

117TH CONGRESS
1ST SESSION

S. 2475

To amend the Internal Revenue Code of 1986 to provide investment and production tax credits for emerging energy technologies, and for other purposes.

IN THE SENATE OF THE UNITED STATES

JULY 27, 2021

Mr. CRAPO (for himself, Mr. WHITEHOUSE, Mr. BARRASSO, Mr. BENNET, Mr. RISCH, and Mr. HICKENLOOPER) introduced the following bill; which was read twice and referred to the Committee on Finance

A BILL

To amend the Internal Revenue Code of 1986 to provide investment and production tax credits for emerging energy technologies, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Energy Sector Innova-
5 tion Credit Act of 2021”.

6 **SEC. 2. FINDINGS.**

7 Congress finds the following:

8 (1) Promising energy resources with zero or
9 very low market penetration often face significant

1 incumbency disadvantages as they establish a foot-
2 hold, including suboptimal resource location relative
3 to existing grid infrastructure and the lack of econo-
4 mies of scale.

5 (2) Energy sector innovation can confer numer-
6 ous benefits to jobs and the economy, the environ-
7 ment and climate, and the general social welfare.

8 (3) Energy sector innovation can come in nu-
9 merous forms, not all of which are readily quantifi-
10 able, including—

11 (A) diversifying and increasing the Na-
12 tion’s energy generation portfolio and energy
13 security,

14 (B) improving the dispatchability and reli-
15 ability of energy generation; and

16 (C) improving energy efficiency, emissions
17 reductions, or other markers of performance.

18 **SEC. 3. INVESTMENT CREDIT FOR EMERGING ENERGY**
19 **TECHNOLOGY.**

20 (a) IN GENERAL.—Subpart E of part IV of sub-
21 chapter A of chapter 1 of the Internal Revenue Code of
22 1986 is amended by inserting after section 48C the fol-
23 lowing new section:

1 **“SEC. 48D. EMERGING ENERGY TECHNOLOGY CREDIT.**

2 “(a) ESTABLISHMENT OF CREDIT.—For purposes of
3 section 46, the emerging energy technology credit for any
4 taxable year is an amount equal to the applicable percent-
5 age (as determined under subsection (c)) of the basis of
6 any qualified emerging energy property placed in service
7 by the taxpayer during such taxable year.

8 “(b) QUALIFIED EMERGING ENERGY PROPERTY.—

9 “(1) IN GENERAL.—The term ‘qualified emerg-
10 ing energy property’ means property which is con-
11 structed, reconstructed, erected, or acquired by the
12 taxpayer, and the original use of which commences
13 with the taxpayer, which is—

14 “(A) a qualified production facility (as de-
15 fined in section 45U(d)),

16 “(B) carbon capture equipment, or

17 “(C) energy storage technology.

18 “(2) CARBON CAPTURE EQUIPMENT.—

19 “(A) IN GENERAL.—For purposes of this
20 section, the term ‘carbon capture equipment’
21 means property which contains equipment that
22 can separate and capture qualified carbon oxide
23 (as defined in section 45Q(c)) and is placed in
24 service at, and used in connection with, a facil-
25 ity—

1 “(i) which satisfies the requirements
2 under section 45Q(d)(2), and

3 “(ii) which is—

4 “(I) an electric generating facility
5 which—

6 “(aa) was originally placed
7 in service before such property,
8 and

9 “(bb) is a point source of air
10 pollutants,

11 “(II) a manufacturing or indus-
12 trial facility—

13 “(aa) which was originally
14 placed in service before such
15 property,

16 “(bb) which is a point
17 source of air pollutants, and

18 “(cc) for which such prop-
19 erty is primarily used to capture
20 qualified carbon oxide (as defined
21 in section 45Q(e)) which would
22 otherwise be released into the at-
23 mosphere as a result of—

1 “(AA) the production of
2 ammonia, helium, or ethanol
3 at such facility, or

4 “(BB) the processing of
5 natural gas at such facility,
6 or

7 “(III) a manufacturing or indus-
8 trial facility described in subclause
9 (II) for which item (cc) of such sub-
10 clause does not apply.

11 “(B) DIRECT AIR CAPTURE.—

12 “(i) IN GENERAL.—For purposes of
13 this section, the term ‘carbon capture
14 equipment’ shall include any direct air cap-
15 ture facility which can capture not less
16 than 5,000 metric tons of qualified carbon
17 oxide (as defined in section 45Q(c)) annu-
18 ally.

19 “(ii) DIRECT AIR CAPTURE FACIL-
20 ITY.—The term ‘direct air capture facility’
21 has the same meaning given such term
22 under section 45Q(e)(1) (as in effect on
23 the date of enactment of this section).

24 “(C) RULES REGARDING CAPTURE OF CAR-
25 BON OXIDE.—With respect to any qualified car-

1 bon oxide captured using property described in
2 subparagraph (A) or (B), the taxpayer shall
3 physically or contractually ensure the disposal,
4 utilization, or use of such qualified carbon oxide
5 in a manner consistent with the requirements
6 under section 45Q.

7 “(3) ENERGY STORAGE TECHNOLOGY.—For
8 purposes of this section, the term ‘energy storage
9 technology’ means stationary equipment which—

10 “(A) is capable of absorbing energy, stor-
11 ing energy for a period of time, and dispatching
12 the stored energy using batteries, compressed
13 air, pumped hydropower, thermal energy stor-
14 age, liquid air, regenerative fuel cells, flywheels,
15 capacitors, superconducting magnets, stacked
16 objects, or other technologies identified by the
17 Secretary, in consultation with the Secretary of
18 Energy, and

19 “(B) has a capacity of not less than 1
20 megawatt.

21 “(4) APPLICATION WITH OTHER CREDITS.—

22 “(A) IN GENERAL.—The term ‘qualified
23 emerging energy property’ shall not include any
24 property for which, for the taxable year or any
25 prior taxable year—

1 “(i) electricity produced from such
2 property is taken into account for purposes
3 of the credit allowed under section 45,
4 45J, or 45U,

5 “(ii) qualified carbon oxide captured
6 by such property is taken into account for
7 purposes of the credit allowed under sec-
8 tion 45Q,

9 “(iii) the basis of such property is
10 taken into account for purposes of the
11 credit allowed under section 48, 48A, 48B,
12 or 48C, or

13 “(iv) hydrogen produced from such
14 property is taken into account for purposes
15 of the credit allowed under section 45V.

16 “(B) DENIAL OF DOUBLE BENEFIT.—With
17 respect to any section described in clause (i),
18 (ii), (iii), or (iv) of subparagraph (A), no credit
19 shall be allowed under such section for any tax-
20 able year with respect to any property for which
21 a credit is allowed under this section for such
22 taxable year or any prior taxable year.

23 “(C) ADDITIONAL RULE.—Subparagraphs
24 (A)(ii) and (B) shall not apply for purposes of
25 the credit allowed under this section or section

1 45Q with respect to any qualified carbon oxide
2 captured using property described in subpara-
3 graph (A) or (B) of paragraph (2) if such car-
4 bon oxide is disposed of in a manner consistent
5 with section 45Q(a)(3)(B).

6 “(c) APPLICABLE PERCENTAGES.—

7 “(1) QUALIFIED PRODUCTION FACILITIES.—In
8 the case of any qualified production facility which
9 satisfies the requirements for—

10 “(A) a tier 1 facility (as described in
11 clause (i) of section 45U(b)(2)(A)), the applica-
12 ble percentage shall be 40 percent,

13 “(B) a tier 2 facility (as described in
14 clause (ii) of such section), the applicable per-
15 centage shall be 30 percent,

16 “(C) a tier 3 facility (as described in
17 clause (iii) of such section), the applicable per-
18 centage shall be 20 percent, and

19 “(D) a tier 4 facility (as described in
20 clause (iv) of such section), the applicable per-
21 centage shall be 10 percent.

