

Pornchai Wongpant 2006: Appropriate Water Demand and Electric Power Charge for Crop at Electrical Pumping Station in Chaiyaphum Province. Master of Engineering (Water Resources Engineering), Major Field: Water Resources Engineering, Department of Water Resources Engineering. Thesis Advisor: Associate Professor Chaiwat Kayankarnnavy, M.Eng. 146 pages.

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Irrigation water demand for crop and electrical charge at small electric pumping station have been influence by many factors. Rainfall is one factor influence to water demand and electrical charge. The research sample consisted of 7 groups from electric pumping stations which were in rainfall station area. The research sample was selected by Thiessen Polygon Method. Effective rainfall and irrigation water demand were calculated by MWUSMO Version 5.0 Model using daily rainfall from 1971 - 2001 and planting recorded from 1996 - 2000.

Age and total head of pump is one factor important influence to electrical charge. The research sample consisted of 9 groups and selected representative electrical pumping station. Flow measurements were given the calculated efficiency of pumps and motors. To calculated electrical charge comparison with actual electrical charge from 1996 - 2001. Calculated electrical charge from rainfall station area were shown that calculated electrical charge less than actual electrical charge vary from 26 baht/hour to 422 baht/hour in rainy season and 90 baht/rai to 296 baht/rai in dry season which is the different of average electrical charge about 447 % in rainy season and 16 % in dry season respectively.

Irrigation water demand of electric pumping stations were vary from 768 m^3/rai to 1161 m^3/rai in rainy season and 1040 m^3/rai to 2967 m^3/rai in dry season. The appropriate irrigation water demand of pumping stations in Chaiyaphum Province of rice are 910 m^3/rai in rainy season and 1572 m^3/rai in dry season, fish pond 7903 m^3/rai . The appropriate electrical charges are 46 baht/hour in rainy season and 153 baht/rai in dry season ,excluding operation and maintenance cost.

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