



A Research Observatory for a Sustainable Future



Newberry Geothermal Energy

Establishment of the Frontier Observatory for Research in Geothermal Energy (FORGE) at Newberry Volcano, Oregon



Appendix H

Stakeholder Engagement Status Update

April 27, 2016



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Acronyms and Abbreviations

BADGES	Building a Diverse Geothermal Energy Sector
BLM	Bureau of Land Management
DOE	U.S. Department of Energy
DOGAMI	(Oregon) Department of Geology and Mineral Industries
EGS	enhanced geothermal system(s)
FORGE	Frontier Observatory for Research in Geothermal Energy
GTO	(DOE's) Geothermal Technologies Office
NEGSD	Newberry Enhanced Geothermal Systems Demonstration
NEWGEN	Newberry Geothermal Energy
OSU	Oregon State University
PNNL	Pacific Northwest National Laboratory
R&D	research and development
SubTER	Subsurface Energy Technology Research Development and Demonstration Crosscut
USFS	United States Forest Service

Appendix H

Stakeholder Engagement Status Update

H.1 Summary

Newberry Geothermal Energy (NEWGEN) benefits from a long history of strong stakeholder engagement, cooperation, and participation with geothermal development companies and previous site operators through more than 40 years of intensive characterization and exploration at Oregon’s Newberry Volcano (as represented in Figure H.1). Over the last decade, AltaRock Energy, Inc. (AltaRock; now a NEWGEN Core Consortium member and lease holder for the NEWGEN Frontier Observatory for Research in Geothermal Energy [FORGE] site) has developed excellent working relationships with the local community, as well as state and federal stakeholders. Since commencement of Phase 1 of the project, the NEWGEN team has been conducting extensive outreach efforts to secure strong stakeholder commitment and the support necessary to establish a dedicated Enhanced Geothermal Systems (EGS) field laboratory at the proposed NEWGEN FORGE site. A key element of this effort has been working with stakeholders to ensure they understand the dramatic difference in scale, focus, and research objectives between the previous Newberry Enhanced Geothermal Systems Demonstration (NEGSD) at Newberry Volcano and the NEWGEN FORGE project.

Key attributes of the NEWGEN FORGE site that have enabled this level of outreach are its proximity to urban areas and its ease of site access without security restrictions that limit public outreach and site tours. Over the last few months, several local and regional stakeholders have been able to tour the site and learn about the scientific and social benefits of establishing the proposed FORGE at the NEWGEN site. Additionally, NEWGEN staff have hosted or attended more than 40 meetings over the last 7 months to discuss the merits of the NEWGEN FORGE project with local, state, and national stakeholders. These wide-ranging stakeholder engagement activities have resulted in an unprecedented level of support for the project, as is evidenced by numerous letters of support included as part of the Phase 2 renewal application.

As the NEWGEN FORGE project progresses, the NEWGEN team will further enhance their stakeholder engagement activities by developing a Stakeholders Advisory Board during Phase 2C of the project. The Board, consisting of representatives from local, regional, and national stakeholder organizations, will provide feedback related to the project and proposed activities at the NEWGEN FORGE site. This will facilitate stakeholder support at critical stages during the project, and will lead to more efficient execution of new technology testing at the NEWGEN FORGE site.

H.2 Stakeholder Engagement Approach

NEWGEN stakeholder engagement efforts have followed a three-tiered approach focused on local, regional, or national/international outreach (Figure H.2). Consistent with the NEWGEN FORGE Communications and Outreach Plan (Appendix G), the focus and messages for each of these tiers have been specifically tailored to address the key questions, concerns, and needs of each group. For example, local citizens need to understand that the project will not negatively affect the environment and that activities will comply with all environmental permits held by the project. Regional stakeholders benefit from understanding that Oregon and the Pacific Northwest offer some of the greatest potential for geothermal energy in the United States, and that a successful NEWGEN FORGE demonstration at Newberry Volcano could lead the way to develop EGS along the Cascade volcanic arc. National and international stakeholders are interested in understanding how this project paves the way for EGS to become a carbon-free baseload energy alternative to fossil fuels.

