



STATE BOARD OF EQUALIZATION

1020 N STREET, SACRAMENTO, CALIFORNIA  
(P.O. BOX 942879, SACRAMENTO, CALIFORNIA 94279-0001)

(916) 445-4982

WILLIAM M. BENNETT  
First District, Kentfield

BRAD SHERMAN  
Second District, Los Angeles

ERNEST J. DRONENBURG, JR.  
Third District, San Diego

MATTHEW K. FONG  
Fourth District, Los Angeles

GRAY DAVIS  
Controller, Sacramento

BURTON W. OLIVER  
Executive Director  
No. 91/77

October 29, 1991

TO COUNTY ASSESSORS:

DRAFT OF RULE 473,  
GEOHERMAL PROPERTIES

The enclosed draft of proposed Section 473, Geothermal Properties, of Title XVIII of the California Administrative Code, was prepared by Board staff. We are now soliciting input from taxpayers and assessors prior to seeking approval to publish a draft that will begin the official rule-making process.

Your written comments will be appreciated; in addition, several meetings will be scheduled by staff with interested parties for purposes of receiving comments. We plan to schedule these meetings in the next 30 to 60 days.

Interested participants should contact Mr. Charles Knudsen at (916) 445-4982 to ensure notification regarding the meetings.

Sincerely,

A handwritten signature in cursive script that reads "Verne Walton".

Verne Walton, Chief  
Assessment Standards Division

VW:sk  
Enclosure

**Rule 473. Geothermal Properties**

(a) The provisions of this rule apply to the valuation of the rights to explore for, develop, and produce useful geothermal energy (hereafter "UGE") and the real property associated with these rights.

(b) **GENERAL**

(1) Rights to enter in or upon land for the purpose of exploration, development, or production of UGE are taxable real property interests to the extent they individually or collectively have ascertainable value.

(2) It is the right to explore, develop, and produce that is being valued and not the physical quantity of resources present on the valuation date.

(3) The unique nature of geothermal property interests requires the application of specialized appraisal techniques designed to satisfy the requirements of Article XIII, Section 1, and Article XIII A, Section 2, of the California Constitution. To this end, the valuation of such properties and other real property associated therewith shall be pursuant to the principles and procedures in this section.

(4) Notwithstanding any other provision in this section, any appropriate valuation method described in Section 3 of Title 18 of this

code may be applied in the event of a transfer of an ownership interest in the right to explore, develop, or produce a geothermal property.

**(c) DEFINITIONS**

For purposes of this section:

(1) "Geothermal energy" means heat generated by natural processes beneath the earth's surface.

(2) "Useful geothermal energy" (UGE) means the quantity of geothermal energy, excluding those losses expected in an efficient operating plant, capable of supporting the economic life of the geothermal project or geothermal projects to which it is assigned, and which geological and engineering information indicate with reasonable certainty to be recoverable in the future, taking into account reasonably projected physical and economic operating conditions.

(3) "Geothermal project" means the integrated operation involving the right to develop and/or produce UGE, the delivery systems, the using plant, and all associated supporting assets or holdings.

(4) "Exploration" means searching for and determining the location, quantity, nature, and quality of UGE.

(5) "Development" means the preparation of UGE for production after the discovery of UGE, including the process of securing the necessary approvals from government agencies and the construction of improvements and improvements to land necessary to begin the production of UGE.

(6) "Production" means the physical removal of UGE from the earth for economic purposes.

**(d) VALUATION OF GEOTHERMAL PROPERTIES PRIOR TO PRODUCTION**

(1) Exploration

The right to explore for UGE is taxable to the extent it has value separate from the rights to develop and produce any discovered UGE. The right to explore shall be valued by any appropriate method or methods as prescribed in Section (3) of Title 18 of this code taking into consideration appropriate risks; however, in no event shall the right be considered to be under construction. While the construction of structures or the physical alterations to land, e.g., access roads, fencing, drill pad preparation, drainage or water systems, land clearing, etc., during exploration constitutes assessable new construction (subject to the provisions of Section 463 of Title 18 of this code), it does not add to or diminish the value of the right to explore. Costs associated with obtaining government approval related to new construction should be considered when valuing new construction. Costs associated with obtaining government approval to operate

(e.g., expenditures for zoning variances, environmental impact studies, and operating permits) and costs of drilling and testing exploratory wells, and performing seismic surveys, shall not be considered for purposes of valuing the right to explore. These latter elements of cost may appear in the value of the right to produce when production starts. Once the base-year value of the right to explore is determined and enrolled, it shall not be changed except to reflect diminution in value from all causes as well as any increase in value resulting from the annual rate of inflation as prescribed by Section 460 of Title 18 of this code, or to reflect a change in ownership, or as provided in subdivision (f) of this rule.

