

GENERAL ASSEMBLY OF NORTH CAROLINA

SESSION 1993

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HOUSE BILL 101*
Committee Substitute Favorable 3/10/93

Short Title: Energy Policy for State Government.

(Public)

Sponsors:

Referred to:

February 10, 1993

1 A BILL TO BE ENTITLED
2 AN ACT TO EXPAND THE CURRENT ENERGY POLICY FOR STATE
3 GOVERNMENT TO APPLY TO THE CONSTRUCTION, OPERATION, AND
4 RENOVATION OF STATE FACILITIES AND STATE-ASSISTED FACILITIES
5 AND TO THE PURCHASE, OPERATION, AND MAINTENANCE OF
6 EQUIPMENT FOR SUCH FACILITIES.

7 The General Assembly of North Carolina enacts:

8 Section 1. The title of Article 3B of Chapter 143 of the General Statutes
9 reads as rewritten:

10 **"ENERGY POLICY FOR STATE AGENCIES CONCERNING MAJOR**
11 **CONSTRUCTION OR RENOVATION OF BUILDINGS. GOVERNMENT."**

12 Sec. 2. G.S. 143-64.10 reads as rewritten:

13 **"§ 143-64.10. Findings of General Assembly. Findings; policy.**

14 (a) The General Assembly hereby finds:

15 (1) That the State should take a leadership role in aggressively
16 undertaking energy conservation in North Carolina;

17 ~~(1)~~(2) That state-owned and assisted facilities-State facilities and state-assisted
18 facilities have a significant impact on the State's consumption of
19 energy;

20 ~~(2)~~(3) That energy conservation practices adopted for the design,
21 construction, and utilization-operation, maintenance, and renovation of
22 these facilities and for the purchase, operation, and maintenance of

- 1 equipment for these facilities will have a beneficial effect on the
2 State's overall supply of energy;
3 ~~(3)~~(4) That the cost of the energy consumed by these facilities and the
4 equipment for these facilities over the life of the facilities must be
5 considered, in addition to the initial cost of constructing such facilities;
6 and cost;
7 (4)(5) That the cost of energy is significant and facility designs must take
8 into consideration the total life-cycle cost, including the initial
9 construction cost, and the cost, over the economic life of the facility, of
10 the energy consumed, and of operation and maintenance of the facility
11 as it affects energy consumption; and
12 (6) That State government should undertake a program to reduce energy
13 use in State facilities and state-assisted facilities and equipment in
14 those facilities in order to provide its citizens with an example of
15 energy-use efficiency.

16 (b) ~~The General Assembly declares that it~~ It is the policy of the State of North
17 Carolina to insure ensure that energy conservation practices are employed in the design
18 of state-owned and assisted facilities. To this end the General Assembly encourages
19 State agencies to analyze the cost of energy consumption of each facility constructed or
20 each major facility constructed or renovated, over its economic life, in addition to the
21 initial construction or renovation cost. design, construction, operation, maintenance, and
22 renovation of State facilities and state-assisted facilities, and in the purchase, operation,
23 and maintenance of equipment for State facilities and state-assisted facilities."

24 Sec. 3. G.S. 143-64.11 reads as rewritten:

25 **"§ 143-64.11. Definitions.**

26 For purposes of this Article:

- 27 (1) ~~The term 'economic'~~ 'Economic life' means the projected or anticipated
28 useful life of a facility.
29 (2) ~~The term 'energy consumption'~~ 'Energy-consumption analysis' means the
30 evaluation of all energy-consuming systems and components by
31 demand and type of energy, including the internal energy load imposed
32 on a facility by its occupants, equipment and components, and the
33 external energy load imposed on the facility by climatic conditions.
34 (2a) 'Energy Division' means the Energy Division of the Department of
35 Commerce.
36 (2b) 'Energy-consuming system' includes but is not limited to the following
37 equipment or measures:
38 a. Equipment used to heat, cool, or ventilate the facility;
39 b. Equipment used to heat water in the facility;
40 c. Lighting systems;
41 d. On-site equipment used to generate electricity for the facility;
42 e. On-site equipment that uses the sun, wind, oil, natural gas,
43 liquid propane gas, coal, or electricity as a power source; and

1 f. Energy conservation measures in the facility design and
 2 construction that decrease the energy requirements of the
 3 facility.

4 (3) ~~The term 'facility'~~ 'Facility' means any building or facility on which
 5 ~~construction is initiated six months or more after July 1, 1975.~~ a building or
 6 a group of buildings served by a central energy distribution system or
 7 components of a central energy distribution system.

8 (4) ~~The term 'initial'~~ 'Initial cost' means the required cost necessary to
 9 ~~construct a facility or construct or renovate a major facility.~~

10 (5) ~~The term 'life cycle cost' means the cost of a facility including its~~
 11 ~~initial cost, and the cost, over the economic life of the facility, of the~~
 12 ~~energy consumed and of operation and maintenance of the facility as it~~
 13 ~~affects energy consumption.~~ 'Life-cycle cost analysis' means an
 14 analytical technique that considers certain costs of owning, using, and
 15 operating a facility over its economic life, including but not limited to:

16 a. Initial costs;

17 b. System repair and replacement costs;

18 c. Maintenance costs;

19 d. Operating costs, including energy costs; and

20 e. Salvage value.

