

May 14, 2026

Erin Uloth, Forest Supervisor
Bob James, Forest Geologist

fs-comments-pacificnorthwest-mtbaker-snoqualmie-mtbaker@usda.gov

Subject: Mt. Baker Ranger District
Geothermal Consent to Lease (CTL)
Draft Environmental Assessment Request for Comments

I am responding to your May 14, 2026 solicitation for citizen input on the draft Geothermal Consent to Lease (CTL) request for exploratory drilling and subsequent development of geothermal resources in Mt. Baker Ranger District, Mount Baker-Snoqualmie National Forest. I am a firm supporter of renewable energy sources that can replace our dependence on carbon based fuels that have been shown to cause adverse global climate change. However, unlike other renewable energy sources such as solar and wind power, geothermal power generation has its own suite of environmental impacts that must be addressed in an EIS. At a minimum a draft EIS should be prepared so that potential lease purchasers know what environmental protections will likely be required before they purchase the lease so that they may decide for themselves if the risks and costs of geothermal exploration are economically justified.

It is requested that an EIS be prepared prior to the execution of any lease for geothermal prospecting.

Approximately 14-years ago, I submitted comments on a similar geothermal exploration on the Skykomish Ranger District, copies attached. Those comments are still applicable today for the currently proposed geothermal prospecting.

Specifically:

1. The USFS must inform any geothermal prospector that it will be required to install a, "closed loop system" for any geothermal energy extraction plant. This type of system is discussed in detail in my June 18, 2012 comment letter, copy attached.
2. No roads or drilling operation shall be constructed in any wilderness area, inventoried roadless area, or national recreation area.
3. IMPACTS OF WATER WITHDRAWAL FROM STREAMS MUST BE ADDRESSED.
Water extraction from local streams will be required for well drilling as well as make up water from steam lost in the condensing process in order to inject the condensed steam-water back into the ground. The EA states that these withdrawals are governed by the Washington State Department of Ecology (Ecology) under the Clean Water Act,

yet gas drilling and hydraulic fracturing of rock (Fracking) is specifically exempted from the requirements Clean Water Act by the federal Energy Policy Act of 2005 under a provision commonly known as the “Halliburton Loophole”. The EA should address the Halliburton Loophole as it relates to geothermal well drilling and exploration.

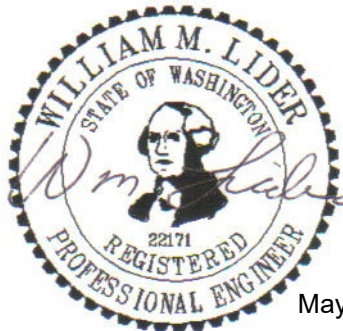
4. All drilling mud is extremely caustic and must be contained within a lined pond or pit, with a minimum thickness 25-mil HDPE pond liner. All drilling mud must be removed and the site restored to an equal condition upon completion of any drilling.
5. The EA fails to address the impacts of Fracking for both exploratory and production wells and should include a statement from Ecology as to exactly what its regulatory authority is to oversee geothermal wells on federal lands and to what extent, if any, Ecology will be involved with this project.
6. The EA and exploratory leases should specifically state that NO FRACKING will be permitted during the development of exploratory wells.
7. The EA should address exactly how much and at what time of the year water may be withdrawn from local streams without harming the stream environment. Developers spending millions on exploratory wells will put extreme pressure on the USFS and State politicians to approve stream water withdrawals for future geothermal development. This issue must be addressed in the EA.
8. For the EA to be complete, it must include a statement from Ecology as to exactly what its role will be in this project, if any.
9. The EA should be conditioned that no local water withdrawals will be permitted. All exploratory well water must be trucked from municipal water supply sources.
10. Construction of additional roads to access well drilling equipment will have significant environmental impact. Additionally road failures during frequent storm events should be evaluated in the EIS analysis which could prevent vehicular access to the geothermal area for months or years. For the first part of this project, any exploratory wells should only be constructed in the road prism of existing logging or County roads.
11. The EA should be conditioned that no new roads will be constructed as a part of the exploratory well drilling.
12. No exploratory drilling platforms or roads may be constructed on slopes steeper than 30% or S8 soils.
13. Water and steam extracted from geothermal can often contain high amounts of Sulphur compounds including Sulphur Dioxide, Hydrogen Sulfide, as well as a host of heavy metals. The Sulphur compounds combine with water to form extremely corrosive Sulfuric Acid which can corrode not only pipe casings, but the concrete used to seal annulus between the well hole and outside face of the casing pipe. In turn steam under high pressure will cause accelerated failures concrete well seals resulting in the release

