel, whether oil, gas or coal, and means economic savings. It involves only one installation rather than separate ones for heating, cooling, etc., and is a flexible design feature permitting special architectural and engineering designs.
3. Total energy is more reliable than other power sources which is important for such uses as computer facilities.

4. Total energy lessens air pollution.
5. Total energy has demonstrated its advantages, as shown by increasing numbers of users.
6. Total energy does not adversely affect electric power companies or their customers, but promotes healthy competition for existing power sources.

The disadvantages which were cited by opponents included the following:

1. Twenty-one such installations have switched back from total energy to purchased power according to the Edison Electric Institute and Electric Heating Association, Inc. Maintenance problems, outages, voltage regulation problems, poor fuel consumption, high maintenance and operating costs, poor heat balance, limits on growth, were reasons cited for switching.
2. Permitting total energy would bring about the type of duplication of facilities that the Utility Facilities Act was enacted to prevent.
3. Permitting total energy would create unfair competition since total energy operators do not have the same obligation as a utility to serve all customers and would work only for larger, more profitable customers.

Generally, we believe that the option should be available to developers to decide whether or not total energy is an advantageous construction feature for their project and that the law should not preclude what may be economically sound construction in some instances.

With reference to the argument that total energy installations will mean duplication of facilities in violation of the intent of the Utility Facilities Act, we believe that this argument is faulty because the facilities involved are so different. Electric utilities are major generating complexes; total energy installations are usually comparatively minor generating facilities accompanied by heat recovery and related equipment. Moreover, the total energy operator is not a utility in most senses of the word. He is usually a real estate developer, apartment owner or industrial company who does not have the condemnation powers of a utility or the utility's duty to serve all potential customers. Rather than duplicate facilities, we are talking about different types of facilities.

The effect of installation of total energy systems will, however, be one of competition with electric utilities. It will take time to determine what the effect of such competition will be. We have had this type of competition without noticeable impact in Virginia for some time in cases where industries and individuals have installed total energy strictly for their own use. We doubt that there will be any measurable impact for years because of permitting third party installations. While there is a potential market for total energy in shopping centers, offices, industries and apartments, only approximately ten per cent of installations in the country to date have been built for the third party situation. According to testimony at the Committee's hearing, no apartments or shopping centers are projected through 1971 in Virginia for which total energy would prove feasible. Moreover, our recommendation has limited the potential impact of such competition by providing that the installation must be located on and serve only consumers located on a single tract of land.

B. Regulation of certain total energy facilities.

Given the fact that third party installations are permitted, we felt that there should be provision made for regulation by the State Corporation Commission in the case of larger facilities.

There were arguments both pro and con offered to the Committee on the merits of regulation by the State Corporation Commission. Among the arguments opposed to regulation were:

1. There is no need for regulation because: tenants can negotiate rates and service features through their leases and can protect themselves through traditional landlord-tenant law devices; the tenants in the total energy situation are usually sophisticated and able to look out for themselves; total energy installations will be subject to other types of regulation as through local building and safety codes; total energy will be subject also to the regulation of the free market and competition.
2. Total energy installations lack the characteristics of public utilities which justify regulation. Total energy owners or fuel suppliers are not monopolies and have no rights of eminent domain or special rights to use public rights-of-way.
3. The State Corporation Commission does not now regulate the distribution of electric power by landlords to tenants in cases where the landlord purchases electricity through a master meter and charges tenants for power as part of the rent and this is analogous to the total energy situation.
4. Other states do not regulate total energy.

Arguments favoring regulation included:

1. The consumer of electricity in a total energy complex needs protection on service and price. The number of consumers can be as large as 20,000 as at Rochdale, N. Y. Such consumers cannot evaluate adequacy or fairness of price for electricity.
2. Such plants may be removed from the premises served and should be limited to plants owned by the landlord and located on the premises.
3. Meters which may be used to calculate rental charges, if not specific charges, are not subject to standard tests.
4. Generation of electricity is far more complicated than distribution as by master meter. Total energy involves both generation and distribution. In the master meter case, the utility furnishing power is regulated and the terms and conditions of its contract with the landlord are subject to S.C.C. scrutiny.
5. Unregulated total energy operation would amount to unfair competition with existing power sources.

In weighing these arguments, we were persuaded that the size of the installation should be the controlling factor. While any numerical classification is arbitrary, we believe that there should be provision for State Corporation Commission regulation of quality of service if more than one hundred leases are involved. At this point, there is great likelihood that the equipment will be complex, the tenant less sophisticated and the impact on competition potentially more important. There should be

provision for assurance of proper service at this point. We note that whether or not the installation serves more than one hundred lessees, we are recommending the exemption be available only if the plant is located on the premises to be served and charges are part of the rent rather than metered.