21 (6) ~~The term 'major facility' means any building or facility of 40,000 or~~
 22 ~~more gross square feet on which construction or renovation is initiated~~
 23 ~~six months or more after July 1, 1975, and wherein significant energy~~
 24 ~~demands will exist.~~

25 (7) ~~The term 'State'~~ 'State agency' means the State of North Carolina or any
 26 board, bureau, commission, department, institution, or ~~other~~ agency of
 27 the State, or any board or governing body of a political subdivision of the
 28 State, including any board of a community college, or an agency,
 29 ~~commission, or authority of a political subdivision of the State.~~ State.

30 (8) ~~The term 'state-assisted facility' or 'major state-assisted facility'~~ 'State-
 31 assisted facility' means a facility ~~constructed, or major facility~~
 32 ~~constructed or renovated,~~ renovated in whole or in part with State funds
 33 or with funds guaranteed or insured by a State agency.

34 (9) ~~The term 'State facility' or 'major State facility'~~ means a facility
 35 ~~constructed, or a major facility constructed or renovated, by a State~~
 36 ~~agency."~~

37 Sec. 4. G.S. 143-64.12 reads as rewritten:

38 **"§ 143-64.12. Authority and duties of State agencies.**

39 (a) The General Assembly authorizes and directs that State agencies shall carry
 40 out the construction and renovation of State facilities, ~~and the construction and renovation~~
 41 ~~of major State facilities,~~ under their jurisdiction or programs for the construction and
 42 renovation of state-assisted facilities ~~and the construction and renovation of major state-~~
 43 ~~assisted facilities~~ in such a manner as to further the policy declared herein, insuring that
 44 life-cycle cost analyses and energy-conservation practices are ~~employed in new state-~~

1 ~~owned and assisted facilities and in new or renovated major state-owned and assisted facilities-~~
2 ~~employed.~~

3 ~~(b) Each State agency having jurisdiction over any state-owned or assisted~~
4 ~~facilities' construction program shall evaluate each project, and if consistent with good~~
5 ~~architectural, engineering, and economic practice, require life cycle cost analysis.~~
6 ~~Nothing in this Article shall deprive or limit any State agency which has review~~
7 ~~authority over design or construction plans from requiring a life cycle cost analysis.~~
8 ~~The Department of Administration, in consultation with the Energy Division, shall develop~~
9 ~~and implement policies, procedures, and standards to ensure that State purchasing~~
10 ~~practices improve energy efficiency and take the cost of the product over the economic~~
11 ~~life of the product into consideration. The Department of Administration, in~~
12 ~~consultation with the Energy Division, shall adopt and implement Building Energy~~
13 ~~Design Guidelines. These guidelines shall include energy-use goals and standards,~~
14 ~~economic assumptions for life-cycle cost analysis, and other criteria on building systems~~
15 ~~and technologies. The Department of Administration shall modify the design criterion~~
16 ~~for construction and renovation of facilities to require that a life-cycle cost analysis be~~
17 ~~conducted pursuant to G.S. 143-64.15. The Department of Administration, as part of~~
18 ~~the Facilities Condition and Assessment Program, shall identify and recommend energy~~
19 ~~conservation maintenance and operating procedures that are designed to reduce energy~~
20 ~~consumption within the facility and that require no significant expenditure of funds.~~
21 ~~State departments, institutions, or agencies shall implement these recommendations.~~

22 ~~The Energy Division shall develop a comprehensive energy management program~~
23 ~~for State government and shall coordinate the development of State agency energy~~
24 ~~management plans.~~

25 ~~The State Building Commission shall modify its selection process of design teams of~~
26 ~~architects, engineers, and other consultants in order to assure that the process provides~~
27 ~~for the selection of design teams who are qualified to provide comprehensive design~~
28 ~~services including energy analysis services as specified in the Building Energy Design~~
29 ~~Guidelines, and shall require its use.~~

30 ~~(c) This life cycle cost analysis shall include but not be limited to such elements~~
31 ~~as:~~

- 32 ~~(1) The coordination, orientation and positioning of the facility on its~~
33 ~~physical site;~~
- 34 ~~(2) The amount and type of fenestration employed in the facility;~~
- 35 ~~(3) Thermal characteristics of materials, and the amount of insulation~~
36 ~~incorporated into the facility design;~~
- 37 ~~(4) The variable occupancy and operating conditions of the facility,~~
38 ~~including illumination levels;~~
- 39 ~~(5) Architectural features which affect energy consumption; and~~
- 40 ~~(6) An energy consumption analysis of the major facility's heating,~~
41 ~~ventilating, and air-conditioning system, lighting system, and all other~~
42 ~~energy consuming systems. The energy consumption analysis of the~~
43 ~~operation of energy consuming systems in the major facility should~~
44 ~~include but not be limited to:~~