of naturally occurring toxic materials as well as extremely toxic chemicals used in the Fracking process. Address how an annulus failure will be prevented in the EA.

14. The EA should be conditioned to require all exploratory and production well casing pipe be thermoplastic powder coated with an epoxy material to extend its life. Specifications for this treatment and care in transporting and handling epoxy coated pipe are available online from a number of municipal sources and its specifications included in the EA.
15. All concrete used in the drilling process should be resistant to the effects of sulfides and its mix design specifications included in the EA.
16. No exploratory wells should be drilled within 500-feet of any Class V stream or other ephemeral stream such that if there is a blowout or similar accident, that toxic materials may be contained before they enter the waters of the State.
17. The EA should contain a detailed description of the well “blow-out preventer” including actual test data on the blowout preventer’s reliability. We are all too familiar with exactly how well blowout preventer worked on British Petroleum’s Deep Horizon well in the Gulf of Mexico and we do not want to have a similar accident occurring in Beckler River, or N. Fork Skykomish River.
18. The EA should contain a Spill Control, Containment, and Countermeasures (SPCC) plan detailing how both groundwater and surface water will be protected in the event of a well failure. Spill kits should be required to be on hand for small spills.
19. Approximately 5% to 8% of a well seals will fail immediately upon installation. Furthermore, it can be anticipated that up to 50% of all well seals will fail within 20-years. Address this problem in the EA.
20. The EA should provide a detailed explanation, including remedial cleanup operations as to what actions will be taken in the event of a well seal failure.
21. Each lease holder shall be required to obtain a Ten Million Dollar (\$10,000,000.00) performance bond naming the State of Washington as additionally insured in the event of a well seal failure. In the event of a well accident, the State would be allowed to use the performance bond monies to commence immediate cleanup and remedial actions.
22. Violation of any of conditions set forth in the EA shall result in the immediate termination of any lease agreement and require restoration of the site to condition equal to the site prior to commencement of any drilling operation.
23. Lastly, I did not see any sunset window in the EA for the length of exploratory leases. Leases should not be allowed to continue for an indefinite time. All geothermal leases should revert back to the USFS at the end of five (5) years from the date of issuance, unless the well is proven to be economical and in which case the well must be developed into an energy production well within 10-years from the date of the original leases issuance.

Thank you for your consideration of these comments and I look forward to seeing your response.

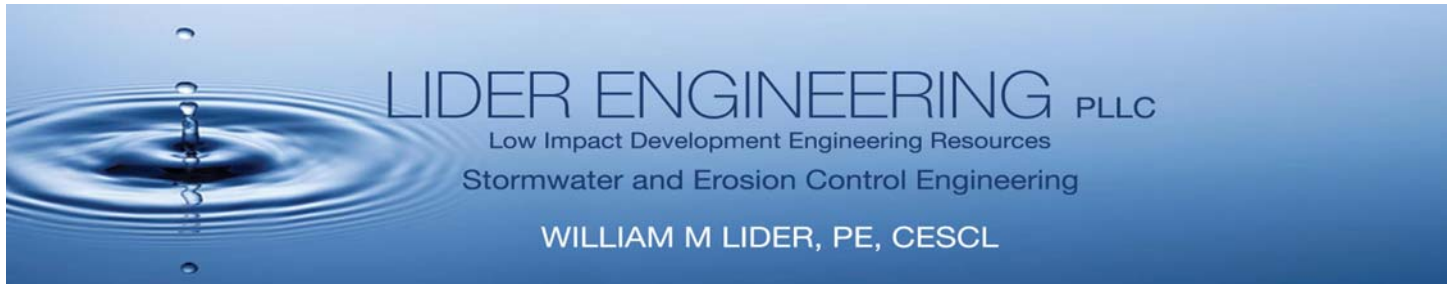
Respectfully submitted,
LIDER ENGINEERING PLLC