22 “(2) CARBON CAPTURE EQUIPMENT.—

23 “(A) IN GENERAL.—With respect to car-
24 bon capture equipment, the applicable percent-
25 age shall be—

1 “(i) in the case of tier 1 equipment,
2 40 percent,

3 “(ii) in the case of tier 2 equipment,
4 30 percent,

5 “(iii) in the case of tier 3 equipment,
6 20 percent,

7 “(iv) in the case of tier 4 equipment,
8 10 percent, and

9 “(v) in the case of any other such
10 equipment, zero percent.

11 “(B) EQUIPMENT TIERS.—

12 “(i) IN GENERAL.—For purposes of
13 this paragraph—

14 “(I) TIER 1 EQUIPMENT.—The
15 term ‘tier 1 equipment’ means any
16 carbon capture equipment for which
17 the market penetration level for the
18 calendar year preceding the calendar
19 year in which construction of such
20 equipment began is less than 0.75
21 percent.

22 “(II) TIER 2 EQUIPMENT.—The
23 term ‘tier 2 equipment’ has the same
24 meaning given the term ‘tier 1 equip-
25 ment’ under subclause (I), except that

1 ‘at least 0.75 percent but less than
2 1.5 percent’ shall be substituted for
3 ‘less than 0.75 percent’.

4 “(III) TIER 3 EQUIPMENT.—The
5 term ‘tier 3 equipment’ has the same
6 meaning given the term ‘tier 1 equip-
7 ment’ under subclause (I), except that
8 ‘at least 1.5 percent but less than
9 2.25 percent’ shall be substituted for
10 ‘less than 0.75 percent’.

11 “(IV) TIER 4 EQUIPMENT.—The
12 term ‘tier 4 equipment’ has the same
13 meaning given the term ‘tier 1 equip-
14 ment’ under subclause (I), except that
15 ‘at least 2.25 percent but less than 3
16 percent’ shall be substituted for ‘less
17 than 0.75 percent’.

18 “(ii) MARKET PENETRATION
19 LEVEL.—For purposes of this subpara-
20 graph, the term ‘market penetration level’
21 means, with respect to any calendar year,
22 the amount equal to the greater of—

23 “(I) the amount (expressed as a
24 percentage) equal to the quotient of—

1 “(aa) the total amount (ex-
2 pressed in metric tons) of carbon
3 oxide captured and disposed of,
4 used, or utilized in a manner
5 consistent with the requirements
6 under section 45Q by carbon cap-
7 ture equipment within the United
8 States during such calendar year
9 (as determined by the Secretary
10 on the basis of data reported by
11 the Energy Information Adminis-
12 tration and the Environmental
13 Protection Agency), divided by

14 “(bb) the total amount of
15 greenhouse gas emissions in the
16 United States (expressed in met-
17 ric tons of CO₂-e) during the
18 most recent calendar year ending
19 prior to the date of enactment of
20 this section for which such data
21 is available to the Administrator
22 of the Environmental Protection
23 Agency, or

1 “(II) the amount determined
2 under this clause for the preceding
3 calendar year.

4 “(C) DIVISION OF EQUIPMENT FOR PUR-
5 POSES OF DETERMINING TIER.—For purposes
6 of determining the applicable tier for any car-
7 bon capture equipment under subparagraph
8 (B), such subparagraph shall be applied sepa-
9 rately (and the total amount of carbon oxide
10 captured by such equipment shall be determined
11 separately) with respect to—

12 “(i) any such equipment described in
13 subclause (I) of subsection (b)(2)(A)(ii),

14 “(ii) any such equipment described in
15 subclause (II) of such subsection,

16 “(iii) any such equipment described in
17 subclause (III) of such subsection, and

18 “(iv) any such equipment described in
19 subparagraph (B) of subsection (b)(2).

20 “(D) DETERMINATION OF TIER.—For pur-
21 poses of this paragraph, the determination as to
22 whether any carbon capture equipment qualifies
23 as a tier 1, 2, 3, or 4 equipment shall be
24 made—

1 “(i) during the year in which con-
2 struction of such equipment begins (as de-
3 termined under rules similar to the rules in
4 section 45U(e)), and

5 “(ii) based on the determinations in-
6 cluded in report described in section
7 45U(b)(2)(D)(i)(II) with respect to such
8 calendar year.

9 “(E) REPORTING.—The Secretary shall, as
10 part of the reports published pursuant to sec-
11 tion 45U(b)(2)(D)(i) and in the same manner
12 as described under such section, publish the ap-
13 plicable market penetration level and tier for
14 any carbon capture equipment (as determined
15 separately for such equipment pursuant to sub-
16 paragraph (C)).

17 “(3) ENERGY STORAGE TECHNOLOGY.—

18 “(A) IN GENERAL.—With respect to en-
19 ergy storage technology, the applicable percent-
20 age shall be—

21 “(i) in the case of tier 1 technology,
22 40 percent,

23 “(ii) in the case of tier 2 technology,
24 30 percent,

1 “(iii) in the case of tier 3 technology,
2 20 percent,

3 “(iv) in the case of tier 4 technology,
4 10 percent, and

5 “(v) in the case of any other such
6 technology, zero percent.

7 “(B) TECHNOLOGY TIERS.—

8 “(i) IN GENERAL.—For purposes of
9 this paragraph—

10 “(I) TIER 1 TECHNOLOGY.—The
11 term ‘tier 1 technology’ means any en-
12 ergy storage technology for which the
13 market penetration level for the cal-
14 endar year preceding the calendar
15 year in which construction of such
16 technology began is less than 0.75
17 percent.

18 “(II) TIER 2 TECHNOLOGY.—The
19 term ‘tier 2 technology’ has the same
20 meaning given the term ‘tier 1 tech-
21 nology’ under subclause (I), except
22 that ‘at least 0.75 percent but less
23 than 1.5 percent’ shall be substituted
24 for ‘less than 0.75 percent’.

1 “(III) TIER 3 TECHNOLOGY.—

2 The term ‘tier 3 technology’ has the
3 same meaning given the term ‘tier 1
4 technology’ under subclause (I), ex-
5 cept that ‘at least 1.5 percent but less
6 than 2.25 percent’ shall be substituted
7 for ‘less than 0.75 percent’.

8 “(IV) TIER 4 TECHNOLOGY.—

9 The term ‘tier 4 technology’ has the
10 same meaning given the term ‘tier 1
11 technology’ under subclause (I), ex-
12 cept that ‘at least 2.25 percent but
13 less than 3 percent’ shall be sub-
14 stituted for ‘less than 0.75 percent’.

15 “(ii) MARKET PENETRATION
16 LEVEL.—For purposes of this subpara-
17 graph, the term ‘market penetration level’
18 means, with respect to any calendar year,
19 the amount equal to the greater of—

20 “(I) the amount (expressed as a
21 percentage) equal to the quotient of—

22 “(aa) the total nameplate
23 capacity (expressed in mega-
24 watts) of energy storage tech-
25 nology in operation within the

1 United States at the beginning of
2 such calendar year (as deter-
3 mined by the Secretary on the
4 basis of data reported by the En-
5 ergy Information Administra-
6 tion), divided by

7 “(bb) the total domestic
8 electricity production nameplate
9 capacity (expressed in mega-
10 watts) at the close of such year,
11 or

12 “(II) the amount determined
13 under this clause for the preceding
14 calendar year.

15 “(C) DIVISION OF TECHNOLOGY FOR PUR-
16 POSES OF DETERMINING TIER.—

17 “(i) IN GENERAL.—For purposes of
18 determining the applicable tier for any en-
19 ergy storage technology under subpara-
20 graph (B), such subparagraph shall be ap-
21 plied separately (and the total capacity of
22 such technology shall be determined sepa-
23 rately) with respect to—

24 “(I) any such technology which is
25 lithium-ion based,

1 “(II) any such technology which
2 uses pumped hydropower,

3 “(III) any such technology
4 which—

5 “(aa) is not described in
6 subclause (I) or (II), and

7 “(bb) is classified as short-
8 duration storage under clause
9 (ii), and

10 “(IV) any such technology
11 which—

12 “(aa) is not described in
13 subclause (I) or (II), and

14 “(bb) is classified as long-
15 duration storage under clause
16 (ii).