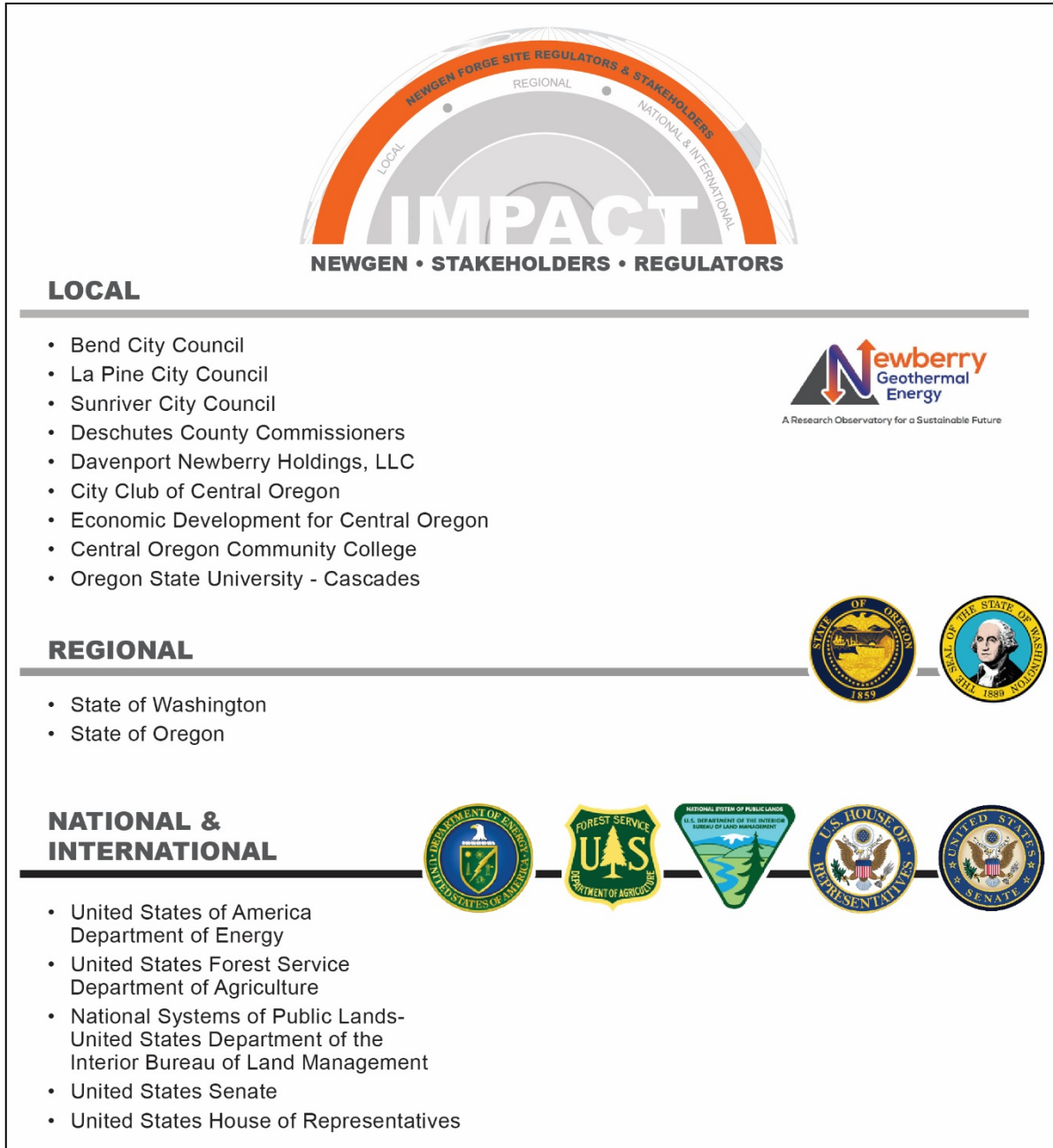
