

117TH CONGRESS  
1ST SESSION

# H. R. 4720

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

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## IN THE HOUSE OF REPRESENTATIVES

JULY 27, 2021

Mr. REED (for himself, Mr. PANETTA, Mr. LAHOOD, Mr. SUOZZI, Mr. SCHWEIKERT, and Mr. GOTTHEIMER) introduced the following bill; which was referred to the Committee on Ways and Means

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## 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(c)) 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-

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

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

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

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

“(4) APPLICATION WITH OTHER CREDITS.—

“(A) IN GENERAL.—The term ‘qualified  
 emerging energy property’ shall not include any  
 property for which, for the taxable year or any  
 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 CO<sub>2</sub>-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 the 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  
24 megawatts) of energy storage  
25 technology in operation within

1 the United States at the begin-  
2 ning of such calendar year (as  
3 determined by the Secretary on  
4 the basis of data reported by the  
5 Energy Information Administra-  
6 tion), divided by

7 “(bb) the total domestic  
8 electricity production nameplate  
9 capacity (expressed in  
10 megawatts) at the close of such  
11 year, 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 the 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 serting “, 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 serting “, 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 the lesser of—

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

9 “(2) the product of—

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

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

20 “(b) APPLICABLE PERCENTAGE.—

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

23 “(A) in the case of a tier 1 facility, 60 per-  
24 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 the report described in subpara-  
24 graph (D)(i)(II) with respect to such cal-  
25 endar 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 CO<sub>2</sub>-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  
7 photovoltaics’ includes perovskite-based  
8 and perovskite-enhanced solar, quantum  
9 dots, organic photovoltaics, multi-junction  
10 tandem devices, and any photovoltaic solar  
11 technology not included under clause (vii)  
12 of 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) CO<sub>2</sub>-e.—In this section, the term ‘CO<sub>2</sub>-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) REGULATIONS.—Not later than 18 months after  
12 the date of the enactment of this section, the Secretary  
13 shall prescribe such regulations as may be necessary or  
14 appropriate to carry out the purposes of this section.”.

15 (b) CREDIT ALLOWED AS PART OF GENERAL BUSI-  
16 NESS CREDIT.—Section 38(b) of the Internal Revenue  
17 Code of 1986 is amended by striking “plus” at the end  
18 of paragraph (32), by striking the period at the end of  
19 paragraph (33) and inserting “, plus”, and by adding at  
20 the end the following new paragraph:

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

23 (c) SPECIAL RULE FOR PROCEEDS OF TRANSFERS  
24 FOR MUTUAL OR COOPERATIVE ELECTRIC COMPANIES.—  
25 Section 501(c)(12)(I) of such Code, as amended by section

1 3(b), is amended by striking “or 48D(d)(2)” and inserting  
 2 “, 45U(f), or 48D(d)(2)”.

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

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

7 (e) EFFECTIVE DATE.—The amendments made by  
 8 this section shall apply to electricity produced and sold  
 9 in taxable years beginning after the date of the enactment  
 10 of this Act.

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

12 (a) IN GENERAL.—Subpart D of part IV of sub-  
 13 chapter A of chapter 1 of the Internal Revenue Code of  
 14 1986, as amended by section 4, is amended by adding at  
 15 the end the following new section:

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

17 “(a) GENERAL RULE.—

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

24 “(A) the applicable percentage of an  
 25 amount equal to 250 percent of the national av-

erage wholesale price of a kilogram of hydrogen  
in the calendar year which began 2 years prior  
to the calendar year in which such taxable year  
begins, and

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

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

“(b) APPLICABLE PERCENTAGE.—

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

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

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

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

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

1           “(E) in the case of any other facility, zero  
2           percent.

3           “(2) FACILITY TIERS.—

4           “(A) IN GENERAL.—For purposes of this  
5           subsection—

6           “(i) TIER 1 FACILITY.—The term ‘tier  
7           1 facility’ means any qualified hydrogen  
8           production facility which produces clean  
9           hydrogen from a qualified production  
10          method for which the market penetration  
11          level for the calendar year preceding the  
12          calendar year in which construction or  
13          modification of such facility began is less  
14          than 0.75 percent.