17 “(ii) CLASSIFICATION.—The Secretary
18 of Energy (in consultation with the Sec-
19 retary) shall issue such regulations or
20 other guidance as the Secretary of Energy
21 determines necessary or appropriate to de-
22 fine the terms ‘short-duration storage’ and
23 ‘long-duration storage’ for purposes of
24 classifying energy storage technology under
25 clause (i).

1 “(D) DETERMINATION OF TIER.—For pur-
2 poses of this paragraph, the determination as to
3 whether any energy storage technology qualifies
4 as a tier 1, 2, 3, or 4 technology shall be
5 made—

6 “(i) during the year in which con-
7 struction of such technology begins (as de-
8 termined under rules similar to the rules in
9 section 45U(e)), and

10 “(ii) based on the determinations in-
11 cluded in report described in section
12 45U(b)(2)(D)(i)(II) with respect to such
13 calendar year.

14 “(E) REPORTING.—The Secretary shall, as
15 part of the reports published pursuant to sec-
16 tion 45U(b)(2)(D)(i) and in the same manner
17 as described under such section, publish the ap-
18 plicable market penetration level and tier for
19 any energy storage technology (as determined
20 separately for such technology pursuant to sub-
21 paragraph (C)).

22 “(d) SPECIAL RULES.—

23 “(1) CERTAIN QUALIFIED PROGRESS EXPENDI-
24 TURE RULES MADE APPLICABLE.—Rules similar to
25 the rules of subsections (c)(4) and (d) of section 46

1 (as in effect on the day before the enactment of the
2 Revenue Reconciliation Act of 1990) shall apply for
3 purposes of this section.

4 “(2) TRANSFER OF CREDIT.—

5 “(A) IN GENERAL.—If, with respect to a
6 credit allowed under subsection (a) for any tax-
7 able year, the taxpayer elects the application of
8 this paragraph for such taxable year with re-
9 spect to all (or any portion specified in such
10 election) of such credit, the eligible project part-
11 ner specified in such election, and not the tax-
12 payer, shall be treated as the taxpayer for pur-
13 poses of this title with respect to such credit (or
14 such portion thereof).

15 “(B) ELIGIBLE PROJECT PARTNER.—

16 “(i) IN GENERAL.—For purposes of
17 this paragraph, the term ‘eligible project
18 partner’ means, with respect to any quali-
19 fied emerging energy property, any person
20 who—

21 “(I) has an ownership interest in
22 such property,

23 “(II) provided equipment for or
24 services in the construction of such
25 property,

1 “(III) provides electric trans-
2 mission or distribution services for
3 such property,

4 “(IV) purchases electricity from
5 such property pursuant to a contract,
6 or

7 “(V) provides financing for such
8 property.

9 “(ii) FINANCING.—For purposes of
10 clause (i)(V), any amount paid as consider-
11 ation for a transfer described in subpara-
12 graph (A) shall not be treated as financing
13 for qualified emerging energy property.

14 “(C) DEDUCTION FOR PAYMENTS IN CON-
15 NECTION WITH TRANSFER.—A deduction under
16 part VI of subchapter B shall be allowed in an
17 amount equal to the amount paid by the tax-
18 payer as consideration for a transfer described
19 in subparagraph (A).

20 “(D) TAXABLE YEAR IN WHICH CREDIT
21 TAKEN INTO ACCOUNT.—In the case of any
22 credit (or portion thereof) with respect to which
23 an election is made under subparagraph (A),
24 such credit shall be taken into account in the
25 first taxable year of the eligible project partner

1 ending with, or after, the electing taxpayer's
2 taxable year with respect to which the credit
3 was determined.

4 “(E) LIMITATIONS ON ELECTION.—

5 “(i) TIME FOR ELECTION.—An elec-
6 tion under this paragraph to transfer any
7 portion of the credit allowed under sub-
8 section (a) shall be made not later than the
9 due date for the return of tax for the elect-
10 ing taxpayer's taxable year with respect to
11 which the credit was determined.

12 “(ii) NO FURTHER TRANSFERS.—No
13 election may be made under this paragraph
14 by a taxpayer with respect to any portion
15 of the credit allowed under subsection (a)
16 which has been previously transferred to
17 such taxpayer under this paragraph.

18 “(F) TREATMENT OF TRANSFER UNDER
19 PRIVATE USE RULES.—For purposes of section
20 141(b)(1), any benefit derived by an eligible
21 project partner in connection with an election
22 under this paragraph shall not be taken into ac-
23 count as a private business use.

24 “(G) SPECIAL RULES FOR PUBLIC PROP-
25 ERTY.—

1 “(i) IN GENERAL.—If, with respect to
2 a credit under subsection (a) for any tax-
3 able year—

4 “(I) a qualified public entity
5 would be the taxpayer (but for this
6 subparagraph), and

7 “(II) such entity elects the appli-
8 cation of subparagraph (A) for such
9 taxable year with respect to all (or
10 any portion specified in such election)
11 of such credit,

12 the eligible project partner specified in
13 such election, and not the qualified public
14 entity, shall be treated as the taxpayer for
15 purposes of this title with respect to such
16 credit (or such portion thereof).

17 “(ii) QUALIFIED PUBLIC ENTITY.—
18 For purposes of this subparagraph, the
19 term ‘qualified public entity’ means—

20 “(I) any State or local govern-
21 ment, or a political subdivision there-
22 of, or

23 “(II) an Indian tribal govern-
24 ment.

1 “(H) PROPERTY USED BY CERTAIN TAX-
2 EXEMPT ORGANIZATIONS AND GOVERNMENTAL
3 UNITS.—In the case of a taxpayer making an
4 election under this paragraph, the credit subject
5 to such an election shall be determined notwith-
6 standing—

7 “(i) section 50(b)(3), and

8 “(ii) in the case of any entity de-
9 scribed in section 50(b)(4)(A)(i), section
10 50(b)(4).

11 “(I) ADDITIONAL ELECTION REQUIRE-
12 MENTS.—The Secretary may prescribe such
13 regulations as may be appropriate to carry out
14 the purposes of this paragraph, including—

15 “(i) rules for determining which per-
16 sons are eligible project partners with re-
17 spect to any qualified emerging energy
18 property, and

19 “(ii) requiring information to be in-
20 cluded in an election under subparagraph
21 (A) or imposing additional reporting re-
22 quirements.

23 “(e) REGULATIONS.—The Secretary (in consultation
24 with the Secretary of Energy and the Administrator of
25 the Environmental Protection Agency) shall issue such

1 regulations or other guidance as the Secretary determines
2 necessary or appropriate to carry out the purposes of this
3 section, including rules for reporting—

4 “(1) for purposes of paragraph (2)(B)(ii) of
5 subsection (c), the amount of carbon oxide captured
6 by carbon capture equipment, and

7 “(2) for purposes of paragraph (3)(B)(ii) of
8 such subsection, the capacity of energy storage tech-
9 nology.”.

10 (b) SPECIAL RULE FOR PROCEEDS OF TRANSFERS
11 FOR MUTUAL OR COOPERATIVE ELECTRIC COMPANIES.—

12 Section 501(c)(12)(I) of such Code is amended by insert-
13 ing “or 48D(d)(2)” after “section 45J(e)(1)”.

14 (c) CONFORMING AMENDMENTS.—

15 (1) Section 46 of such Code is amended by
16 striking “and” at the end of paragraph (5), by strik-
17 ing the period at the end of paragraph (6) and in-
18 sserting “, and”, and by adding at the end the fol-
19 lowing new paragraph:

20 “(7) the emerging energy technology credit.”.

21 (2) Section 49(a)(1)(C) of such Code is amend-
22 ed by striking “and” at the end of clause (iv), by
23 striking the period at the end of clause (v) and in-
24 sserting “, and”, and by adding at the end the fol-
25 lowing new clause:

1 “(vi) the basis of any qualified emerg-
 2 ing energy property (as defined in section
 3 48D(b)(1)).”.

4 (3) The table of sections for subpart E of part
 5 IV of subchapter A of chapter 1 of such Code is
 6 amended by inserting after the item relating to sec-
 7 tion 48C the following new item:

“Sec. 48D. Emerging energy technology credit.”.