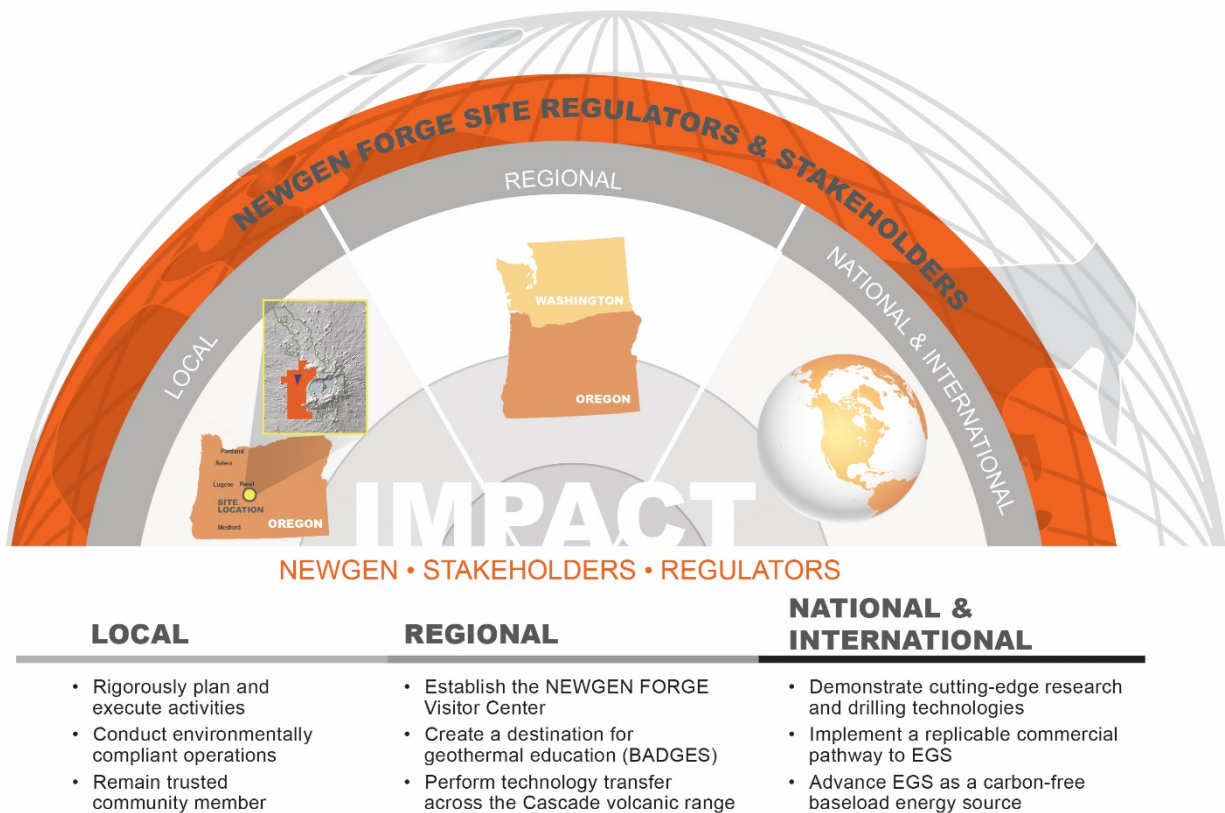