With respect to the laws and regulations of other states, we have the benefit of replies from thirty-three of the states in response to a survey of all states. This survey indicates that the approach recommended in our report is somewhat new. The conclusion of the staff report to the Committee on the survey of other states was :

In summary, this area of the law is as new in other jurisdictions as it is in Virginia, and it is marked by a conditional absence of regulation rather than positive action. The conditions which must be met to avoid regulation vary and may be founded on statutory exemptions, opinions or regulatory agency policy. Frequently mentioned conditions are the limiting of sales to tenants thus avoiding the "general public" or "public" types of service and the limiting of charges to flat rate charges rather than actual consumption charges thus avoiding "sales" of such services.

No state replying to date offers any experience or positive legislative program for regulation of total energy installations.

We believe that the positive approach recommended in this report is preferable to the approach reflected in many states where regulation has been conditionally held in abeyance and that our recommendations will serve to provide a clear legal field in which total energy may develop or not on its merits as an engineering concept.

V. RECOMMENDED LEGISLATION

A BILL

To amend and reenact § 56-265.1, as amended, of the Code of Virginia, relating to definitions in the Utility Facilities Act.

Be it enacted by the General Assembly of Virginia :

1. That § 56-265.1, as amended, of the Code of Virginia be amended and reenacted as follows :

§ 56-265.1. In this chapter the following terms shall have the following meanings :

(a) "Company" means a corporation, an individual, a partnership, an association, a joint-stock company, a business trust, a co-operative, or an organized group of persons, whether incorporated or not; or any receiver, trustee or other liquidating agent of any of the foregoing in his capacity as such; but not a municipal corporation or a county.

(b) "Public utility" means any company which owns or operates facilities within the Commonwealth of Virginia for the generation, transmission or distribution of electric energy for sale, for the production, transmission, or distribution, otherwise than in enclosed portable containers, of natural or manufactured gas for sale for heat, light or power, or for the furnishing of telephone service, sewerage facilities or water. Provided that the term "public utility" shall not include any *of the following* :

(1) *Any company furnishing sewerage facilities or water to less than fifty customers.*

(2) *Any company generating and distributing electric energy exclusively for its own consumption.*

(3) *Any company (A) which furnishes electric service together with heating and cooling services, generated at a central plant installed on the premises to be served, to the tenants of a building or buildings located on a single tract of land undivided by any publicly maintained highway, street or road at the time of installation of the central plant, and (B) which does not charge separately or by meter for electric energy used by any tenant except as part of a rental charge. Any company excluded by this paragraph (3) from the definition of "public utility" for the purposes of this chapter nevertheless shall, within thirty days following the issuance of a building permit, notify the State Corporation Commission in writing of the ownership, capacity and location of such central plant, and it shall be subject, with regard to the quality of electric service furnished, to the provisions of Chapters 10 and 17 of this Title and regulations thereunder and be deemed a public utility for such purposes, if such company furnishes such service to one hundred or more lessees.*

(c) "Commission" means the State Corporation Commission.

VI. COMMENTARY ON LEGISLATION

Our legislative proposal incorporates all recommendations in one amendment to § 56-265.1, the definition section of the Utility Facilities Act.

The amendment adds two new exceptions to the sewer and water company exception to the definition of "public utility" in the Utility Facilities Act. The first new exception exempts the one-man total energy operation from the definition and is a statement of accepted present law.

The second new exception excludes multi-party total energy operations which meet the following criteria :

- A. they furnish electricity with heating and cooling services;
- B. the electricity is generated on the premises;
- C. those premises consist of a single tract of land not divided by a publicly maintained road at the time the total energy plant is installed (This means a developer subsequently to the time of installation could dedicate a road through the property and it could be accepted by a locality or the State and questions of rights-of-way across such a road would be decided by existing law.); and
- D. they charge for electricity as part of the rent and not on the basis of the amount used by a tenant.

Any company which satisfies these criteria can operate a total energy plant without obtaining a certificate under the Utility Facilities Act.

All companies exempted from that Act under this exception must, however, notify the State Corporation Commission before the plant is installed, who owns it, what its capacity is and where it is located. This requirement assures that the Commission will be able to check such

plants to be sure they meet the criteria listed above and to determine whether they are subject to Commission regulation under the last proviso of the amendment.

The last proviso says that any company excluded by the new exception which serves one hundred or more lessees will be subject to Chapters 10 and 17 of Title 56 and relevant Commission regulation as far as the quality of the electric service furnished is concerned and be a public utility for such purposes. Chapter 10 is the basic regulatory law for power companies, carries specific provisions defining "service", imposes duties to furnish adequate service, and empowers the Commission to require reports, conduct investigations and set standards. Chapter 17 empowers the State to take over a utility in the event of an imminent threat of interrupted service which menaces the public health, safety or welfare.

VII. CONCLUSION

We believe the above recommendations present the soundest solution to the questions posed by Senate Joint Resolution No. 58 and provide the means whereby Virginia may take advantage of the potential benefits of total energy without detriment to existing power companies or danger to the State's consumers.

Our report and study could not have been executed without the invaluable assistance of the Committee and we wish to express our

Respectfully submitted,

C. W. Cleaton, Chairman

J. C. Hutcheson, Vice-Chairman

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