8 (d) EFFECTIVE DATE.—The amendments made by
 9 this section shall apply to property placed in service in
 10 taxable years beginning after the date of the enactment
 11 of this Act, under rules similar to the rules of section
 12 48(m) of the Internal Revenue Code of 1986 (as in effect
 13 on the day before the date of the enactment of the Rev-
 14 enue Reconciliation Act of 1990).

15 **SEC. 4. PRODUCTION CREDIT FOR EMERGING ENERGY**
 16 **TECHNOLOGY.**

17 (a) IN GENERAL.—Subpart D of part IV of sub-
 18 chapter A of chapter 1 of the Internal Revenue Code of
 19 1986 is amended by adding at the end the following new
 20 section:

21 **“SEC. 45U. ELECTRICITY PRODUCED FROM EMERGING EN-**
 22 **ERGY TECHNOLOGY.**

23 “(a) GENERAL RULE.—For purposes of section 38,
 24 the emerging energy technology production credit deter-
 25 mined under this section for any taxable year beginning

1 in the credit period with respect to a qualified production
 2 facility of the taxpayer is an amount equal to the applica-
 3 ble percentage of either of the following amounts, as elect-
 4 ed by the taxpayer under subsection (g):

5 “(1) The annual gross receipts of the taxpayer
 6 from the sale of electricity generated at the qualified
 7 production facility to an unrelated person (within
 8 the meaning of section 45(e)(4)) during such taxable
 9 year.

10 “(2) An amount equal to the product of—

11 “(A) 150 percent of the national average
 12 wholesale price of a kilowatt hour of electricity
 13 in the calendar year which began 2 years prior
 14 to the calendar year in which such taxable year
 15 begins, multiplied by

16 “(B) the number of kilowatt hours of elec-
 17 tricity produced at the qualified production fa-
 18 cility and sold to an unrelated person (within
 19 the meaning of section 45(e)(4)) during such
 20 taxable year.

21 “(b) APPLICABLE PERCENTAGE.—

22 “(1) IN GENERAL.—For purposes of subsection
 23 (a), the applicable percentage is—

24 “(A) in the case of a tier 1 facility, 60 per-
 25 cent,

1 “(B) in the case of a tier 2 facility, 45 per-
2 cent,

3 “(C) in the case of a tier 3 facility, 30 per-
4 cent,

5 “(D) in the case of a tier 4 facility, 15 per-
6 cent, and

7 “(E) in the case of any other facility, zero
8 percent.

9 “(2) FACILITY TIERS.—

10 “(A) IN GENERAL.—For purposes of this
11 section—

12 “(i) TIER 1 FACILITY.—The term ‘tier
13 1 facility’ means any qualified production
14 facility which generates electricity from an
15 individual energy production technology—

16 “(I) described in subsection
17 (d)(2)(A), and

18 “(II) for which the market pene-
19 tration level for the calendar year pre-
20 ceding the calendar year in which con-
21 struction of such facility began is less
22 than 0.75 percent.

23 “(ii) TIER 2 FACILITY.—The term
24 ‘tier 2 facility’ has the same meaning given
25 the term ‘tier 1 facility’ under clause (i),

1 except that ‘at least 0.75 percent but less
2 than 1.5 percent’ shall be substituted for
3 ‘less than 0.75 percent’.

4 “(iii) TIER 3 FACILITY.—The term
5 ‘tier 3 facility’ has the same meaning given
6 the term ‘tier 1 facility’ under clause (i),
7 except that ‘at least 1.5 percent but less
8 than 2.25 percent’ shall be substituted for
9 ‘less than 0.75 percent’.

10 “(iv) TIER 4 FACILITY.—The term
11 ‘tier 4 facility’ has the same meaning given
12 the term ‘tier 1 facility’ under clause (i),
13 except that ‘at least 2.25 percent but less
14 than 3 percent’ shall be substituted for
15 ‘less than 0.75 percent’.

16 “(B) MARKET PENETRATION LEVEL.—For
17 purposes of this paragraph, the term ‘market
18 penetration level’ means, with respect to any
19 calendar year, the amount equal to the greater
20 of—

21 “(i) the amount (expressed as a per-
22 centage) equal to the quotient of—

23 “(I) the sum of all electricity pro-
24 duced (expressed in terawatt hours)
25 from the individual energy production

1 technology by all qualified production
2 facilities (as defined in subsection
3 (d)(1), except that subparagraph (D)
4 of such subsection shall not apply)
5 during such calendar year (as deter-
6 mined by the Secretary on the basis of
7 data reported by the Energy Informa-
8 tion Administration), divided by

9 “(II) the total domestic power
10 sector electricity production (ex-
11 pressed in terawatt hours) for such
12 calendar year, or

13 “(ii) the amount determined under
14 this subparagraph for the preceding cal-
15 endar year.

16 “(C) CONSTRUCTION BEGINS.—For pur-
17 poses of this subsection and section 48D, the
18 determination as to whether a facility qualifies
19 as a tier 1, 2, 3, or 4 facility shall be—

20 “(i) made during the calendar year in
21 which construction of such facility begins,

22 “(ii) based on the determinations in-
23 cluded in report described in subparagraph
24 (D)(i)(II) with respect to such calendar
25 year, and

1 “(iii) contingent on the taxpayer
2 maintaining a continuous program of con-
3 struction or continuous efforts to advance
4 towards completion of the facility.

5 “(D) GUIDANCE AND REPORTS.—

6 “(i) REPORTS.—

7 “(I) ESTIMATES.—During the
8 month of December of the calendar
9 year which includes the date of enact-
10 ment of this section, and during the
11 month of December of each subse-
12 quent year, the Secretary of Energy
13 (in consultation with the Secretary)
14 shall publish an annual report which
15 contains estimates with respect to the
16 applicable market penetration level
17 and tier for each individual energy
18 production technology described in
19 subsection (d)(2)(A) which has been
20 used to generate electricity by any
21 qualified production facility (as de-
22 fined in subsection (d)(1), except that
23 subparagraph (D) of such subsection
24 shall not apply) during such calendar
25 year.

1 “(II) FINAL REPORT.—During
2 the month of February of each cal-
3 endar year beginning after the date of
4 enactment of this section, the Sec-
5 retary of Energy (in consultation with
6 the Secretary) shall publish an annual
7 report which provides the final deter-
8 mination with respect to the applica-
9 ble market penetration level and tier
10 for each individual energy production
11 technology described in subsection
12 (d)(2)(A) which has been used to gen-
13 erate electricity by any qualified pro-
14 duction facility (as defined in sub-
15 section (d)(1), except that subpara-
16 graph (D) of such subsection shall not
17 apply) during the preceding calendar
18 year.

19 “(III) PREVIOUS YEARS.—In the
20 case of a facility which began con-
21 struction during a calendar year pre-
22 ceding the calendar year which in-
23 cludes the date of enactment of this
24 section, for purposes of determining
25 whether such facility qualifies as a

1 tier 1, 2, 3, or 4 facility under sub-
2 paragraph (C), the Secretary of En-
3 ergy (in consultation with the Sec-
4 retary) shall include, as part of the
5 first report described in subclause (II)
6 which is published after the date of
7 enactment of this section, the final de-
8 termination with respect to the appli-
9 cable market penetration level and tier
10 for each individual energy production
11 technology described in subsection
12 (d)(2)(A) which has been used to gen-
13 erate electricity by any qualified pro-
14 duction facility (as defined in sub-
15 section (d)(1), except that subpara-
16 graph (D) of such subsection shall not
17 apply) during such preceding calendar
18 years as are determined by the Sec-
19 retary to be relevant for purposes of
20 the administration of this section.

21 “(ii) CLASSIFICATION OF ENERGY
22 PRODUCTION TECHNOLOGY.—The Sec-
23 retary of Energy (in consultation with the
24 Secretary) shall issue such regulations or
25 other guidance (as well as any subsequent

1 updates to such regulations or guidance)
2 as the Secretary of Energy determines nec-
3 essary or appropriate to ensure that any
4 qualified production facility or technology
5 used for the production of electricity is
6 classified within a single energy production
7 technology for purposes of subsection
8 (d)(2). In the case of any technology used
9 for the production of electricity which may
10 be classified within 2 or more different cat-
11 egories of energy production technology
12 under such subsection, the Secretary of
13 Energy shall make the determination as to
14 the correct category with respect to such
15 technology as rapidly as possible, with such
16 determinations to be included in any report
17 described in clause (i).

