



# OHIO HOUSE OF REPRESENTATIVES

Policy Department

## FirstEnergy's Zero-Emissions Nuclear Resource (ZEN) Program

Bottom Line:

- FirstEnergy is seeking legislation for ratepayer compensation of their two Ohio nuclear plants Davis-Besse & Perry.

- What is a ZEN?

- Credits paid for by FirstEnergy customers on top of normal operational costs to ~~compensate marketplace losses.~~
- Program starts in 2017 and ~~has no sunset date.~~

- What is the cost?

- \$17/MWh first two years adjusted for inflation thereafter.
- Price based on social cost of carbon.
- 5% increase on average residential customer; *may be slightly higher on*
- ~\$300 million per year for the life of the plants.

- How is this different from RECs (Renewable Resource Credit)?

- RECs are publically traded and valued based on supply and demand. ZENs are an addition to wholesale electricity prices.
- RECs can be traded across state lines, while ZENs are tied to just Ohio.

- Do other states do this?

- Illinois & New York both have similar programs.
- Illinois is a 10-year program. New York is a 12-year program

lasts for the remaining lifetime

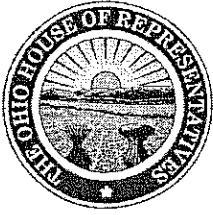
period of the

two plants and any renewals (20+ years or more)

recognize zero carbon emission environmental benefits of nuclear power

(commercial/industrial) customers

Alc-Zen B.11



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### FirstEnergy's Zero-Emissions Nuclear Resource (ZEN) Program

Bottom Line:

- FirstEnergy is seeking legislation for ratepayer compensation of their two Ohio nuclear plants Davis-Besse & Perry.
- What is a ZEN?
  - Credits paid for by FirstEnergy customers on top of normal operational costs to recognize zero carbon emission environmental benefits of nuclear power.
  - Program starts in 2017 and lasts for the remaining licensure period of the two plants and any renewals (20-plus years or more)
- What is the cost (estimate)?
  - \$17/MWh first two years adjusted for inflation thereafter.
  - Price based on social cost of carbon.
  - 5% increase on average residential customer; may be slightly higher on commercial/industrial customers.
  - ~\$300 million per year for the life of the plants (roughly twenty years)
- How is this different from RECs (Renewable Resource Credit)?
  - RECs are publically traded and valued based on supply and demand. ZENs are an addition to wholesale electricity prices.
  - RECs can be traded across state lines, while ZENs are tied to just Ohio.
- Do other states do this?
  - Illinois & New York both have similar programs.
  - Illinois is a 10-year program. New York is a 12-year program

- What is Davis 10¢ or this proposal to how much it should be? ?  
- should be less than 10¢.  
- Creditors should check in.

→ Luis - Beza los que vienen



Mark Flanders  
Director

# OHIO LEGISLATIVE SERVICE COMMISSION

Clifford A. Rosenberger, Speaker of the House

Larry Obhof, President of the Senate

Zen

L-132-0723

February 17, 2017

The Honorable William Seitz  
Ohio House of Representatives  
Statehouse  
Columbus, OH 43215

Dear Representative Seitz:

You asked LSC staff to draft a newer version of I\_132\_0606 for you with changes from an interested party. Your aide told us to draft the language "as is" even though you are aware that there are some problems with the language. The resulting bill (I\_132\_0723) is attached.

As you review the bill, please note that the bill's potential problems include the following:

- The bill's criteria for determining a zero-emissions nuclear resource (R.C. 4928.754) includes a false distinction between nuclear energy resources (ZENR) that are in-state and all other nuclear energy resources (presumably "out-of-state" resources). The standards for both are the same. While this approach may meet the intent of the requestor, the bill's efficacy may be compromised. First, it creates ambiguity because a ZENR must meet all of the criteria of R.C. 4928.754. But, the false distinction makes that impossible since all the criteria must be met, which requires the nuclear energy resource to be in both the in-state category *and* the all other category. The result will cause confusion in application of the most important element of the bill. Secondly, the bill references the "all other nuclear energy resources" portion of the ZENR criteria to identify a nuclear energy resource for determining whether the resource qualifies under the criteria. This has an element of circularity that can lead to misinterpretation.