May 14, 2026

William Lider, PE, CESCL
Principal Engineer

Attachments: Lider Engineering Comment Letter June 18, 2012
Lider Engineering Comment Letter July 31, 2013



July 31, 2013

Jenifer Eberlien, Forest Supervisor
Mt. Baker Snoqualmie National Forest
2930 Wetmore Ave., Suite 3A
Everett, WA 98201

Subject: Skykomish Ranger District
BLM Request for Geothermal Exploration and Development
June 2013 Environmental Assessment Request for Comments

I am responding to your June 28, 2013 solicitation for citizen input on the Bureau of Land Management's (BLM) request for exploratory drilling and subsequent development of geothermal resources in Skykomish Ranger District, Mount Baker-Snoqualmie National Forest. I am a firm supporter of renewable energy sources that can replace our dependence on carbon based fuels that have been shown to cause adverse global climate change.

First, I would like to comment that I am very disappointed that you have already decided to issue a Finding of No Significant Impact (FONSI) before all the facts are in and before you have even had an opportunity to review and respond to citizen input. In the last paragraph of your June 28, 2013 letter you state that your Decision Notice (DN) will be a FONSI. So exactly what is the purpose of submitting comments if you have already decided under NEPA that a FONSI rather than a Mitigated Determination of Non-Significance (MDNS) or a Determination of Significance (DS) requiring an Environmental Impact Statement is not warranted?

Unlike other renewable energy sources such as solar and wind power, geothermal power generation has its own suite of environmental impacts that must be addressed in an EIS. At a minimum a draft EIS should be prepared so that potential lease purchasers know what environmental protections will likely be required before they purchase the lease so that they may decide for themselves if the risks and costs of geothermal exploration are economically justified. As I indicated in my June 18, 2012 comments it should be made clear to all geothermal developers that only a "closed loop" system would be allowed. I have attached a copy of my earlier comment letter for your reference.

The site proposed for the geothermal exploration and development is located in a narrow, non-wilderness road corridor inside the Wild Sky Wilderness area. This road corridor through the wilderness area varies in width of a little as ¼ mile to 3-miles in width following the Beckler River, Rapid River, and North Fork Skykomish River in the heart of the Wild Sky Wilderness Area. Construction of a major industrial facility in the heart of the Wild Sky Wilderness Area

has the potential for adverse environmental and aesthetic impacts that was never contemplated or anticipated during the inclusion of the Wild Sky into the wilderness system.

The terrain in this area is very rugged with slopes ranging from 100% to near vertical. Forest Road 65 to Jack's Pass is not ploughed in the winter and is snow bound from December through June most years. Year around, industrial use of this corridor will have adverse impacts to wildlife that rely on undisturbed low elevation habitat. These impacts must be addressed in an EIS.

The Index-Galena road was extensively damage in the floods of November 2006. The current proposal to use Emergency Relief (ER) funds to repair the remaining washed out road section violates Title 23, United States Code, Section 125 that requires projects to advance to construction obligation by the end of the second fiscal year following the year in which the disaster occurred. Currently Snohomish County does not plan to even commence construction until 2015 or 2016 or nearly 10-years after the date of the road failure. The added traffic created by the construction of a geothermal facility must be addressed in the Index-Galena Road environmental assessment and this NEPA action.