18 “(iii) NATIONAL AVERAGE WHOLE-
19 SALE PRICE.—For purposes of determining
20 the amount applicable under subsection
21 (a)(2)(A) with respect to any calendar
22 year, the Secretary of Energy (in consulta-
23 tion with the Secretary) shall include in
24 any report described in clause (i) a deter-
25 mination with respect to the national aver-

1 age wholesale price of a kilowatt hour of
2 electricity during such calendar year.

3 “(c) CREDIT PERIOD.—For purposes of this section,
4 the credit period with respect to any qualified production
5 facility is the 10-year period beginning with the date the
6 facility was originally placed in service.

7 “(d) QUALIFIED PRODUCTION FACILITY.—

8 “(1) IN GENERAL.—For purposes of this sec-
9 tion, the term ‘qualified production facility’ means
10 any electric generating facility which—

11 “(A) is located in the United States or a
12 possession of the United States (as such terms
13 are used in section 638),

14 “(B) generates electricity using energy
15 production technology,

16 “(C) produces such electricity with an
17 emissions rate less than 100g CO₂-e per kWh,
18 and

19 “(D) is placed in service after the date of
20 enactment of this section.

21 “(2) ENERGY PRODUCTION TECHNOLOGY.—

22 “(A) IN GENERAL.—For purposes of para-
23 graph (1), each of the following shall be treated
24 as an individual energy production technology:

25 “(i) Traditional nuclear fission.

- 1 “(ii) Light water reactor-based ad-
2 vanced nuclear fission.
- 3 “(iii) Non-light water reactor-based
4 advanced nuclear fission.
- 5 “(iv) Nuclear fusion.
- 6 “(v) Concentrating solar thermal
7 power.
- 8 “(vi) Silicon photovoltaic.
- 9 “(vii) Cadmium telluride and copper
10 indium gallium selenide solar.
- 11 “(viii) Emerging photovoltaics.
- 12 “(ix) Enhanced geothermal.
- 13 “(x) Hydrothermal.
- 14 “(xi) Marine energy.
- 15 “(xii) Fixed bottom offshore wind.
- 16 “(xiii) Floating offshore wind.
- 17 “(xiv) Traditional onshore wind.
- 18 “(xv) New onshore wind.
- 19 “(xvi) Coal.
- 20 “(xvii) Natural gas.
- 21 “(xviii) Petroleum.
- 22 “(xix) Open-loop biomass.
- 23 “(xx) Closed-loop biomass.
- 24 “(xxi) Hydropower.
- 25 “(B) ADDITIONAL SPECIFICATIONS.—

1 “(i) NUCLEAR FISSION.—

2 “(I) TRADITIONAL NUCLEAR FIS-
3 SION.—For purposes of clause (i) of
4 subparagraph (A), the term ‘tradi-
5 tional nuclear fission’ means any nu-
6 clear fission which is not described in
7 subclause (II) or (III).

8 “(II) LIGHT WATER REACTOR-
9 BASED ADVANCED NUCLEAR FIS-
10 SION.—For purposes of clause (ii) of
11 such subparagraph, the term ‘light
12 water reactor-based advanced nuclear
13 fission’ shall include small modular
14 light water reactors.

15 “(III) NON-LIGHT WATER REAC-
16 TOR-BASED ADVANCED NUCLEAR FIS-
17 SION.—For purposes of clause (iii) of
18 such subparagraph, the term ‘non-
19 light water reactor-based advanced
20 nuclear fission’ means any advanced
21 nuclear fission which is not included
22 under clause (ii) of such subpara-
23 graph.

24 “(ii) NUCLEAR FUSION.—For pur-
25 poses of clause (iv) of subparagraph (A),

1 only nuclear fusion for which net power is
2 produced from the fusion reaction shall be
3 included.

4 “(iii) EMERGING PHOTOVOLTAICS.—
5 For purposes of clause (viii) of such sub-
6 paragraph, the term ‘emerging photovol-
7 taics’ includes perovskite-based and perov-
8 skite-enhanced solar, quantum dots, or-
9 ganic photovoltaics, multi-junction tandem
10 devices, and any photovoltaic solar tech-
11 nology not included under clause (vii) of
12 such subparagraph.

13 “(iv) MARINE ENERGY.—For pur-
14 poses of clause (xi) of such subparagraph,
15 the term ‘marine energy’ has the same
16 meaning given such term under section
17 632 of the Energy Independence and Secu-
18 rity Act of 2007 (42 U.S.C. 17211).

19 “(v) TRADITIONAL ONSHORE WIND.—
20 For purposes of clause (xiv) of subpara-
21 graph (A), the term ‘traditional onshore
22 wind’ means any energy production tech-
23 nology of a design which is the same as or
24 substantially similar to wind technology
25 that has achieved megawatt scale or larger

1 deployment in the United States as of the
2 date of enactment of this section.

3 “(vi) NEW ONSHORE WIND.—For pur-
4 poses of clause (xv) of such subparagraph,
5 the term ‘new onshore wind’ means any
6 energy production technology which is not
7 included in clause (xiv) of such subpara-
8 graph.

9 “(vii) OPEN-LOOP BIOMASS.—For
10 purposes of clause (xix) of such subpara-
11 graph, the term ‘open-loop biomass’ has
12 the same meaning given such term under
13 section 45(c)(3).

14 “(viii) CLOSED-LOOP BIOMASS.—For
15 purposes of clause (xx) of such subpara-
16 graph, the term ‘closed-loop biomass’ has
17 the same meaning given such term under
18 section 45(c)(2).

19 “(3) EMISSIONS RATE.—

20 “(A) EXCLUSIONS.—For purposes of para-
21 graph (1)(C), the emissions rate shall not in-
22 clude—

23 “(i) any emissions which are captured
24 using carbon capture equipment, provided
25 that any carbon oxide captured using such

1 equipment is disposed of, used, or utilized
2 in a manner consistent with the require-
3 ments under section 45Q, or

4 “(ii) in the case of electricity gen-
5 erated from any fossil fuel, any upstream
6 or fugitive emissions, such as emissions re-
7 lated to the extraction, transportation,
8 storage of such fuel.

9 “(B) LIFECYCLE ANALYSIS.—For purposes
10 of paragraph (1)(C), in the case of any facility
11 which generates electricity through combustion
12 of a non-fossil fuel, the emissions rate shall be
13 determined based on a lifecycle analysis.

14 “(4) APPLICATION WITH OTHER CREDITS.—

15 “(A) IN GENERAL.—The term ‘qualified
16 production facility’ shall not include any facility
17 for which, for the taxable year or any prior tax-
18 able year—

19 “(i) electricity produced from such fa-
20 cility is taken into account for purposes of
21 the credit allowed under section 45 or 45J,

22 “(ii) qualified carbon oxide captured
23 by such facility is taken into account for
24 purposes of the credit allowed under sec-
25 tion 45Q,

1 “(iii) the basis of any property which
2 is part of such facility is taken into ac-
3 count for purposes of the credit allowed
4 under section 48, 48A, 48B, 48C, or 48D,
5 or

6 “(iv) hydrogen produced from such fa-
7 cility is taken into account for purposes of
8 the credit allowed under section 45V.

9 “(B) DENIAL OF DOUBLE BENEFIT.—With
10 respect to any section described in clause (i),
11 (ii), (iii), or (iv) of subparagraph (A), no credit
12 shall be allowed under such section for any tax-
13 able year with respect to any property for which
14 a credit is allowed under this section for such
15 taxable year or any prior taxable year.

16 “(5) CO₂-e.—In this section, the term ‘CO₂-e’
17 means the quantity of a greenhouse gas that has a
18 global warming potential equivalent to 1 metric ton
19 of carbon dioxide, as determined under table A–1 of
20 subpart A of part 98 of title 40, Code of Federal
21 Regulations, as in effect on the date of enactment of
22 this section.