15          “(ii) TIER 2 FACILITY.—The term  
16          ‘tier 2 facility’ has the same meaning given  
17          the term ‘tier 1 facility’ under clause (i),  
18          except that ‘at least 0.75 percent but less  
19          than 1.5 percent’ shall be substituted for  
20          ‘less than 0.75 percent’.

21          “(iii) TIER 3 FACILITY.—The term  
22          ‘tier 3 facility’ has the same meaning given  
23          the term ‘tier 1 facility’ under clause (i),  
24          except that ‘at least 1.5 percent but less

1           than 2.25 percent’ shall be substituted for  
2           ‘less than 0.75 percent’.

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

9           “(B) MARKET PENETRATION LEVEL.—For  
10          purposes of this paragraph, the term ‘market  
11          penetration level’ means, with respect to any  
12          calendar year, the amount equal to the greater  
13          of—

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

16                       “(I) subject to subsection  
17                       (d)(1)(C), the total energy content  
18                       (expressed in megawatt hours) of all  
19                       clean hydrogen produced using the  
20                       qualified production method by all  
21                       qualified hydrogen production facili-  
22                       ties (as defined in subsection  
23                       (d)(2)(A), except that clause (iii) of  
24                       such subsection shall not apply) dur-  
25                       ing such calendar year (as determined

1 by the Secretary on the basis of data  
2 reported by the Energy Information  
3 Administration), divided by

4 “(II) the total domestic power  
5 sector electricity production (ex-  
6 pressed in megawatt hours) for such  
7 calendar year, or

8 “(ii) the amount determined under  
9 this subparagraph for the preceding cal-  
10 endar year.

11 “(C) DIVISION OF PRODUCTION METHODS  
12 FOR PURPOSES OF DETERMINING TIER.—For  
13 purposes of determining the applicable tier for  
14 any qualified production method under subpara-  
15 graph (B), such subparagraph shall be applied  
16 separately with respect to—

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

19 “(ii) any such method described in  
20 subparagraph (B) of such subsection.

21 “(D) CONSTRUCTION BEGINS.—For pur-  
22 poses of this subsection, the determination as to  
23 whether a facility qualifies as a tier 1, 2, 3, or  
24 4 facility shall be—

1 “(i) made during the year in which  
2 construction or modification of such facil-  
3 ity begins,

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

8 “(iii) contingent on the taxpayer  
9 maintaining a continuous program of con-  
10 struction or continuous efforts to advance  
11 towards completion of the facility.

12 “(E) REPORTS.—

13 “(i) IN GENERAL.—The Secretary  
14 shall, as part of the reports published pur-  
15 suant to section 45U(b)(2)(D)(i) and in  
16 the same manner as described under such  
17 section, publish the applicable market pen-  
18 etration level and tier for each qualified  
19 production method which has been used to  
20 produce clean hydrogen by any qualified  
21 hydrogen production facility (as defined in  
22 subsection (d)(2)(A), except that clause  
23 (iii) of such subsection shall not apply).

24 “(ii) NATIONAL AVERAGE WHOLESALE  
25 PRICE.—For purposes of determining the



1 amount applicable under subsection  
2 (a)(1)(A) with respect to any calendar  
3 year, the Secretary of Energy (in consulta-  
4 tion with the Secretary) shall include in  
5 any report described in section  
6 45U(b)(2)(D)(i) a determination with re-  
7 spect to the national average wholesale  
8 price of a kilogram of hydrogen during  
9 such calendar year.

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

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

17 “(2) in the case of a facility described in sub-  
18 clause (II) of such subsection, the 10-year period be-  
19 ginning with the date that the property required to  
20 modify such facility is placed in service.

