Washington State Department of Labor & Industries

Cost-Benefit Analysis

Electrical Rules (Code Adoption)

Chapter 296-46B WAC Electrical Safety Standards, Administration, and Installation

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CHAPTER 1: Requirements of the Administrative Procedure Act

The Administrative Procedure Act (APA; Chapter 34.05 RCW) requires that, before adopting a significant legislative rule, the Department of Labor & Industries (L&I) must analyze the probable costs and benefits of the rule, and determine that the benefits are greater than its costs, taking into account both the qualitative and quantitative benefits and costs." RCW 34.05.328(1)(d). Under certain circumstances, a rule or rule component is exempt from this requirement. These exemption criteria are listed in RCW 34.05.328(5)(b), including:

- Emergency rules adopted under RCW 34.05.350;
- Rules relating only to internal governmental operations that are not subject to violation by a nongovernment party;
- Rules adopting or incorporating by reference without material change federal statutes or regulations, Washington state statutes, rules of other Washington state agencies, shoreline master programs other than those programs governing shorelines of statewide significance, or, as referenced by Washington state law, national consensus codes that generally establish industry standards, if the material adopted or incorporated regulates the same subject matter and conduct as the adopting or incorporating rule;
- Rules that only correct typographical errors, make address or name changes, or clarify language of a rule without changing its effect;
- Rules the content of which is explicitly and specifically dictated by statute;
- Rules that set or adjust fees under the authority of RCW 19.02.075 or that set or adjust fees or rates pursuant to legislative standards, including fees set or adjusted under the authority of RCW 19.80.045.

This cost-benefit analysis has been prepared to comply with the APA for the amendment of and creation of rule sections under Chapter 296-46B WAC that do not fall under the exemptions described above. The Cost-Benefit Analysis and Least-Burdensome Alternative Analysis in this report are based on the best available information at the time of publication.

The APA also requires L&I to "determine, after considering alternative versions of the rule… that the rule being adopted is the least burdensome alternative for those required to comply with it that will achieve the general goals and specific objectives" of the governing and authorizing statutes. RCW 34.05.328(1)(e). Chapter 6 of this document describes that determination.

CHAPTER 2: Background of the Adopted Rules

2.1 The background of this rulemaking

This rulemaking is needed to update the rules with the latest national consensus safety standards to protect people and property from electrical hazards. The National Electrical Code (NEC) is the recognized safety standard for the electrical industry and is adopted throughout North America. The NEC sets the standard for safe electrical design, installation and inspection in homes, businesses, industry, and institutions to protect people and property from electrical hazards. The 2023 edition of the code presents the latest comprehensive regulations for electrical wiring, overcurrent protection, grounding and installation of equipment. The purpose of the safety codes and standards are to enhance public health and safety.

2.1.1 Rule development process

This rule development process includes an opportunity for public proposals, review and recommendations of all proposals by a Technical Advisory Committee (TAC) and the Electrical Board (Board), and public hearing process.

On April 4, 2023, L&I filed a CR-101 Preproposal Statement of Inquiry (WSR 23-08-066) to begin rulemaking.

A Special Edition, April 2023 Electrical Currents Newsletter was sent to stakeholders and interested parties via GovDelivery outlining the Electrical Program's rule revision process and sequence of rulemaking activities.

From April 4 to May 20, 2023, L&I invited interested parties to submit proposals for changes to the rules. L&I also solicited experts and industry representatives to participate on a TAC.

The Electrical Program received 20 proposals from stakeholders for changes to the rules.

On July 11, 2023, the TAC convened a meeting to review rule proposals and provide recommendations to L&I. The TAC for this rulemaking consisted of 34 industry experts and interested group representatives appointed by L&I from across the industry. The purpose of the TAC is to evaluate rule proposals focusing on life/safety, state policies, maintaining a fair competitive environment, and correcting errors and omissions.

On October 26, 2023, the Board reviewed and provided advice to L&I on the draft proposed rules. The Board consists of 16 industry representatives: Electricians, Electrical Utility, Electrical Contractors, Manufacturer, Telecommunication Contractor, Telecommunication Utility, Telecommunication Worker, Licensed Professional Electrical Engineer, General Public, Local Jurisdiction Seat (non-voting), Outside Line Worker, and Secretary (Chief Electrical Inspector (non-voting). The purpose and function of the board is to advise the director on all matters pertaining to the enforcement of chapter 19.28 RCW (RCW 19.28.311).