- Impacts of winter storms to drilling platform and resultant potential for soil erosion and sediment delivery to streams needs to be addressed in the EA. At a minimum a Stormwater Pollution Prevention Plan (SWPPP) should be prepared in accordance with Ecology's requirements under the 2012 *Stormwater Management Manual for Western Washington*

I believe that EA as currently written is flawed and inadequate as it does not address impact or mitigation to streams from the drilling of exploratory geothermal wells as well as future impacts from the development of geothermal resources on the environment. The EA fails to adequately address a number of significant issues:

- **IMPACTS OF WATER WITHDRAWAL FROM STREAMS MUST BE ADDRESSED.** Water extraction from local streams will be required for well drilling as well as make up water from steam lost in the condensing process in order to inject the condensed steam-water back into the ground. The EA states that these withdrawals are governed by the Washington State Department of Ecology (Ecology) under the Clean Water Act, yet gas drilling and hydraulic fracturing of rock (Fracking) is specifically exempted from the requirements Clean Water Act by the federal Energy Policy Act of 2005 under a provision commonly known as the "*Halliburton Loophole*". The EA should address the Halliburton Loophole as it relates to geothermal well drilling and exploration.
- The EA fails to address the impacts of Fracking for both exploratory and production wells and should include a statement from Ecology as to exactly what its regulatory authority is to oversee geothermal wells on federal lands and to what extent, if any, Ecology will be involved with this project.
- The EA and exploratory leases should specifically state that no Fracking will be permitted during the development of exploratory wells.

- The EA should address exactly how much and at what time of the year water may be withdrawn from local streams without harming the stream environment. Developers spending millions on exploratory wells will put extreme pressure on the USFS and State politicians to approve stream water withdrawals for future geothermal development. This issue must be addressed in the EA.
- For the EA to be complete, it must include a statement from Ecology as to exactly what its role will be in this project, if any.
- The EA should be conditioned that no local water withdrawals will be permitted. All exploratory well water must be trucked from municipal water supply sources.

Construction of additional roads to access well drilling equipment will have significant environmental impact. Additionally road failures during frequent storm events should be evaluated in the EIS analysis which could prevent vehicular access to the geothermal area for months or years. For the first part of this project, any exploratory wells should only be constructed in the road prism of existing logging or County roads.

- The EA should be conditioned that no new roads will be constructed as a part of the exploratory well drilling.
- No exploratory drilling platforms may be constructed on slopes steeper than 30%.

Water and steam extracted from geothermal can often contain high amounts of Sulphur compounds including Sulphur Dioxide, Hydrogen Sulfide, as well as a host of heavy metals. The Sulphur compounds combine with water to form extremely corrosive Sulfuric Acid which can corrode not only pipe casings, but concrete used to seal annulus between the well hole and outside face of the casing pipe. In turn steam under high pressure will cause accelerated failures concrete well seals resulting in the release of naturally occurring toxic materials as well as extremely toxic chemicals used in the Fracking process.

- The EA should be conditioned to require all exploratory and production well casing pipe be thermoplastic powder coated with an epoxy material to extend its life. Specifications for this treatment and care in transporting and handling epoxy coated pipe are available on line from a number of municipal sources and its specifications included in the EA.
- All concrete used in the drilling process should be resistant to the effects of sulfides and its mix design specifications included in the EA.
- No exploratory wells should be drilled within 500-feet of any Class V stream or other ephemeral stream such that if there is a blowout or similar accident, that toxic materials may be contained before they enter the waters of the State.
- The EA should contain a detailed description of the well “blow-out preventer” including actual test data on the blowout preventer’s reliability. We are all too familiar with exactly how well blowout preventer worked on British Petroleum’s Deep Horizon well in the Gulf of Mexico and we do not want to have a similar accident occurring in Beckler River, or N. Fork Skykomish River.