- R.C. 4928.757 requires the Public Utilities Commission to designate an in-state nuclear energy resource as a ZENR no later than 50 days after filing. If the Commission doesn't so designate in that time period, the resource is deemed a ZENR. This language makes it clear that the Commission really has no duties here--*it must designate all in-state facilities that file*. But, that conclusion would be at odds with the logical assumption that some consideration must be made as to whether the resource meets the bill's criteria. If the intent is that the entity's filing is all the evidence needed to prove the criteria are met, the bill could avoid misinterpretation by simply declaring all in-state nuclear energy resources for which a filing is made are ZENRs. You may also want to consider whether filings are even necessary and simply state that all in-state resources are ZENRs for purposes of the zero-emissions nuclear credit (ZENC) part of the bill. You could save any Commission duties regarding ZENR review for all the other resources.
- To qualify as a ZENR, a nuclear energy resource must *satisfy* the ZENR criteria. All other nuclear energy resources (not the in-state resources), however, must *qualify* under the ZENR criteria as the Commission *determines* (R.C. 4928.7511). In addition, the ZENC requirements regarding exclusion of information from public records only addresses information submitted to *satisfy* ZENR requirements (R.C. 4928.7515). The difference in language could lead to misinterpretation.
- With respect to the various seven-day time periods regarding the ZENC provisions of the bill, "not later than" and "within" are both used (R.C. 4928.7522, 4928.7523, and 4928.7526). Consistency in usage may avoid misinterpretation in the future.

Please contact me at (614) 644-7788 or [brian.malachowsky@lsc.ohio.gov](mailto:brian.malachowsky@lsc.ohio.gov) if you have any questions or concerns.

Sincerely,

*Brian D. Malachowsky*

Brian D. Malachowsky  
Research Associate

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Attachment: 1\_132\_0723

Reviewed As To Form By  
Legislative Service Commission

I\_132\_0723

132nd General Assembly  
Regular Session  
2017-2018

. B. No.

**A BILL**

To amend section 4928.02 and to enact sections 1  
4928.75, 4928.751, 4928.752, 4928.753, 4928.754, 2  
4928.755, 4928.756, 4928.757, 4928.7510, 3  
4928.7511, 4928.7513, 4928.7514, 4928.7515, 4  
4928.7520, 4928.7521, 4928.7522, 4928.7523, 5  
4928.7524, 4928.7525, 4928.7526, 4928.7527, 6  
4928.7530, and 4928.7532 of the Revised Code 7  
regarding the zero-emissions nuclear resource 8  
program. 9  
10

**BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF OHIO:**

**Section 1.** That section 4928.02 be amended and sections 11  
4928.75, 4928.751, 4928.752, 4928.753, 4928.754, 4928.755, 12  
4928.756, 4928.757, 4928.7510, 4928.7511, 4928.7513, 4928.7514, 13  
4928.7515, 4928.7520, 4928.7521, 4928.7522, 4928.7523, 14  
4928.7524, 4928.7525, 4928.7526, 4928.7527, 4928.7530, and 15  
4928.7532 of the Revised Code be enacted to read as follows: 16  
**Sec. 4928.02.** It is the policy of this state to do the 17  
following throughout this state: 18



agnubziq9yah45y4zv vxja

(A) Ensure the availability to consumers of adequate, reliable, safe, efficient, nondiscriminatory, and reasonably priced retail electric service;	19 20 21
(B) Ensure the availability of unbundled and comparable retail electric service that provides consumers with the supplier, price, terms, conditions, and quality options they elect to meet their respective needs;	22 23 24 25
(C) Ensure diversity of <u>electricity the following:</u>	26
(1) <u>Electricity</u> supplies and suppliers, by giving consumers effective choices over the selection of those supplies and suppliers and by encouraging the development of distributed and small generation facilities;	27 28 29 30
(2) <u>Resources, including zero-emissions nuclear resources as defined in section 4928.75 of the Revised Code, that provide fuel diversity and environmental and other benefits.</u>	31 32 33
(D) Encourage innovation and market access for cost-effective supply- and demand-side retail electric service including, but not limited to, demand-side management, time-differentiated pricing, waste energy recovery systems, smart grid programs, and implementation of advanced metering infrastructure;	34 35 36 37 38 39
(E) Encourage cost-effective and efficient access to information regarding the operation of the transmission and distribution systems of electric utilities in order to promote both effective customer choice of retail electric service and the development of performance standards and targets for service quality for all consumers, including annual achievement reports written in plain language;	40 41 42 43 44 45 46
(F) Ensure that an electric utility's transmission and	47

distribution systems are available to a customer-generator or 48  
owner of distributed generation, so that the customer-generator 49  
or owner can market and deliver the electricity it produces; 50