23 “(e) DETERMINATION OF WHEN CONSTRUCTION BE-
24 GINS; CONTINUOUS PROGRAM OF CONSTRUCTION OR
25 CONTINUITY OF EFFORT.—

1 “(1) IN GENERAL.—For purposes of this sec-
2 tion, construction of a facility begins when—

3 “(A) physical work of a significant nature
4 begins, or

5 “(B) during the year in which the taxpayer
6 begins physical work, a facility has invested not
7 less than—

8 “(i) 2 percent of construction costs, or

9 “(ii) \$50,000,000.

10 “(2) WORK PERFORMED.—For purposes of
11 paragraph (1), any work performed—

12 “(A) by the taxpayer, or

13 “(B) for the taxpayer by other persons
14 under a binding written contract which is en-
15 tered into prior to the manufacture, construc-
16 tion, or production of the property for use by
17 the taxpayer in the taxpayer’s trade or business
18 (or for the taxpayer’s production of income),

19 shall be taken into account in determining whether
20 construction has begun.

21 “(3) CONTINUOUS PROGRAM OF CONSTRU-
22 TION.—For purposes of this section, the term ‘con-
23 tinuous program of construction’ means continuing
24 physical work of a significant nature, as determined

1 by the Secretary based upon relevant facts and cir-
2 cumstances.

3 “(4) CONTINUOUS EFFORTS.—For purposes of
4 this section, the term ‘continuous efforts’ means
5 making continuous efforts towards completion of the
6 facility, as determined by the Secretary based upon
7 relevant facts and circumstances.

8 “(f) TRANSFER OF CREDIT.—Rules similar to the
9 rules of subsection (d)(2) of section 48D shall apply for
10 purposes of this section.

11 “(g) ELECTION.—An election under this subsection
12 with respect to the amounts described in paragraphs (1)
13 and (2) of subsection (a) shall be included in the return
14 of tax for the taxable year in which the qualified produc-
15 tion facility is placed in service. Such election, once made,
16 shall be irrevocable for any taxable year during the credit
17 period under subsection (c).

18 “(h) REGULATIONS.—Not later than 18 months after
19 the date of the enactment of this section, the Secretary
20 shall prescribe such regulations as may be necessary or
21 appropriate to carry out the purposes of this section.”.

22 (b) CREDIT ALLOWED AS PART OF GENERAL BUSI-
23 NESS CREDIT.—Section 38(b) of the Internal Revenue
24 Code of 1986 is amended by striking “plus” at the end
25 of paragraph (32), by striking the period at the end of

1 paragraph (33) and inserting “, plus”, and by adding at
 2 the end the following new paragraph:

3 “(34) the emerging energy technology produc-
 4 tion credit determined under section 45U(a).”.

5 (c) SPECIAL RULE FOR PROCEEDS OF TRANSFERS
 6 FOR MUTUAL OR COOPERATIVE ELECTRIC COMPANIES.—
 7 Section 501(c)(12)(I) of such Code, as amended by section
 8 3(b), is amended by striking “or 48D(d)(2)” and inserting
 9 “, 45U(f), or 48D(d)(2)”.

10 (d) CLERICAL AMENDMENT.—The table of sections
 11 for subpart D of part IV of subchapter A of chapter 1
 12 of the Internal Revenue Code of 1986 is amended by add-
 13 ing at the end the following new item:

“Sec. 45U. Electricity produced from emerging energy technology.”.

14 (e) EFFECTIVE DATE.—The amendments made by
 15 this section shall apply to electricity produced and sold
 16 in taxable years beginning after the date of the enactment
 17 of this Act.

18 **SEC. 5. CLEAN HYDROGEN PRODUCTION CREDIT.**

19 (a) IN GENERAL.—Subpart D of part IV of sub-
 20 chapter A of chapter 1 of the Internal Revenue Code of
 21 1986, as amended by section 4, is amended by adding at
 22 the end the following new section:

23 **“SEC. 45V. CLEAN HYDROGEN PRODUCTION.**

24 “(a) GENERAL RULE.—

1 “(1) AMOUNT OF CREDIT.—For purposes of
2 section 38, the clean hydrogen production credit de-
3 termined under this section for any taxable year be-
4 ginning in the credit period with respect to a quali-
5 fied hydrogen production facility of the taxpayer is
6 an amount equal to the product of—

7 “(A) the applicable percentage of an
8 amount equal to 250 percent of the national av-
9 erage wholesale price of a kilogram of hydrogen
10 in the calendar year which began 2 years prior
11 to the calendar year in which such taxable year
12 begins, and

13 “(B) subject to paragraph (2), the amount
14 of clean hydrogen produced at the qualified hy-
15 drogen production facility during such taxable
16 year.

17 “(2) INCREASE FOR ZERO-EMISSIONS HYDRO-
18 GEN.—In the case of any clean hydrogen described
19 in subsection (d)(1)(A)(ii), the amount determined
20 under paragraph (1)(B) with respect to such clean
21 hydrogen shall be equal to twice the amount other-
22 wise determined under such paragraph.

23 “(b) APPLICABLE PERCENTAGE.—

24 “(1) IN GENERAL.—For purposes of subsection
25 (a)(1)(A), the applicable percentage is—

1 “(A) in the case of a tier 1 facility, 60 per-
2 cent,

3 “(B) in the case of a tier 2 facility, 45 per-
4 cent,

5 “(C) in the case of a tier 3 facility, 30 per-
6 cent,

7 “(D) in the case of a tier 4 facility, 15 per-
8 cent, and

9 “(E) in the case of any other facility, zero
10 percent.

11 “(2) FACILITY TIERS.—

12 “(A) IN GENERAL.—For purposes of this
13 subsection—

14 “(i) TIER 1 FACILITY.—The term ‘tier
15 1 facility’ means any qualified hydrogen
16 production facility which produces clean
17 hydrogen from a qualified production
18 method for which the market penetration
19 level for the calendar year preceding the
20 calendar year in which construction or
21 modification of such facility began is less
22 than 0.75 percent.

23 “(ii) TIER 2 FACILITY.—The term
24 ‘tier 2 facility’ has the same meaning given
25 the term ‘tier 1 facility’ under clause (i),

1 except that ‘at least 0.75 percent but less
2 than 1.5 percent’ shall be substituted for
3 ‘less than 0.75 percent’.

4 “(iii) TIER 3 FACILITY.—The term
5 ‘tier 3 facility’ has the same meaning given
6 the term ‘tier 1 facility’ under clause (i),
7 except that ‘at least 1.5 percent but less
8 than 2.25 percent’ shall be substituted for
9 ‘less than 0.75 percent’.

10 “(iv) TIER 4 FACILITY.—The term
11 ‘tier 4 facility’ has the same meaning given
12 the term ‘tier 1 facility’ under clause (i),
13 except that ‘at least 2.25 percent but less
14 than 3 percent’ shall be substituted for
15 ‘less than 0.75 percent’.

16 “(B) MARKET PENETRATION LEVEL.—For
17 purposes of this paragraph, the term ‘market
18 penetration level’ means, with respect to any
19 calendar year, the amount equal to the greater
20 of—

21 “(i) the amount (expressed as a per-
22 centage) equal to the quotient of—

23 “(I) subject to subsection
24 (d)(1)(C), the total energy content
25 (expressed in megawatt hours) of all

1 clean hydrogen produced using the
2 qualified production method by all
3 qualified hydrogen production facili-
4 ties (as defined in subsection
5 (d)(2)(A), except that clause (iii) of
6 such subsection shall not apply) dur-
7 ing such calendar year (as determined
8 by the Secretary on the basis of data
9 reported by the Energy Information
10 Administration), divided by

11 “(II) the total domestic power
12 sector electricity production (ex-
13 pressed in megawatt hours) for such
14 calendar year, or

15 “(ii) the amount determined under
16 this subparagraph for the preceding cal-
17 endar year

18 “(C) DIVISION OF PRODUCTION METHODS
19 FOR PURPOSES OF DETERMINING TIER.—For
20 purposes of determining the applicable tier for
21 any qualified production method under subpara-
22 graph (B), such subparagraph shall be applied
23 separately with respect to—

24 “(i) any such method described in
25 subparagraph (A) of subsection (d)(3), and

1 “(ii) any such method described in
2 subparagraph (B) of such subsection.