- The EA should contain a Spill Control, Containment, and Countermeasures (SPCC) plan detailing how both groundwater and surface water will be protected in the event of a well failure. Spill kits should be required to be on hand for small spills.

Approximately 5% to 8% of a well seals will fail immediately upon installation. Furthermore, it can be anticipated that up to 50% of all well seals will fail within 20-years.

- The EA should provide a detailed explanation, including remedial cleanup operations as to what actions will be taken in the event of a well seal failure.
- Each lease holders should be required to obtain a Ten Million Dollar (\$10,000,000.00) performance bond naming the State of Washington as additionally insured in the event of a well seal failure. In the event of a well accident, the State would be allowed to use the performance bond monies to commence immediate cleanup and remedial actions.

In my June 18, 2012 comment letter, I also discussed a number of different design options for extraction of geothermal steam energy. The EA should be conditioned such that should economical sources of geothermal power be discovered, that only a closed loop system will be permitted. It is very important that the USFS be clear to the geothermal lease purchasers exactly what method of steam extraction will be permitted, should exploratory wells be developed into geothermal production wells.

Lastly, I did not see any sunset window in the EA for the length of exploratory leases. Leases should not be allowed to continue for an indefinite time.

- All geothermal leases should revert back to the USFS at the end of five (5) years from the date of issuance, unless the well is proven to be economical and in which case the well must be developed into an energy production well within 10-years from the date of the original leases issuance.

Thank you for your consideration of these comments.

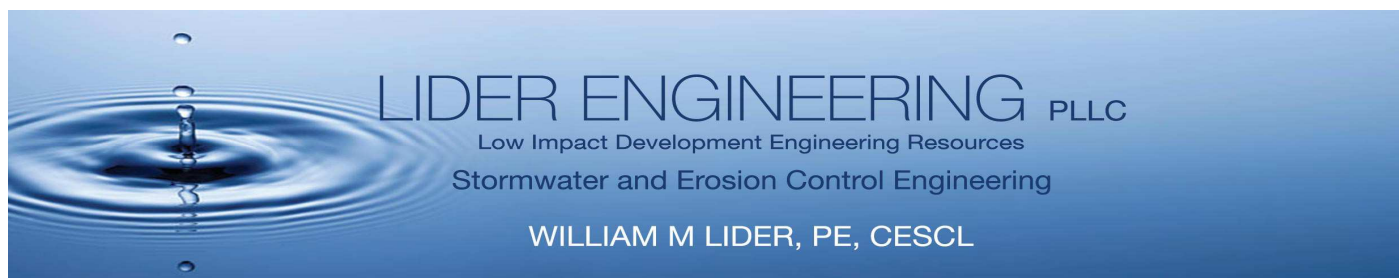
Respectfully submitted,
LIDER ENGINEERING PLLC



William Lider, PE, CESCL
Principal Engineer

cc: Todd Griffin, USFS

Attachment: Lider Engineering Comment Letter June 18, 2012



June 18, 2012

Tasha Lo Porto, Geothermal Team Leader
Mt. Baker Snoqualmie National Forest
2930 Wetmore Ave., Suite 3A
Everett, WA 98201

Subject: Skykomish Ranger District
BLM Request for Geothermal Exploration and Development
EIS Scoping Comments

I am responding to your solicitation for citizen input on the Bureau of Land Management's (BLM) request for exploratory drilling and subsequent development of geothermal resources in Skykomish Ranger District, Mount Baker-Snoqualmie National Forest. I am a firm supporter of renewable energy sources that can replace our dependence on carbon based fuels that have been shown to cause adverse global climate change.