(G) Recognize the continuing emergence of competitive 51  
electricity markets through the development and implementation 52  
of flexible regulatory treatment, while simultaneously 53  
recognizing the need for nuclear energy resources, as defined in 54  
section 4928.75 of the Revised Code, and resources that provide 55  
fuel diversity and environmental and other benefits; 56

(H) Ensure effective competition in the provision of 57  
retail electric service by avoiding anticompetitive subsidies 58  
flowing from a noncompetitive retail electric service to a 59  
competitive retail electric service or to a product or service 60  
other than retail electric service, and vice versa, including by 61  
prohibiting the recovery of any generation-related costs through 62  
distribution or transmission rates; 63

(I) Ensure retail electric service consumers protection 64  
against unreasonable sales practices, market deficiencies, and 65  
market power; 66

(J) Provide coherent, transparent means of giving 67  
appropriate incentives to technologies that can adapt 68  
successfully to potential environmental mandates; 69

(K) Encourage implementation of distributed generation 70  
across customer classes through regular review and updating of 71  
administrative rules governing critical issues such as, but not 72  
limited to, interconnection standards, standby charges, and net 73  
metering; 74

(L) Protect at-risk populations, including, but not 75  
limited to, when considering the implementation of any new 76



advanced energy or renewable energy resource;	77
(M) Encourage the education of small business owners in this state regarding the use of, and encourage the use of, energy efficiency programs and alternative energy resources in their businesses;	78 79 80 81
(N) Facilitate the state's effectiveness in the global economy.	82 83
In carrying out this policy, the commission shall consider rules as they apply to the costs of electric distribution infrastructure, including, but not limited to, line extensions, for the purpose of development in this state.	84 85 86 87
<u>Sec. 4928.75. As used in sections 4928.75 to 4928.7532 of the Revised Code:</u>	88 89
<u>(A) "Nuclear energy resource" means an electric generation unit fueled, in whole or in part, by nuclear power and licensed by the nuclear regulatory commission.</u>	90 91 92
<u>(B) "PJM" means the PJM Interconnection, L.L.C., or its successor.</u>	93 94
<u>(C) "Zero-emissions nuclear credit" means the attributes associated with one megawatt hour of electricity generated by a zero-emissions nuclear resource.</u>	95 96 97
<u>(D) "Zero-emissions nuclear resource" means a nuclear energy resource that meets the criteria of section 4928.754 of the Revised Code.</u>	98 99 100
<u>Sec. 4928.751. There is hereby created a zero-emissions nuclear resource program to enable the state to meet its policy goals and requirements under which zero-emissions nuclear credits are purchased by electric distribution utilities to</u>	101 102 103 104

provide long-term energy security and environmental and other 105  
benefits to the region and to retail electric service customers 106  
in the state. An electric distribution utility in this state 107  
that has a zero-emissions nuclear resource located within its 108  
certified territory shall participate in the program. All 109  
electric distribution utilities in the same holding company 110  
system shall participate jointly and shall allocate costs across 111  
all classes of each participating utility's customers. 112

Sec. 4928.752. The zero-emissions nuclear resource program 113  
shall operate for successive two-year program periods beginning 114  
with the initial program period commencing on the effective date 115  
of this section. 116

Sec. 4928.753. To provide zero-emissions nuclear credits 117  
under the zero-emissions nuclear program, an entity that owns or 118  
operates a nuclear energy resource shall file with the public 119  
utilities commission a written notice verifying that the 120  
resource meets the criteria under section 4928.754 of the 121  
Revised Code. The entity shall file the written notice not later 122  
than ninety days after the commencement of the initial program 123  
period or, if the resource has not yet qualified, not later than 124  
prior to the commencement of a subsequent program period. 125

Sec. 4928.754. A nuclear energy resource that satisfies 126  
all of the following criteria is a zero-emissions nuclear 127  
resource for purposes of zero-emissions nuclear credits: 128

(A) The resource is interconnected within the transmission 129  
system of PJM. 130

(B) PJM determines the resource is transmission 131  
deliverable under the metrics by which PJM calculates 132  
deliverability for purposes of capacity planning on a round-the- 133

clock baseload basis into the transmission zone or zones of 134  
electric distribution utilities participating in the zero- 135  
emissions nuclear resource program under sections 4928.75 to 136  
4928.7532 of the Revised Code. 137