Stakeholders receive notice of rulemaking status on a monthly basis through the Electrical Currents Newsletter via the Electrical Program's GovDelivery email list. Stakeholders and other interested parties were also notified directly. Information about this rulemaking is available on the L&I's website.

2.2 The description of the adopted rules

2.2.1 Determination for significant legislative rules or exemption

As required by the APA, L&I analyzed its adopted rules to determine whether the rules are "significant legislative rules" as defined in RCW 34.05.328(5)(a)(i). This section describes the results of the required analysis.

The majority of changes are not significant legislative rule changes and are exempt from the cost-benefit analysis requirement. The changes deemed significant legislative rules are analyzed in Chapter 3.

CHAPTER 3: Probable Costs and Benefits of the Adopted Rule

The estimated costs and benefits in this analysis, if any, represent only the new costs/benefits of complying with the adopted rule for the affected parties, excluding those associated with or originating from the current practices or "baseline" standards under existing laws, rules, or national consensus standards. Accordingly, L&I did not analyze any costs or benefits attributed to existing standards or when a standard is not appreciably different from an existing standard.

WAC 296-46B-210 Wiring and protection—Branch circuits.

WAC 296-46B-210(8)

Rule Overview: If receptacle outlets are not installed to serve an island or peninsular countertop or work surface, no future provisions to do so are required.

Costs/Benefits: Unquantifiable benefit. Potential costs savings for customers from not being required to install electrical components they don't intend to use.

WAC 296-46B-230 Wiring and protection - Services

WAC 296-46B-230(8)

Rule Overview: Removes the language preventing the use of electrical metal tubing (EMT). Allowing EMT to be used pursuant to subsection WAC 296-46B-230(7) of this subsection.

Costs/Benefits: Unquantifiable benefit. Increases operational flexibility by providing an alternative wiring method for service conductors.

WAC 296-46B-230(10)(b)

Rule Overview: Adds an exception to not restrict the length of a service raceway when proper overcurrent protection is provided.

Costs/Benefits: Unquantifiable benefit. Increases operational flexibility by removing the 15 foot restriction.

WAC 296-46B-230(11)

Rule Overview: This change provides criteria for when an emergency disconnect switch is not required.

Costs/Benefits: Unquantifiable benefit. Cost savings would derive from when the criteria are met and an emergency disconnect is not required.

WAC 296-46B-235 Branch circuits, feeders, and services over 1,000 volts ac, 1,500 volts dc nominal. (new section)

Rule Overview: Adds new language for an exception to not restrict wiring methods when proper overcurrent protection is provided.

Costs/Benefits: Unquantifiable benefit. Increases operational flexibility by providing an alternative wiring method for service conductors.

WAC 296-46B-240 Overcurrent protection.

WAC 296-46B-240(1)(b)

Rule Overview: Includes roofs in the requirement that overcurrent protection equipment enclosures be installed 24 inches above the surface.

Costs/Benefits: No new costs. There are no known rooftop units whose installation does not meet the new requirement.

WAC 296-46B-240(3), (3)(a), (3)(b), (3)(b)(i) through (3)(b)(viii)

Rule Overview: This new section outlines documentation required to assure that testing required by NEC 240.67 is performed.

Costs/Benefits: No new costs. Written records of testing are already required by the national standards.

WAC 296-46B-240(4), (4)(a) through (4)(h),

Rule Overview: This change creates a new subsection requiring documentation to assure that testing required by the NEC 240.87 is performed.

Costs/Benefits: No new costs. Written records of testing are already required by the national standards.

WAC 296-46B-250 Wiring and protection—Grounding and bonding.

WAC 296-46B-250(2)(c)

Rule Overview: This change clarifies when concrete electrode requirements apply where additions are made to existing foundations.

Costs/Benefits: No new costs. Existing services met code at the time of installation. This change clarifies that they still meet code.

WAC 296-46B-314 Wiring methods and materials- Outlet, device, pull, and junction boxes

WAC 296-46B-314(3)

Rule Overview: Adds new language to clarify the locations acceptable for the installation of ceiling-suspended (paddle) fans previously published in the April 2021 Electrical Currents Newsletter.

Costs/Benefits: No new costs. This change clarifies the locations for installing paddle fans.

WAC 296-46B-334 Wiring methods and materials- Nonmetallic-sheathed cable.

WAC 296-46B-334(7), (7)(a) through (7)(d),

Rule Overview: Increases operational flexibility by adding the allowance made by policy published in the December 2021 L&I Electrical Currents newsletter.