- 1 a. The comparison of two or more system alternatives;
 2 b. The simulation or engineering evaluation of each system over
 3 the entire range of operation of the major facility for a year's
 4 operating period; and
 5 e. The engineering evaluation of the energy consumption of
 6 component equipment in each system considering the operation
 7 of such components at other than full or rated outputs.
- 8 (d) The life-cycle cost analysis performed for each major facility shall provide
 9 but not be limited to the following information:
- 10 (1) The initial estimated cost of each energy consuming system being
 11 compared and evaluated;
 12 (2) The estimated annual operating cost of all utility requirements;
 13 (3) The estimated annual cost of maintaining each energy consuming
 14 system; and
 15 (4) The average estimated replacement cost for each system expressed in
 16 annual terms for the economic life of the major facility.
- 17 (e) The life-cycle cost analysis shall be certified by a registered architect or
 18 registered professional engineer, or by both architect and engineer, particularly qualified
 19 by training and experience for the type of work involved, and in conformance with the
 20 provisions of G.S. 133-1.1.
- 21 (f) Provided, however, that in order to protect the integrity of historic buildings,
 22 no provision of this Chapter shall be interpreted to require such analysis with respect to
 23 any property eligible for, nominated to, or entered on the National Register of Historic
 24 Places, pursuant to the National Historic Preservation Act of 1966, P.L. 89-665; any
 25 historic building located within an historic district as provided in Chapters 160A or
 26 153A of the North Carolina General Statutes; any historic building listed, owned, or
 27 under the jurisdiction of an historic properties commission as provided in Chapter 160A
 28 or 153A; nor any state-owned or state-assisted historic property.
- 29 (g) Selection of the optimum system or combination of systems to be
 30 incorporated into the design of the major facility shall be based on the life-cycle cost
 31 analysis over the economic life of the facility."

32 Sec. 5. G.S. 143-64.13 is repealed.

33 Sec. 6. Article 3B of Chapter 143 of the General Statutes is amended by
 34 adding a new section to read:

35 "**§ 143-64.15. Life-cycle cost analysis.**

- 36 (a) A life-cycle cost analysis shall include, but not be limited to, the following
 37 elements:
- 38 (1) The coordination, orientation, and positioning of the facility on its
 39 physical site;
 40 (2) The amount and type of fenestration employed in the facility;
 41 (3) Thermal characteristics of materials and the amount of insulation
 42 incorporated into the facility design;
 43 (4) The variable occupancy and operating conditions of the facility,
 44 including illumination levels; and

1 (5) Architectural features which affect energy consumption.

2 (b) The life-cycle cost analysis performed for any State facility or state-assisted
3 facility shall, in addition to the requirements set forth in subsection (a) of this section,
4 include, but not be limited to, the following:

5 (1) An energy-consumption analysis of the facility's energy-consuming
6 systems in accordance with the provisions of subsection (f) of this
7 section;

8 (2) The initial estimated cost of each energy-consuming system being
9 compared and evaluated;

10 (3) The estimated annual operating cost of all utility requirements;

11 (4) The estimated annual cost of maintaining each energy-consuming
12 system; and

13 (5) The average estimated replacement cost for each system expressed in
14 annual terms for the economic life of the facility.

15 (c) The life-cycle cost analysis shall be certified by a registered professional
16 engineer or bear the seal of a North Carolina registered architect, or both. The engineer
17 or architect shall be particularly qualified by training and experience for the type of
18 work involved, but shall not be employed directly or indirectly by a fuel provider, utility
19 company, or group supported by fuel providers or utility funds. Plans and specifications
20 for facilities involving public funds shall be designed in conformance with the
21 provisions of G.S. 133-1.1.

22 (d) In order to protect the integrity of historic buildings, no provision of this
23 Article shall be interpreted to require the implementation of energy-cost measures that
24 conflict with respect to any property eligible for, nominated to, or entered on the
25 National Register of Historic Places, pursuant to the National Historic Preservation Act
26 of 1966, P.L. 89-665; any historic building located within an historic district as provided
27 in Chapters 160A or 153A of the General Statutes; any historic building listed, owned,
28 or under the jurisdiction of an historic properties commission as provided in Chapter
29 160A or 153A; nor any historic property owned by the State or assisted by the State.

30 (e) Selection of the optimum system or combination of systems to be
31 incorporated into the design of the facility shall be based on the life-cycle cost analysis
32 over the economic life of the facility.

33 (f) The energy-consumption analysis of the operation of energy-consuming
34 systems in a facility shall include, but not be limited to:

35 (1) The comparison of two or more system alternatives;

36 (2) The simulation or engineering evaluation of each system over the
37 entire range of operation of the facility for a year's operating period;
38 and

39 (3) The engineering evaluation of the energy consumption of component
40 equipment in each system considering the operation of such
41 components at other than full or rated outputs."

42 Sec. 7. G.S. 143-64.14 is recodified as G.S. 143-64.16.

1 Sec. 8. This act is effective upon ratification and applies to all construction
2 and renovation projects for State facilities and state-assisted facilities that start the
3 design process on or after that date.