Unlike other renewable energy sources such as solar and wind power, geothermal power generation has its own suite of environmental impacts that must be addressed in an EIS. The site proposed for the geothermal exploration and development is located in a narrow, non-wilderness road corridor inside the Wild Sky Wilderness area. This road corridor varies in width of a little as ¼ mile to 3-miles in width following the Beckler River, Rapid River, and North Fork Skykomish River in the heart of the Wild Sky Wilderness Area. Construction of a major industrial facility in the heart of the Wild Sky Wilderness Area has the potential for adverse environmental and aesthetic impacts that was never contemplated or anticipated during the inclusion of the Wild Sky into the wilderness system.

The terrain in this area is very rugged with slopes ranging from 100% to near vertical. Forest Road 65 to Jack's Pass is not ploughed in the winter and is snow bound from December through June most years. Year around, industrial use of this corridor will have adverse impacts to wildlife that rely on undisturbed low elevation habitat. These impacts must be addressed in an EIS.

The Index-Galena road was extensively damage in the floods of November 2006. The current proposal to use Emergency Relief (ER) funds to repair the remaining washed out road section violates Title 23, United States Code, Section 125 that requires projects to advance to construction obligation by the end of the second fiscal year following the year in which the disaster occurred. Currently Snohomish County does not plan to even commence construction until 2015 or 2016 or nearly 10-years after the date of the road failure. The added traffic created by the construction of a geothermal facility must be addressed in the Index –Galena Road environmental assessment and this NEPA action.

Construction of additional roads to access well drilling equipment will have significant environmental impact. Additionally road failures during frequent storm events should be evaluated in the EIS analysis which could prevent vehicular access to the geothermal area for months or years.

For the first part of this project, any exploratory wells should only be constructed in the road prism of existing logging or County roads.

The footprint of a geothermal power generation plant can be quite extensive and much more than just the well head. This includes centrifuges for removal of rock and grit that can damage turbine blades, a turbine-generator room, transformers, cooling towers, and overhead high tension transmission towers. Lined brine ponds may be required to hold overflow and spilt groundwater that may contain many hazardous metals and chemicals such as lead, mercury, arsenic, cadmium, hydrogen sulfide, and methane that could potentially sterilize the rivers downstream of any plant. Disposal of toxic sludge removed by the centrifuges or collected in brine ponds create hazardous waste disposal issues.

Even a modest 5-megawatt generation facility will require four to five acres of land. Finding land suitable for such a facility will be difficult in the Beckler River drainage basin close to the geothermal source will be difficult without massive excavations.

Up to 75% of the groundwater extracted could be lost as steam in the cooling towers. This could result in a requirement to take water from the local streams or rivers that could be detrimental to fish, particularly during summer and fall low flow periods. No stream water should be withdrawn if it will damage the aquatic environment or local fish populations. Impacts to streams and groundwater must be addressed as a part of this NEPA process.

There are a number of different methods to extract geothermal energy from the ground; some are much more damaging than others. For instance, injection wells are used to return some of the extracted groundwater. To do this, separate wells must be installed that often require hydraulic fracturing of the rock, commonly referred to as "Fracking." This can cause increased seismic activity, earthquakes, and has the potential to contaminate both groundwater and surface water.

Any permit requesting the use of Fracking techniques should be denied.

Geothermal power generation designs include:

- Direct-Steam Geothermal Power Plant
- Flash Steam Geothermal Power Plant
- Binary-Cycle Geothermal Power Plant

A simple schematic example of a typical direct-steam geothermal power plant is shown in Figure 1 to illustrate heat transfer for power generation. All three of the foregoing named geothermal power plants require the extraction of hot water out of the ground and injection of

either return chilled water or introduction of make-up water taken from local streams. As the extracted hot water can be chemically hazardous any surface or near surface leak will be immediately detrimental to the environment.

Additionally traditional power generation requires massive amounts of local fresh water that is evaporated as steam and will be visible for many miles in the cold mountain air. Cooling towers also require the extraction of massive amounts of fresh water from local streams as there are no municipal water supplies in this area.