Costs/Benefits: No new costs. This change clarifies wet or damp locations and conditions for installing non-metallic sheath (NM) cables.

WAC 296-46B-550 Special occupancies—Mobile homes, manufactured homes and mobile home parks.

WAC 296-46B-550(2)(a)

Rule Overview: The rule change allows for mounting of service equipment on mobile/manufactured homes if approved by the manufacturer.

Costs/Benefits: No new costs. This change provides an exception for the installation of service equipment on manufactured homes.

WAC 296-46B-690 Solar photovoltaic systems.

WAC 296-46B-690(3)

Rule Overview: Clarification regarding availability of the design review defined in WAC 296-46B-100.

Costs/Benefits: No new costs. This is not a new requirement. Clarifies what "available" means for installers.

WAC 296-46B-692 Fuel cell systems. (new section)

Rule Overview: Requires installers to provide a system design review, defined in WAC 296-46B-100, at the time of inspection.

Costs/Benefits: No new costs. Installers already design systems before installation.

WAC 296-46B-694 Wind electric systems.

Rule Overview: Clarification regarding availability of the design review defined in WAC 296-46B-100.

Costs/Benefits: No new costs. This is not a new requirement. Clarifies what available means for installers.

WAC 296-46B-705 Interconnected electric power production sources.

WAC 296-46B-705(3)

Rule Overview: Requires installers to provide a copy of the system design review, defined in WAC 296-46B-100, at the time of inspection.

Costs/Benefits: No new costs. Installers already design systems before installation.

WAC 296-46B-710 Standalone systems. (new section)

Rule Overview: Requires installers to provide a copy of the system design review, defined in WAC 296-46B-100, at the time of inspection.

Costs/Benefits: No new costs. Installers already design systems before installation.

WAC 296-46B-908 Class B permits. Class B electrical work permit - Use.

WAC 296-46B-908(9)

Rule Overview: Increases the time allowed for work under a Class B permit in a one or two family residential structure from 90 days to 120 days

Costs/Benefits: Unquantifiable benefit. This change allows more time to complete installations. Reducing the necessity for buying more than one permit.

WAC 296-46B-942 Training certificate required. General.

WAC 296-46B-942(12)(c)

Rule Overview: Streamlining processes. Affidavits have been revised to remove trainee signatures, to simplify the process. The employer or apprenticeship only needs to attest to the trainee's hours.

Costs/Benefits: No costs. Eliminates the need for the trainee to sign an affidavit and allows for a designated authorized signer for the director's signature.

WAC 296-46B-942(13)

Rule Overview: Streamlining processes. Notarized signatures of training directors or their designated authorized signers is adequate for purposes of attestation of hours of experience.

Costs/Benefits: No costs. Allows for a designated authorized signer of affidavits for directors.

WAC 296-46B-960 Administrator and electrician certificate of competency examinations. General.

WAC 296-46B-960(4)(a)

Rule Overview: Removes the requirement for a notarized release to discuss matters, written opinion from a physician or other appropriate specialist is adequate.

Costs/Benefits: No costs. This change simplifies the exam process for applicants.

WAC 296-46B-960(4)(b)

Rule Overview: Aligning rule with proper order of actions necessary for approval of special accommodations request.

Costs/Benefits: No costs. Streamlines the exam process for those that request special accommodation.

WAC 296-46B-960(5)

Rule Overview: Streamlines requirements an applicant with Limit English Proficiency to request an accommodation.

Costs/Benefits: No costs. Benefits with improved clarity on the process to request an accommodation.

Repealed Rules

WAC 296-46B-406R

WAC 296-46B-440

The repeal of rules create no new cost.

CHAPTER 4: Cost-Benefit Determination

The adopted rule amendments to Chapter 296-46B WAC have been assessed for both cost and benefit impact to the affected entities and individuals.

There are no new costs associated with this rule change. There are small but unquantifiable benefits from changes in equipment and installation requirements. Given the lack of costs and the identified benefits, the benefits of this rule change outweigh the costs.

CHAPTER 5: Least Burdensome Alternative Analysis

L&I is required to determine, after considering alternative versions of the rule and the analysis required, that the rule being adopted is the least burdensome alternative for those required to comply with it that will achieve the general goals and specific objectives of the statute. RCW 34.05.328(1)(e).

The rule changes for electrical in the state of Washington are the least burdensome alternatives to achieve the general goals and specific objectives of the authorizing statute, and comply with the 2023 edition of the National Electrical Code.