21 “(d) DEFINITIONS.—In this section—

22 “(1) CLEAN HYDROGEN.—

23 “(A) IN GENERAL.—The term ‘clean hy-  
24 drogen’ means hydrogen which, as determined  
25 based on a lifecycle analysis, is produced

1 through a qualified production method for  
2 which the rate of the greenhouse gas emis-  
3 sions—

4 “(i) is greater than zero and not  
5 greater than 2,500g CO<sub>2</sub>-e (as defined in  
6 section 45U(d)(5)) per kilogram of hydro-  
7 gen produced, or

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

9 “(B) SPECIAL RULES.—

10 “(i) EMISSIONS FROM GENERATION  
11 OF ELECTRICITY.—In the case of any hy-  
12 drogen produced from a qualified produc-  
13 tion method described in paragraph  
14 (3)(A)—

15 “(I) if such method uses elec-  
16 tricity generated from a renewable en-  
17 ergy resource (as defined in section  
18 403 of the Renewable Energy Re-  
19 sources Act of 1980 (42 U.S.C.  
20 7372)) or nuclear power, such hydro-  
21 gen shall be deemed to be clean hy-  
22 drogen described in subparagraph  
23 (A)(ii), or

24 “(II) if such method uses elec-  
25 tricity generated from a source that

1 emits greenhouse gases during pro-  
2 duction, any such emissions which are  
3 released into the atmosphere during  
4 such production shall be included for  
5 purposes of determining the rate of  
6 the greenhouse gas emissions under  
7 subparagraph (A).

8 “(ii) NON-ELECTROLYSIS OR USE OF  
9 FOSSIL FUELS.—In the case of any hydro-  
10 gen produced—

11 “(I) through the use of fossil  
12 fuels or through the use of electricity  
13 which is generated through combus-  
14 tion of a fossil fuel, or

15 “(II) using a method described in  
16 paragraph (3)(B),  
17 subparagraph (A) shall be applied with re-  
18 spect to such hydrogen on the basis of a  
19 lifecycle analysis.

20 “(iii) EXCLUSION OF HYDROGEN  
21 EMISSIONS.—For purposes of subpara-  
22 graph (A), with respect to hydrogen pro-  
23 duced through a qualified production meth-  
24 od, any such hydrogen which is released  
25 into the atmosphere during such produc-

tion shall not be included for purposes of determining the rate of the greenhouse gas emissions under such subparagraph.

“(iv) CARBON CAPTURE.—For purposes of determining the rate of the greenhouse gas emissions under subparagraph (A), such subparagraph shall not apply with respect to any qualified carbon oxide (as defined in section 45Q(c)) captured using carbon capture equipment if such carbon oxide is disposed of, used, or utilized in a manner consistent with the requirements under section 45Q.

“(v) UPSTREAM AND DOWNSTREAM EMISSIONS.—

“(I) IN GENERAL.—In the case of hydrogen produced using a qualified production method described in clause (ii), for purposes of the application of subparagraph (A) based on a lifecycle analysis with respect to such method, such subparagraph shall not apply with respect to—

“(aa) any upstream emissions, and

1 “(bb) any downstream emis-  
2 sions related to the compression,  
3 liquefaction, use, or transport of  
4 hydrogen subsequent to produc-  
5 tion.

6 “(II) HIGH-TEMPERATURE ELEC-  
7 TROLYSIS.—For purposes of deter-  
8 mining the rate of the greenhouse gas  
9 emissions under subparagraph (A)  
10 with respect to hydrogen produced  
11 using high-temperature electrolysis,  
12 such subparagraph shall apply with  
13 respect to any direct emissions result-  
14 ing from the fuel source used to cre-  
15 ate heat to which clause (iv) does not  
16 apply.

17 “(III) UPSTREAM EMISSIONS.—  
18 For purposes of this clause, the term  
19 ‘upstream emissions’ means the quan-  
20 tity of greenhouse gases, expressed in  
21 metric tons of CO2-e, emitted to the  
22 atmosphere resulting from the extrac-  
23 tion, processing, transportation, fi-  
24 nancing, or other preparation of hy-  
25 drogen for use.

1 “(C) ENERGY CONTENT.—For purposes of  
 2 subsection (b)(2)(B)(i)(I), the energy content of  
 3 1 kilogram of clean hydrogen shall be deemed  
 4 to be equal to 33.6 kilowatt hours of energy.