(C) For in-state nuclear energy resources: 138

(1) The resource has benefited the air quality profile of 139  
the state more than the predominant electric generation source 140  
with similar capacity and baseload characteristics as the 141  
resource as of the time the resource commenced operation. 142

(2) All of the following could occur if the resource 143  
ceased operation and its capacity were replaced at the same 144  
location by the then predominant electric generation source with 145  
similar capacity and baseload characteristics as the resource: 146

(a) The ability of the state, or region of the state, to 147  
maintain or decrease existing intensity of fine particulate 148  
matter or to comply with one or more state or federal air 149  
pollution control programs, standards, or goals is reduced. 150

(b) The carbon dioxide emissions intensity of the state is 151  
negatively impacted. 152

(c) The ability of the state to maintain or decrease 153  
existing intensity of carbon monoxide, lead, ground-level ozone, 154  
particulate matter, nitrogen oxide, or sulfur dioxide is 155  
negatively impacted. 156

(D) For all other nuclear energy resources, each such 157  
resource is shown to provide no less than the same level of 158  
environmental benefits to the state as nuclear energy resources 159  
located within the state, pursuant to the requirements in 160  
division (C) of this section. 161

<u>(E) The resource, on or after January 1, 2017:</u>	162
<u>(1) Did not receive from another state tax exemptions,</u>	163
<u>deferrals, exclusions, allowances, payments, credits,</u>	164
<u>deductions, or reimbursements calculated in whole or in part</u>	165
<u>using a metric that provides value for emissions not produced by</u>	166
<u>the resource;</u>	167
<u>(2) Is not wholly owned by a municipal or cooperative</u>	168
<u>corporation or a group, association, or consortium of those</u>	169
<u>corporations; or</u>	170
<u>(3) Did not, during a program period described in section</u>	171
<u>4928.752 of the Revised Code, recover some or all of the capital</u>	172
<u>or operating costs of the resource through rates regulated by a</u>	173
<u>state.</u>	174
<u>Sec. 4928.755. With respect to a written notice filed</u>	175
<u>under section 4928.753 of the Revised Code relating to a nuclear</u>	176
<u>energy resource located in this state, any interested person may</u>	177
<u>file comments with the public utilities commission within twenty</u>	178
<u>days after the written notice was filed.</u>	179
<u>Sec. 4928.756. An entity that owns or operates a nuclear</u>	180
<u>energy resource may file with the public utilities commission a</u>	181
<u>response to any comment made under section 4928.755 of the</u>	182
<u>Revised Code, not later than ten days after the comment was</u>	183
<u>filed.</u>	184
<u>Sec. 4928.757. Not later than fifty days after the filing</u>	185
<u>of a written notice under section 4928.753 of the Revised Code</u>	186
<u>relating to a nuclear energy resource located in this state, the</u>	187
<u>public utilities commission shall designate a resource that</u>	188
<u>satisfies the criteria in section 4928.754 of the Revised Code</u>	189
<u>as a zero-emissions nuclear resource and issue an order</u>	190

consistent with that designation. If the commission does not 191  
issue an order in the time required by this section, the 192  
resource shall be deemed to be a zero-emissions nuclear 193  
resource. 194

Sec. 4928.7510. With respect to a written notice filed 195  
under section 4928.753 of the Revised Code by a nuclear energy 196  
resource described in division (D) of section 4928.754 of the 197  
Revised Code, the resource shall submit with its written notice 198  
an environmental study showing that the resource meets the 199  
criteria under section 4928.754 of the Revised Code. 200

Sec. 4928.7511. The public utilities commission, under a 201  
procedure it adopts, shall determine and issue the appropriate 202  
order regarding whether a nuclear energy resource described in 203  
division (D) of section 4928.754 of the Revised Code qualifies 204  
under the criteria in section 4928.754 of the Revised Code as a 205  
zero-emissions nuclear resource. At minimum, the adopted 206  
procedure shall provide the opportunity for comment and response 207  
similar to the opportunities described under sections 4928.755 208  
and 4928.756 of the Revised Code. 209

Sec. 4928.7513. A nuclear energy resource determined under 210  
section 4928.757 or 4928.7511 of the Revised Code to be a zero- 211  
emissions nuclear resource shall continue to be considered such 212  
a resource for all successive program periods as long as the 213  
resource continues to meet the criteria of divisions (A), (B), 214  
and (E) of section 4928.754 of the Revised Code. 215