Receptacle outlets on islands or peninsular countertops or work surfaces.
The rule change does not require future provisions for receptacle outlets installed on islands or peninsular countertops or work surfaces. The national electrical safety standards require future provisions when outlets are not installed. The rule change deviates from the national standards, but is the best approach because it eliminates the need to make provisions for outlets that are no longer required, which generates a cost savings for customers.

Exception to wiring methods for service conductors.
The rule change allows exceptions to wiring methods for service conductors within a building or structure when protected by customer owned supply side overcurrent protection. The rule change is the best approach because it does not restrict wiring methods for conductors that are properly protected by overcurrent devices, while generating a potential cost savings for customers.

Emergency disconnect means.
The rule change clarifies when an emergency disconnecting means must be installed if replacing existing equipment. The rule change is the best approach because it promotes replacement of equipment that may be a safety hazard.

Branch circuits, feeders, and services over 1,000 volts ac, 1,500 volts dc nominal.
The rule change allows exceptions to wiring methods for service conductors when overcurrent protection is provided. This change is the best approach as is provides an alternative wiring method for service conductors that does not pose a safety hazard.

Equipment enclosures on roofs.
The rule change clarifies the enclosure requirements for heating, ventilation, and air conditioning (HVAC) electrical equipment overcurrent protective devices that are located on a roof. The rule change is the best approach because it helps to prevent damage to enclosures by snow removal equipment.

Performance testing documentation.
The rule change establishes new requirements for performance testing documentation. The national electrical safety standards requires a written record of the testing to be available to the authority having jurisdiction. The rule change is the best approach because it provides clarity as to the criteria for written records and ensures that testing was performed according to the national electrical safety standards to protect worker and public safety.

Concrete electrode requirements for additions to existing foundations.
The rule change clarifies the requirements for connecting services to concrete electrodes when additions are made to existing foundations. The rule changes is the best approach because it clarifies that existing services having met code requirements at the time of installation, and do not need alterations because of later additions to existing foundations.

Installation locations for ceiling-suspended fan boxes.
The rule change clarifies the acceptable locations for installing ceiling-suspended fan boxes. The rule change is the best approach because it clarifies where ceiling fan boxes must be located by excluding areas that are most unlikely to ever be considered for a ceiling fan in the future. The change also provides uniformity with L&I's existing practice.

Wet and damp locations for installing non-metallic sheath cables.
The rule change clarifies what are wet and damp locations for installing non-metallic (NM) sheathed cables with certain conditions. The rule change is the best approach because it provides clarity for how or if transitions from indoor to outdoors installations can be made with non-metallic sheath cables without leaving it to individual interpretation. The change also provides uniformity with L&I's existing practice.

Service equipment installs on manufactured homes.
The rule change allows for mounting of service equipment on mobile and manufactured homes if approved by the manufacturer. The rule change is the best approach because it provides for an exception to the installation of service equipment on manufactured homes that current rule prohibits.

Design reviews for solar photovoltaic systems.
The rule change adds clarification regarding availability of the design review. The rule change is the best approach because it clarifies what the term *available* means for installers.

Design review for fuel cell systems.
The rule change requires installers to provide a system design review for fuel cell systems. The rule change is the best approach as it will likely improve conformance to code requirements intended to protect life and property.

Design review for wind electric systems.
The rule change clarifies the availability of design review. The rule change is the best approach as it clarifies what the term *available* means for installers.

Design review for interconnected electric power production sources.
The rule change requires installers to provide a system design review for interconnected electric power production sources. The rule change is the best approach as it will likely improve conformance to code requirements intended to protect life and property.

Design reviews for standalone systems.
This change creates a new section for implementing a design review requirement for standalone systems. The rule change is the best approach as it will likely improve conformance to code requirements intended to protect life and property.

Extending validity of Class B Permits.
The rule change extends the validity of a Class B permit to 120 days for one or two family residential structures. The rule change is the best approach because it allows the time necessary to complete electrical installations.

Signatures for affidavits of experience.
The rule change removes the need for a trainee to sign an affidavit of experience for proof of hours and allows for a designated authorized signer for training directors. The rule change is the best approach because it streamlines the process and reduces the regulatory burden on customers. Notarized signatures of training directors or their designated authorized signers is adequate for the purposes of attestation of hours of experience.

Special accommodations for electrical examinations.
The rule change allows special accommodations for candidates with language barriers when taking the electrician certificate of competency examination with certain conditions. The rule change is the best approach because it provides inclusion for those with language barriers and levels the playing field for all candidates for the electrical examination.