5 “(2) QUALIFIED HYDROGEN PRODUCTION FA-  
 6 CILITY.—

7 “(A) IN GENERAL.—The term ‘qualified  
 8 hydrogen production facility’ means any facil-  
 9 ity—

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

13 “(ii) which produces clean hydrogen  
 14 using a qualified production method, and

15 “(iii)(I) which is placed in service  
 16 after the date of enactment of this section,  
 17 or

18 “(II) which—

19 “(aa) was originally placed in  
 20 service before the date of enactment  
 21 of this section and, prior to the modi-  
 22 fication described in item (bb), did not  
 23 produce clean hydrogen, and

1 “(bb) after the date of enactment  
2 of this section, is modified to produce  
3 clean hydrogen, including—

4 “(AA) modification of a fa-  
5 cility which, prior to such modi-  
6 fication, produced hydrogen  
7 which did not satisfy the require-  
8 ments under paragraph (1)(A),  
9 or

10 “(BB) for purposes of para-  
11 graph (1)(B)(iv), installation of  
12 carbon capture equipment.

13 “(B) APPLICATION WITH OTHER CRED-  
14 ITS.—

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

18 “(I) any facility which—

19 “(aa) produces electricity—

20 “(AA) which is taken  
21 into account for purposes of  
22 the credit allowed under sec-  
23 tion 45, 45J, or 45U for  
24 such taxable year or any  
25 previous taxable year, and

1 “(BB) which is used by  
2 such facility for the produc-  
3 tion of clean hydrogen, or

4 “(bb) for such taxable year  
5 or any previous taxable year, the  
6 basis of any property which is  
7 part of such facility is taken into  
8 account for purposes of the credit  
9 allowed under section 48, 48A,  
10 48B, 48C, or 48D,

11 “(II) any facility which receives  
12 electricity—

13 “(aa)(AA) from another fa-  
14 cility for which a credit is allowed  
15 for such taxable year or any pre-  
16 vious taxable year with respect to  
17 such electricity under section 45,  
18 45J, or 45U, or

19 “(BB) from another facility  
20 or project for which, for such  
21 taxable year or any previous tax-  
22 able year, the basis of any prop-  
23 erty which is part of such facility  
24 or project is taken into account  
25 for purposes of the credit allowed



1 under section 48, 48A, 48B,  
2 48C, or 48D, and

3 “(bb) which is used by such  
4 facility for the production of  
5 clean hydrogen, or

6 “(III) any carbon capture equip-  
7 ment placed in service at a facility  
8 which is used to capture qualified car-  
9 bon oxide which is taken into account  
10 in such taxable year or any previous  
11 taxable year for purposes of the credit  
12 allowed under section 45Q.

13 “(ii) DENIAL OF DOUBLE BENEFIT.—  
14 With respect to any section described in  
15 clause (I), (II), or (III) of clause (i), no  
16 credit shall be allowed under such section  
17 for any taxable year with respect to any  
18 property for which a credit is allowed  
19 under this section for such taxable year or  
20 any prior taxable year.

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

23 “(A) electrolysis, and

24 “(B) any method not described in subpara-  
25 graph (A).

1 “(e) TRANSFER OF CREDIT.—

2 “(1) IN GENERAL.—If, with respect to a credit  
3 allowed under subsection (a) for any taxable year,  
4 the taxpayer elects the application of this subsection  
5 for such taxable year with respect to all (or any por-  
6 tion specified in such election) of such credit, the eli-  
7 gible project partner specified in such election, and  
8 not the taxpayer, shall be treated as the taxpayer for  
9 purposes of this title with respect to such credit (or  
10 such portion thereof).

11 “(2) ELIGIBLE PROJECT PARTNER.—

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

16 “(i) has an ownership interest in such  
17 facility,

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

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

22 “(iv) purchases hydrogen, or a direct  
23 product thereof, produced at such facility  
24 pursuant to a contract, or

1 “(v) provides financing for such facil-  
2 ity.