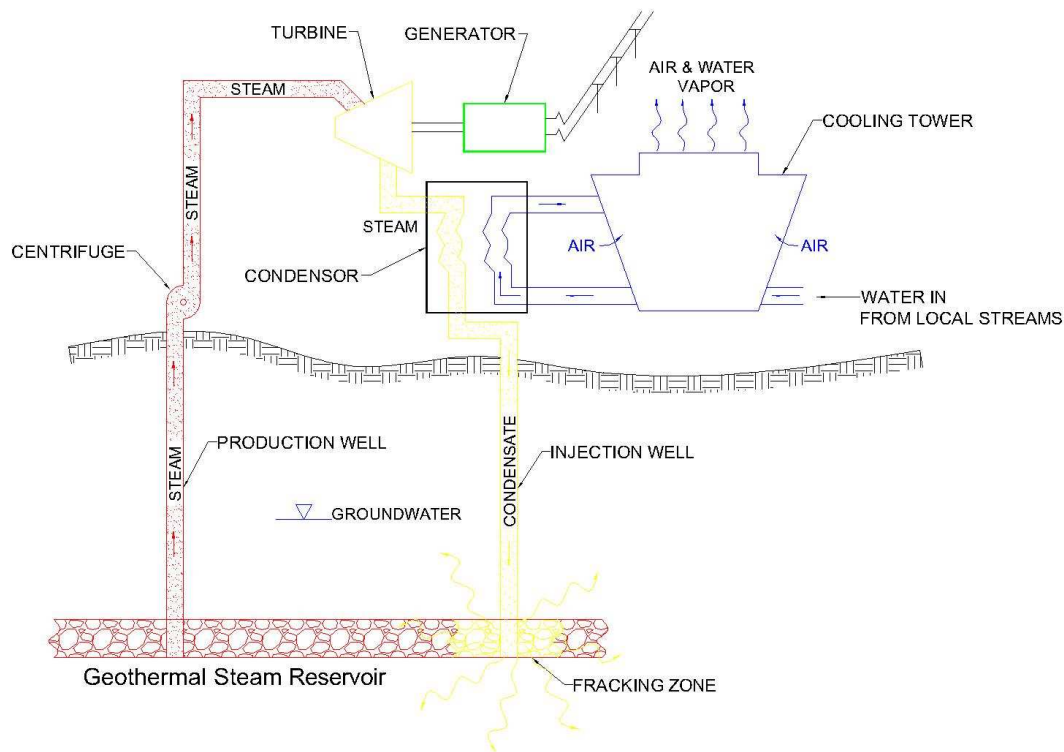


Figure 1: Typical geothermal power generation facility simple schematic. Flash Steam Geothermal Power Plants and Binary-Cycle Geothermal Power Plant are similar in operation in that they both require the extraction of water in the form steam from hot rocks and injection of cooled water back into the hot rock formation. All of the aforementioned systems require massive cooling towers that in turn require extensive water extraction from local streams or groundwater sources with adverse impacts that must be addressed in the EIS.