Sec. 4928.7514. Zero-emission nuclear resources shall 216  
provide zero-emissions nuclear credits for the zero-emissions 217  
nuclear resource program. Not later than thirty days before a 218  
program period commences, each zero-emissions nuclear resource 219  
shall confirm with the public utilities commission its intent to 220

continue to commit its credits under the program. 221

Sec. 4928.7515. All financial statements, financial data, 222  
and trade secrets submitted to or received by the public 223  
utilities commission for purposes of satisfying the criteria as 224  
a zero-emissions nuclear resource and any information taken for 225  
any purpose from the statements, data, or trade secrets are not 226  
public records under section 149.43 of the Revised Code. 227

Sec. 4928.7520. Not later than sixty days after the 228  
initial program period commences and not later than thirty days 229  
before a subsequent program period commences, the public, 230  
utilities commission shall set the price for zero-emissions 231  
nuclear credits applicable for the period. For the initial 232  
program period the price shall be seventeen dollars per credit. 233  
For each subsequent program period, that price shall be adjusted 234  
for inflation using the gross domestic product implicit price 235  
deflator as published by the United States department of 236  
commerce, bureau of economic analysis, index numbers 2007=100. 237

Sec. 4928.7521. At the same time the public utilities 238  
commission sets the price for zero-emissions nuclear credits, 239  
the commission shall determine the maximum number of credits to 240  
be purchased by electric distribution utilities during the 241  
program period. The amount the commission sets shall equal one- 242  
third of the total "Total End User Consumption" in megawatt- 243  
hours over the previous two calendar years as shown on PUCO Form 244  
D1 of each participating electric distribution utility's most 245  
recently filed long-term forecast report. 246

Sec. 4928.7522. Not later than seven days following the 247  
close of each quarter of a program period, each zero-emissions 248  
nuclear resource shall transfer all of its zero-emissions 249  
nuclear credits generated that quarter to the public utilities 250

commission, which shall hold the credits for the sole purpose of 251  
administering the program. 252

Sec. 4928.7523. Within seven days of the zero-emissions 253  
nuclear resource transferring its credits, the public utilities 254  
commission shall notify each participating electric distribution 255  
utility of the total amount of zero-emissions nuclear credits 256  
received from zero-emissions nuclear resources. 257

Sec. 4928.7524. All participating electric distribution 258  
utilities shall purchase all zero-emissions nuclear credits 259  
transferred to the public utilities commission up to the maximum 260  
number of credits determined under section 4928.7521 of the 261  
Revised Code. The commission shall allocate the amounts to be 262  
purchased by each participating utility based on the total 263  
"Total End User Consumption" in megawatt-hours over the previous 264  
two calendar years as shown on PUCO Form D1 of each 265  
participating electric distribution utility's most recently 266  
filed long-term forecast report. Each participating electric 267  
distribution utility shall pay the credit price for each credit 268  
purchased. 269

Sec. 4928.7525. The public utilities commission shall 270  
deposit all payments for credits into the zero-emissions nuclear 271  
resources fund created under section 4928.7532 of the Revised 272  
Code. 273

Sec. 4928.7526. Within seven days of receipt of utility 274  
payment, the public utilities commission shall pay to each zero- 275  
emissions nuclear resource the amount paid for each of the 276  
resource's zero-emissions nuclear credits purchased from the 277  
zero-emissions nuclear resources fund. 278

Sec. 4928.7527. Credits purchased by participating 279

electric distribution utilities may not be transferred, sold, or 280  
assigned to any other entity. 281

Sec. 4928.7530. Each participating electric distribution 282  
utility shall recover any and all direct and indirect costs for 283  
the purchase of zero-emissions nuclear credits through a 284  
nonbypassable rider charged to all of its retail electric 285  
service customers, which rider shall be established within sixty 286  
days from the effective date of this section. 287

Sec. 4928.7532. There is hereby created the zero-emissions 288  
nuclear resources fund that shall be in the custody of the 289  
treasurer of state but shall not be part of the state treasury. 290  
The fund shall consist of all money collected by the public 291  
utilities commission from purchases of zero-emissions nuclear 292  
credits. The amounts deposited into the fund shall be used to 293  
pay the credit purchase price to the resources that generated 294  
the credits. All investment earnings from the fund shall be 295  
transferred by the treasurer to the general revenue fund in the 296  
state treasury. 297

**Section 2.** That existing section 4928.02 of the Revised 298  
Code is hereby repealed. 299