3 “(B) FINANCING.—For purposes of sub-  
4 paragraph (A)(v), any amount paid as consider-  
5 ation for a transfer described in paragraph (1)  
6 shall not be treated as financing for a qualified  
7 hydrogen production facility.

8 “(C) OTHER RULES.—Rules similar to the  
9 rules of subparagraphs (C) through (I) of sec-  
10 tion 48D(d)(2) shall apply for purposes of this  
11 subsection.

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

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

20 (b) CREDIT ALLOWED AS PART OF GENERAL BUSI-  
21 NESS CREDIT.—Section 38(b) of the Internal Revenue  
22 Code of 1986, as amended by section 4(b), is amended  
23 by striking “plus” at the end of paragraph (33), by strik-  
24 ing the period at the end of paragraph (34) and inserting

1 “, plus”, and by adding at the end the following new para-  
 2 graph:

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

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

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

10 (d) EFFECTIVE DATE.—The amendments made by  
 11 this section shall apply to hydrogen produced in taxable  
 12 years beginning after the date of the enactment of this  
 13 Act.

14 **SEC. 6. REPORT ON ADDITIONAL ENERGY PRODUCTION**  
 15 **TECHNOLOGY.**

16 (a) IN GENERAL.—Not later than 1 year after the  
 17 date of enactment of this Act, and every 5 years there-  
 18 after, the Secretary of Energy (referred to in this section  
 19 as the “Secretary”) shall submit a report to the Com-  
 20 mittee on Ways and Means of the House of Representa-  
 21 tives and the Committee on Finance of the Senate  
 22 which—

23 (1) identifies new and emerging energy produc-  
 24 tion technologies which—

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

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

8           (2) includes legislative language to carry out  
9           the recommendations described in paragraph (1)(B);  
10          and

11          (3) considers petitions and comments submitted  
12          under subsection (b).

13          (b) REPORT PROCESS.—

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

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

4           (A) The name and address of the peti-  
5       tioner.

6           (B) A description of the technology used  
7       for the production of electricity.

8           (C) A certification as to whether such tech-  
9       nology satisfies the requirements under sub-  
10      section (d)(1)(C) of section 45U of the Internal  
11      Revenue Code of 1986.

12          (D) Such other information as the Sec-  
13      retary may require.

14          (3) PROCEDURES.—The Secretary shall pre-  
15      scribe and publish in the Federal Register and on a  
16      publicly available internet website of the Department  
17      of Energy procedures to be complied with by mem-  
18      bers of the public submitting petitions for inclusion  
19      under paragraph (1).

20      (c) REVIEW.—

21          (1) PUBLICATION AND PUBLIC AVAILABILITY.—  
22      As soon as practicable, the Secretary shall publish  
23      on a publicly available internet website of the De-  
24      partment of Energy the petitions for inclusions sub-  
25      mitted under paragraph (1) of subsection (b) that

1 contain the information required under paragraph  
2 (2) of such subsection.

3 (2) PUBLIC COMMENT.—

4 (A) IN GENERAL.—The Secretary shall  
5 publish in the Federal Register and on a pub-  
6 licly available internet website of the Depart-  
7 ment of Energy a notice requesting members of  
8 the public to submit to the Department of En-  
9 ergy comments on the petitions for inclusion  
10 published by the Department of Energy under  
11 paragraph (1).

12 (B) PUBLICATION.—The Secretary shall  
13 publish a notice in the Federal Register direct-  
14 ing members of the public to a publicly avail-  
15 able internet website of the Department of En-  
16 ergy to view the comments of the members of  
17 the public received under subparagraph (A).

18 (d) SENSE OF CONGRESS.—It is the sense of Con-  
19 gress that, to incentivize innovation in energy generation  
20 technologies and to promote the reliability of and perform-  
21 ance improvements in the United States energy sector,  
22 Congress should, not later than 90 days after the Sec-  
23 retary submits any report under subsection (a), consider  
24 a bill to add any technology used for the production of  
25 electricity which is included in such report to the list of

- 1 individual energy production technologies under section
- 2 45U(d)(2) of the Internal Revenue Code of 1986.