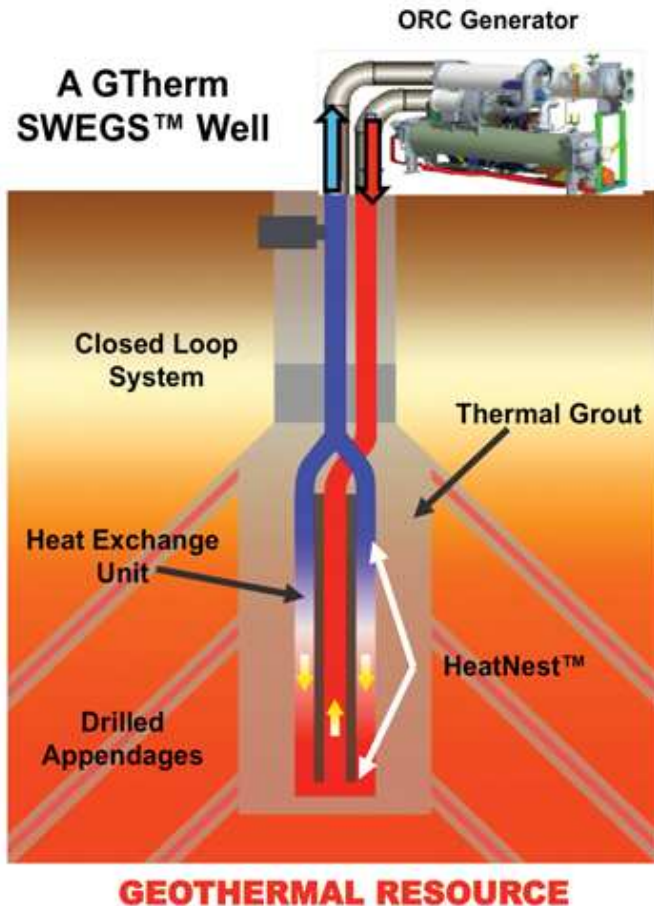


Figure 2: GTherm Single Well Energy Generation System (SWEGS)

As an alternative to the traditional geothermal heat extraction and electrical power generation, only low impact closed-loop heat extraction should be used, such as the GTherm, Inc Single Well Energy Generation System (SWEGS) as shown in Figure 2.

GTherm's proprietary "closed loop" technology allows for the mining of geothermal heat from hot dry rock (HDR). GTherm SWEGS eliminates the need for hydraulic fracking and the need to drill injection and production wells. SWEGS is based on a unique HeatNest™ which integrates a down-hole heat exchanger with heat harvesting appendages and a specialized high thermal conductivity grout to maximize heat transfer from the geothermal resource. The heat transfer fluid is pumped down hole through the HeatNest and back to the surface where it is converted into electricity by either a standard binary-cycle generator or an alternative low-temperature generator depending on the thermal resource temperature.

The advantage of the GTherm system is that after well construction, potentially hazardous materials are not brought to the surface and cooling towers that rob water from local streams and create huge steam plumes that are visible for miles are not required.

Additional information on the GTherm process is available at their website at:

<http://www.gtherm.net>

Only closed loop, single wells should be allowed in this area due to its close proximity to the Wild Sky Wilderness Area and should be evaluated as a part of the EIS.

Overhead power transmission lines will require clearing trees in a swath approximately 300' to 400' wide to avoid limb and tree blow down that could damage overhead power lines and disrupt electrical transmission. Visual impacts from overhead power lines and perpetual loss of trees required for clearing a swath for over overhead power lines must be addressed in the EIS.

To help mitigate for visual impacts of the industrial development in road corridor through the Wild Sky Wilderness Area, all electrical transmission lines should be installed underground in existing roadways for at least 3-miles south of the main body of the Wild Sky Wilderness Area.

Please include the number and exact location of all proposed exploratory wells by quarter-quarter section, Township & Range on a map at scale of not greater than 1:24,000. Show the locations of all proposed power generation plants, cooling towers, etc. and their proximity to the Wild Sky Wilderness boundary.

Please provide a full economic analysis for this project as a part of the EIS which should include:

- Cost of construction improvements to transform the roads in this area to all weather roads suitable for the transportation of heavy, large industrial equipment;
- Cost of year around maintenance, including snow removal;
- Cost of water extraction from streams and damage to fisheries;
- Cost of impacts to wildlife; and
- Cost of steam generation plant versus megawatts of electricity produced.

At this point, I neither support nor oppose this endeavor, pending additional environmental studies and disclosure of specific impacts and proposed remedial mitigation.

Thank you for your consideration of these comments.

Respectfully submitted,
LIDER ENGINEERING PLLC



William Lider, PE, CESCL
Principal Engineer