(2) Development

Although the right to develop and the right to produce UGE are separate rights, the value of the right to develop is virtually unascertainable separate from the right to produce. Therefore, no separate value shall be established for the right to develop unless there is an intervening change in ownership at which time the right to develop may have an assessable value as reflected in the purchase price. Any value attributable thereto shall be deemed to be included in the base-year value of the right to produce UGE established in accordance with subsection (e) of this rule. In no event shall the right to develop or produce UGE be treated as being under construction.

Whether the construction of improvements or alteration to land during

development qualifies as new construction shall be determined by reference to Sections 463 and 463.5 of Title 18 of this code and Sections 70, 71, and 73 of the Revenue and Taxation Code.

**(e) VALUATION OF GEOTHERMAL PROPERTIES DURING PRODUCTION**

The base-year value of the right to produce UGE shall be established as of March 1, 1975, or thereafter, when such right undergoes a change in ownership or as of the date production commences. The market value of such rights is determined by valuing the estimated quantity of UGE that can reasonably be expected to be produced during the time period these rights are exercisable. The valuation of the UGE shall be based on present and reasonably projected economic conditions (e.g., capitalization rates, product prices and operating expenses, etc.) normally considered by knowledgeable and informed people engaged in operating, buying, or selling geothermal properties or marketing the production therefrom. While the assessor has full discretion to select the appropriate appraisal method, the income approach will generally be the most relevant appraisal method employed in establishing a value for the total property.

Increases in UGE that occur following commencement of production and that are caused by changed physical, technological, or economic conditions constitute additions to the right to produce which have not been assessed and which shall be assessed on the regular roll as of the lien date following the date they become UGE. The increased quantity of UGE shall be used

to established the value of the addition to the property interest, which value shall be added to the adjusted base-year value of the UGE remaining from prior years as the separate base-year value of the addition. Reductions in recoverable amounts of UGE caused by production or changed physical, technological, or economic conditions, or a change in the expectation of further production capabilities, constitute reductions in the value of the right to produce and shall correspondingly reduce value on the subsequent lien date.

(1) Value Calculation

(A) The base-year value or the adjusted base-year value of the right to produce as quantified by UGE for the current year's lien date shall be calculated as follows:

(i) Estimate the market value of the total property and estimate the physical quantity of UGE that may reasonably be expected to be consumed, excluding losses as described in (c)(2) of this section, during the time the right to produce is exercisable, using current market data. (The physical quantity of UGE may be converted to units appropriate for the project being valued, such as megawatt hours of electrical energy, British Thermal Units, pounds of steam, etc.)

(ii) Estimate the current value of UGE by segregating the value of land (other than UGE), improvements to land constructed during

the exploration, development and production stages (e.g., roads, drill pads, energy delivery systems, drainage channels, etc.), and other improvements and personal property from the unit value by an allocation based on the current market value of the component parts.

(iii) Estimate the quantity of additions to UGE by subtracting the prior year's UGE, less depletion, from the estimated current UGE.

(iv) Estimate the value of UGE removed (depletion) by multiplying the quantity of the UGE removed in the prior year by the weighted average value, for UGE only, per unit of UGE for all prior base years. The adjusted base-year value of the UGE remaining from prior years shall be found by subtracting the value of removed UGE from the prior year's adjusted base-year value.

(v) Value the additions to UGE by multiplying the quantity of UGE found in (iii) above by the current market value per unit of total UGE, calculated using the values found in (i) and (ii) above.

(vi) The current adjusted base-year value for UGE only is the value of the prior year's UGE, less the depletion calculated in (iv) above, factored for inflation as prescribed by Section 460 of Title 18 of this code, and added to the value of the new UGE, as calculated in (v) above.



(B) The base-year value or adjusted base-year value of land (other than the right to produce) and improvements for the current year's lien date shall be calculated as follows:

(i) Determine adjusted base-year value of land, improvements to land constructed during the exploration, development, and production stages (including roads, drill pads, energy delivery systems, drainage channels, etc.), and other improvements in accordance with Section 460.1 of Title 18 of this code, and Sections 51 and 110.1 of the Revenue and Taxation Code.

(ii) Add the current market value of any construction in progress on the lien date.

(C) Declines in the value of the mineral property shall be recognized when the market value of the appraisal unit (i.e., land, improvements including fixtures, and UGE) is less than the current adjusted base-year value of the same unit.

**(f) TAXABLE VALUE OF THE RIGHT TO PRODUCE MINERALS**

The value of the right to produce shall be established as of the date that production of UGE commences and the value shall be placed on the roll as provided by law. When the value of the right to produce UGE is enrolled, the roll value of the exploration or development rights shall be reduced appropriately.