3 “(D) CONSTRUCTION BEGINS.—For pur-
4 poses of this subsection, the determination as to
5 whether a facility qualifies as a tier 1, 2, 3, or
6 4 facility shall be—

7 “(i) made during the year in which
8 construction or modification of such facil-
9 ity begins,

10 “(ii) based on the determinations in-
11 cluded in report described in section
12 45U(b)(2)(D)(i)(II) with respect to such
13 calendar year, and

14 “(iii) contingent on the taxpayer
15 maintaining a continuous program of con-
16 struction or continuous efforts to advance
17 towards completion of the facility.

18 “(E) REPORTS.—

19 “(i) IN GENERAL.—The Secretary
20 shall, as part of the reports published pur-
21 suant to section 45U(b)(2)(D)(i) and in
22 the same manner as described under such
23 section, publish the applicable market pen-
24 etration level and tier for each qualified
25 production method which has been used to

1 produce clean hydrogen by any qualified
2 hydrogen production facility (as defined in
3 subsection (d)(2)(A), except that clause
4 (iii) of such subsection shall not apply).

5 “(ii) NATIONAL AVERAGE WHOLESALE
6 PRICE.—For purposes of determining the
7 amount applicable under subsection
8 (a)(1)(A) with respect to any calendar
9 year, the Secretary of Energy (in consulta-
10 tion with the Secretary) shall include in
11 any report described in section
12 45U(b)(2)(D)(i) a determination with re-
13 spect to the national average wholesale
14 price of a kilogram of hydrogen during
15 such calendar year.

16 “(c) CREDIT PERIOD.—For purposes of this section,
17 the credit period with respect to any qualified hydrogen
18 production facility is—

19 “(1) in the case of a facility described in sub-
20 clause (I) of subsection (d)(2)(A)(iii), the 10-year
21 period beginning with the date the facility was origi-
22 nally placed in service, or

23 “(2) in the case of a facility described in sub-
24 clause (II) of such subsection, the 10-year period be-

1 ginning with the date that the property required to
2 modify such facility is placed in service.

3 “(d) DEFINITIONS.—In this section—

4 “(1) CLEAN HYDROGEN.—

5 “(A) IN GENERAL.—The term ‘clean hy-
6 drogen’ means hydrogen which, as determined
7 based on a lifecycle analysis, is produced
8 through a qualified production method for
9 which the rate of the greenhouse gas emis-
10 sions—

11 “(i) is greater than zero and not
12 greater than 2,500g CO₂-e (as defined in
13 section 45U(d)(5)) per kilogram of hydro-
14 gen produced, or

15 “(ii) is equal to or less than zero.

16 “(B) SPECIAL RULES.—

17 “(i) EMISSIONS FROM GENERATION
18 OF ELECTRICITY.—In the case of any hy-
19 drogen produced from a qualified produc-
20 tion method described in paragraph
21 (3)(A)—

22 “(I) if such method uses elec-
23 tricity generated from a renewable en-
24 ergy resource (as defined in section
25 403 of the Renewable Energy Re-

1 sources Act of 1980 (42 U.S.C.
2 7372)) or nuclear power, such hydro-
3 gen shall be deemed to be clean hy-
4 drogen described in subparagraph
5 (A)(ii), or

6 “(II) if such method uses elec-
7 tricity generated from a source that
8 emits greenhouse gases during pro-
9 duction, any such emissions which are
10 released into the atmosphere during
11 such production shall be included for
12 purposes of determining the rate of
13 the greenhouse gas emissions under
14 subparagraph (A).

15 “(ii) NON-ELECTROLYSIS OR USE OF
16 FOSSIL FUELS.—In the case of any hydro-
17 gen produced—

18 “(I) through the use of fossil
19 fuels or through the use of electricity
20 which is generated through combus-
21 tion of a fossil fuel, or

22 “(II) using a method described in
23 paragraph (3)(B),

1 subparagraph (A) shall be applied with re-
2 spect to such hydrogen on the basis of a
3 lifecycle analysis.

4 “(iii) EXCLUSION OF HYDROGEN
5 EMISSIONS.—For purposes of subpara-
6 graph (A), with respect to hydrogen pro-
7 duced through a qualified production meth-
8 od, any such hydrogen which is released
9 into the atmosphere during such produc-
10 tion shall not be included for purposes of
11 determining the rate of the greenhouse gas
12 emissions under such subparagraph.

13 “(iv) CARBON CAPTURE.—For pur-
14 poses of determining the rate of the green-
15 house gas emissions under subparagraph
16 (A), such subparagraph shall not apply
17 with respect to any qualified carbon oxide
18 (as defined in section 45Q(e)) captured
19 using carbon capture equipment if such
20 carbon oxide is disposed of, used, or uti-
21 lized in a manner consistent with the re-
22 quirements under section 45Q.

23 “(v) UPSTREAM AND DOWNSTREAM
24 EMISSIONS.—

1 “(I) IN GENERAL.—In the case
2 of hydrogen produced using a quali-
3 fied production method described in
4 clause (ii), for purposes of the appli-
5 cation of subparagraph (A) based on
6 a lifecycle analysis with respect to
7 such method, such subparagraph shall
8 not apply with respect to—

9 “(aa) any upstream emis-
10 sions, and

11 “(bb) any downstream emis-
12 sions related to the compression,
13 liquefaction, use, or transport of
14 hydrogen subsequent to produc-
15 tion.

16 “(II) HIGH-TEMPERATURE ELEC-
17 TROLYSIS.—For purposes of deter-
18 mining the rate of the greenhouse gas
19 emissions under subparagraph (A)
20 with respect to hydrogen produced
21 using high-temperature electrolysis,
22 such subparagraph shall apply with
23 respect to any direct emissions result-
24 ing from the fuel source used to cre-

1 ate heat to which clause (iv) does not
2 apply.

3 “(III) UPSTREAM EMISSIONS.—
4 For purposes of this clause, the term
5 ‘upstream emissions’ means the quan-
6 tity of greenhouse gases, expressed in
7 metric tons of CO₂-e, emitted to the
8 atmosphere resulting from the extrac-
9 tion, processing, transportation, fi-
10 nancing, or other preparation of hy-
11 drogen for use.

12 “(C) ENERGY CONTENT.—For purposes of
13 subsection (b)(2)(B)(i)(I), the energy content of
14 1 kilogram of clean hydrogen shall be deemed
15 to be equal to 33.6 kilowatt hours of energy.

16 “(2) QUALIFIED HYDROGEN PRODUCTION FA-
17 CILITY.—

18 “(A) IN GENERAL.—The term ‘qualified
19 hydrogen production facility’ means any facil-
20 ity—

21 “(i) which is located in the United
22 States or a possession of the United States
23 (as such terms are used in section 638),

24 “(ii) which produces clean hydrogen
25 using a qualified production method, and

1 “(iii)(I) which is placed in service
2 after the date of enactment of this section,
3 or

4 “(II) which—

5 “(aa) was originally placed in
6 service before the date of enactment
7 of this section and, prior to the modi-
8 fication described in item (bb), did not
9 produce clean hydrogen, and

10 “(bb) after the date of enactment
11 of this section, is modified to produce
12 clean hydrogen, including—

13 “(AA) modification of a fa-
14 cility which, prior to such modi-
15 fication, produced hydrogen
16 which did not satisfy the require-
17 ments under paragraph (1)(A),
18 or

19 “(BB) for purposes of para-
20 graph (1)(B)(iv), installation of
21 carbon capture equipment.

