EGS Potential Protocol에 따른 우리나라 지열발전 잠재량 산정

*송 윤호, 백 승균, 김 형찬, 이 태종

Assessment of Geothermal Power Generation Potential According to EGS Potential Protocol

*Yoonho Song, Seung-Gyun Baek, Hyoung Chan Kim, Tae Jong Lee

We have estimated power generation potential in Korea following the recently announced EGS protocol. According to the protocol, we calculated the theoretical potential first, which assumes 30 year operation, minimum temperature being surface temperature+80°C, depth range being from 3 km to 10 km. In this new assessment the in-land area was digitized by 1' by 1' blocks, which is much finer than suggestion of the protocol (5'by 5'). Thus estimated theoretical potential reaches 6,975 GWe which is 92 times of the total power generation capacity in 2010.

In the estimation of technical potential, we limited the depth range down to 6.5 km, assumed recovery factor as 0.14 and also counted for temperature drawdown factor of 10°C following the protocol. Accessible in-land area excluding steep mountains, residence and industrial region, wet area and others covers 40.7% of total area. Finally, we could come up with 19.6 GWe for technical potential, which would be 56 GWe if we do not account for the temperature drawdown factor. These are important results in that we made the first potential assessment for geothermal power generation.

Key words : Geothermal power generation(지열발전), EGS(인공 지열 저류층 생성 기술), potential (잠재량), theoretical potential(이론적 잠재량), technical potential(기술적 잠재량)

E-mail : *song@kigam.re.kr