22 “(B) APPLICATION WITH OTHER CRED-
23 ITS.—

1 “(i) IN GENERAL.—With respect to
2 any taxable year, the term ‘qualified hydro-
3 gen production facility’ shall not include—

4 “(I) any facility which—

5 “(aa) produces electricity—

6 “(AA) which is taken
7 into account for purposes of
8 the credit allowed under sec-
9 tion 45, 45J, or 45U for
10 such taxable year or any
11 previous taxable year, and

12 “(BB) which is used by
13 such facility for the produc-
14 tion of clean hydrogen, or

15 “(bb) for such taxable year
16 or any previous taxable year, the
17 basis of any property which is
18 part of such facility is taken into
19 account for purposes of the credit
20 allowed under section 48, 48A,
21 48B, 48C, or 48D, or

22 “(II) any carbon capture equip-
23 ment placed in service at a facility
24 which is used to capture qualified car-
25 bon oxide which is taken into account

1 in such taxable year or any previous
2 taxable year for purposes of the credit
3 allowed under section 45Q.

4 “(ii) DENIAL OF DOUBLE BENEFIT.—
5 With respect to any section described in
6 clause (I) or (II) of clause (i), no credit
7 shall be allowed under such section for any
8 taxable year with respect to any property
9 for which a credit is allowed under this
10 section for such taxable year or any prior
11 taxable year.

12 “(3) QUALIFIED PRODUCTION METHOD.—The
13 term ‘qualified production method’ means—

14 “(A) electrolysis, and

15 “(B) any method not described in subpara-
16 graph (A).

17 “(e) TRANSFER OF CREDIT.—

18 “(1) IN GENERAL.—If, with respect to a credit
19 allowed under subsection (a) for any taxable year,
20 the taxpayer elects the application of this subsection
21 for such taxable year with respect to all (or any por-
22 tion specified in such election) of such credit, the eli-
23 gible project partner specified in such election, and
24 not the taxpayer, shall be treated as the taxpayer for

1 purposes of this title with respect to such credit (or
2 such portion thereof).

3 “(2) ELIGIBLE PROJECT PARTNER.—

4 “(A) IN GENERAL.—For purposes of this
5 subsection, the term ‘eligible project partner’
6 means, with respect to any qualified hydrogen
7 production facility, any person who—

8 “(i) has an ownership interest in such
9 facility,

10 “(ii) provided equipment for or serv-
11 ices in the construction of such facility,

12 “(iii) provides electricity or feedstock
13 for production of hydrogen at such facility,

14 “(iv) purchases hydrogen, or a direct
15 product thereof, produced at such facility
16 pursuant to a contract, or

17 “(v) provides financing for such facil-
18 ity.

19 “(B) FINANCING.—For purposes of sub-
20 paragraph (A)(v), any amount paid as consider-
21 ation for a transfer described in paragraph (1)
22 shall not be treated as financing for qualified
23 hydrogen production facility.

24 “(C) OTHER RULES.—Rules similar to the
25 rules of subparagraphs (C) through (I) of sec-

1 tion 48D(d)(2) shall apply for purposes of this
2 subsection.

3 “(f) DETERMINATION OF WHEN CONSTRUCTION BE-
4 GINS; CONTINUOUS PROGRAM OF CONSTRUCTION OR
5 CONTINUITY OF EFFORT.—Rules similar to the rules of
6 section 45U(e) shall apply for purposes of this section.

7 “(g) REGULATIONS.—Not later than 1 year after the
8 date of the enactment of this section, the Secretary shall
9 prescribe such regulations as may be necessary or appro-
10 priate to carry out the purposes of this section.”.

11 (b) CREDIT ALLOWED AS PART OF GENERAL BUSI-
12 NESS CREDIT.—Section 38(b) of the Internal Revenue
13 Code of 1986, as amended by section 4(b), is amended
14 by striking “plus” at the end of paragraph (33), by strik-
15 ing the period at the end of paragraph (34) and inserting
16 “, plus”, and by adding at the end the following new para-
17 graph:

18 “(35) the clean hydrogen production credit de-
19 termined under section 45V(a).”.

20 (c) CLERICAL AMENDMENT.—The table of sections
21 for subpart D of part IV of subchapter A of chapter 1
22 of the Internal Revenue Code of 1986, as amended by sec-
23 tion 4(d), is amended by adding at the end the following
24 new item:

“Sec. 45V. Clean hydrogen production.”.

1 (d) EFFECTIVE DATE.—The amendments made by
2 this section shall apply to hydrogen produced in taxable
3 years beginning after the date of the enactment of this
4 Act.

5 **SEC. 6. REPORT ON ADDITIONAL ENERGY PRODUCTION**
6 **TECHNOLOGY.**

7 (a) IN GENERAL.—Not later than 1 year after the
8 date of enactment of this Act, and every 5 years there-
9 after, the Secretary of Energy (referred to in this section
10 as the “Secretary”) shall submit a report to the Com-
11 mittee on Ways and Means of the House of Representa-
12 tives and the Committee on Finance of the Senate
13 which—

14 (1) identifies new and emerging energy produc-
15 tion technologies which—

16 (A) have less than 3 percent market pene-
17 tration level (as defined in subsection (b)(2)(B)
18 of section 45U of the Internal Revenue Code of
19 1986 (as added by section 4 of this Act)); and

20 (B) the Secretary recommends should be
21 added to subsection (d)(2)(A) of such section as
22 an individual energy production technology;

23 (2) includes legislative language to carry out
24 the recommendations described in paragraph (1)(B);
25 and

1 (3) considers petitions and comments submitted
2 under subsection (b).

3 (b) REPORT PROCESS.—

4 (1) IN GENERAL.—Not later than 24 months
5 after the date of enactment of this Act, the Sec-
6 retary shall publish in the Federal Register and on
7 a publicly available Internet website of the Depart-
8 ment of Energy a notice requesting members of the
9 public to submit to the Department of Energy dur-
10 ing the 60-day period beginning on the date of such
11 publication petitions for inclusion of any technology
12 used for the production of electricity as an individual
13 energy production technology under subsection
14 (d)(2) of section 45U of the Internal Revenue Code
15 of 1986 (as added by section 4 of this Act).

16 (2) CONTENT.—Each petition described in
17 paragraph (1) shall include the following informa-
18 tion:

19 (A) The name and address of the peti-
20 tioner.

21 (B) A description of the technology used
22 for the production of electricity.

23 (C) A certification as to whether such tech-
24 nology satisfies the requirements under sub-

1 section (d)(1)(C) of section 45U of the Internal
2 Revenue Code of 1986.

3 (D) Such other information as the Sec-
4 retary may require.

5 (3) PROCEDURES.—The Secretary shall pre-
6 scribe and publish in the Federal Register and on a
7 publicly available internet website of the Department
8 of Energy procedures to be complied with by mem-
9 bers of the public submitting petitions for inclusion
10 under paragraph (1).

11 (c) REVIEW.—

12 (1) PUBLICATION AND PUBLIC AVAILABILITY.—
13 As soon as practicable, the Secretary shall publish
14 on a publicly available internet website of the De-
15 partment of Energy the petitions for inclusions sub-
16 mitted under paragraph (1) of subsection (b) that
17 contain the information required under paragraph
18 (2) of such subsection.

19 (2) PUBLIC COMMENT.—

20 (A) IN GENERAL.—The Secretary shall
21 publish in the Federal Register and on a pub-
22 licly available internet website of the Depart-
23 ment of Energy a notice requesting members of
24 the public to submit to the Department of En-
25 ergy comments on the petitions for inclusion

1 published by the Department of Energy under
2 paragraph (1).

3 (B) PUBLICATION.—The Secretary shall
4 publish a notice in the Federal Register direct-
5 ing members of the public to a publicly avail-
6 able internet website of the Department of En-
7 ergy to view the comments of the members of
8 the public received under subparagraph (A).

9 (d) SENSE OF CONGRESS.—It is the sense of Con-
10 gress that, to incentivize innovation in energy generation
11 technologies and to promote the reliability of and perform-
12 ance improvements in the United States energy sector,
13 Congress should, not later than 90 days after the Sec-
14 retary submits any report under subsection (a), consider
15 a bill to add any technology used for the production of
16 electricity which is included in such report to the list of
17 individual energy production technologies under section
18 45U(d)(2) of the Internal Revenue Code of 1986.

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