Figure H.1. NEWGEN FORGE site stakeholders and regulators.

The goal of these efforts has been to engage the public and secure strong and unilateral support for establishing the NEWGEN FORGE at the Newberry Volcano site. The majority of this outreach has been accomplished via face-to-face meetings between NEWGEN staff and the various stakeholders. The following sections contain detailed information about

- activities and progress in developing stakeholder relationships during Phase 1;
- lessons learned in forming agreements, communicating with stakeholders, navigating legal requirements, and other relevant engagements; and
- letters of project support from local, regional, and national stakeholders.



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Figure H.2. NEWGEN FORGE project approach to outreach.

H.3 Stakeholder Engagement Update

The NEWGEN FORGE site has a rich foundation of strong stakeholder support owing to the decades of EGS characterization and exploration conducted at the site, and more recently, due to the NEGSD project funded by the U.S. Department of Energy (DOE) and led by AltaRock. For example, the local communities were key participants in the previous EGS stimulation at the Newberry Volcano; therefore, the NEWGEN FORGE site already enjoys strong support for geothermal development and EGS.

Additionally, Oregon State University (OSU) has strong and growing ties to local communities, including a planned visitor center and an OSU-Cascades branch campus to incorporate FORGE research and development activities. The NEWGEN team was able to capitalize on these prior efforts to build advocacy for establishing the NEWGEN FORGE site, including its extensive site infrastructure, as the premier candidate site. The continuing engagement with key stakeholder groups (DOE and Geothermal Technologies Office [GTO], geothermal scientists and engineers, geothermal industry, local community and government, educational institutions, and science attentive public) and state and federal regulatory agencies (the United States Forest Service [USFS], the Bureau of Land Management [BLM], and the Oregon Department of Geology and Mining Industries [DOGAMI]) has been facilitated through face-to-face meetings, national conferences (e.g., the Stanford Geothermal Workshop), videoconferences, teleconferences, and site visits.

Key engagement activities from Phase 1 have included the following:

- Project Kickoff Meeting – The NEWGEN team hosted the NEWGEN FORGE project kickoff meeting at the USFS Deschutes National Forest Supervisor's Office in Bend, Oregon, on September

14, 2016 (Figure H.3). Participants included representatives from the DOE GTO, the National Energy Technology Laboratory, Pacific Northwest National Laboratory, AltaRock, OSU, General Electric Global Research, Statoil, Blade Energy Partners, BLM, DOGAMI, the USFS, OSU-Cascades, and the University of Oregon.

- Site Visits – The NEWGEN team hosted several site visits that included participants from the DOE (Figure H.4), BLM, USFS, DOGAMI, Oregon and Federal Congressional representatives, local community leaders, regional universities (Figure H.5), media (Figure H.6), and international collaborators. These visits were coordinated to directly engage these stakeholders and discuss the benefits of establishing FORGE at Newberry Volcano, highlight the significant technical differences between the previous NEGSD project and NEWGEN FORGE project, and discuss and promote the overall objectives of FORGE.



Figure H.3. NEWGEN FORGE project kickoff meeting held at the USFS Deschutes National Forest Supervisor's Office in Bend, Oregon.



Figure H.4. NEWGEN FORGE project kickoff meeting site tour.



Figure H.5. NEWGEN FORGE site visit for a group of graduate students from the Oregon State University Cascades campus.



Figure H.6. Site tour for a reporter from the Geothermal Research Council.

- Extended Consortium – Established the Extended Consortium team to secure key research competencies not filled by the Core Consortium. Extended Consortium team members include prominent researchers from the National Laboratory system, academia, and industry.
- National Conferences – Several members of the NEWGEN team attended the 2016 Stanford Geothermal Workshop and presented four papers highlighting technical attributes of the NEWGEN FORGE site.
- Face-to-Face Meetings – More than 40 meetings were held with local, regional, and national stakeholders to promote establishing FORGE at Newberry Volcano, answer questions, address concerns, and secure letters of support for the project.
- Regular Reports – The NEWGEN team has shared quarterly status reports with the USFS, DOGAMI, and the BLM. Additionally, NEWGEN has worked with the BLM and USFS to discuss modifications needed for existing site permits (Appendix E), as well as any new National Environmental Policy Act permitting activities (e.g., Environmental Assessments), that will be required as part of Phase 2A.
- Electronic Media – The NEWGEN team established a website ([NEWGEN FORGE](#)) and social media accounts (e.g., Facebook and Twitter) that were routinely used to provide real-time updates of project accomplishments, promote upcoming meetings, and establish a communication portal for receiving feedback and answering questions.
- Paper Media – A four-page brochure developed by the NEWGEN team has been widely distributed to the stakeholder community (local, regional, and national) and prospective NEWGEN FORGE partners. This high-quality brochure succinctly describes the potential for geothermal energy, the process of developing EGS, and unique attributes of the NEWGEN FORGE project and how it helps support development of energy for a sustainable future.
- NEWGEN FORGE video – The NEWGEN team created an informational video to highlight FORGE, discuss the specific attributes of the NEWGEN FORGE site, and promote the development of EGS. The video is hosted on YouTube, but can be accessed via the NEWGEN FORGE website.
- BADGES – The NEWGEN team is committed to addressing shortfalls in participation in Science, Technology, Engineering, and Mathematics fields by members of groups traditionally underrepresented in these fields, which is both a systemic issue, and one that affects the geothermal industry and research and development (R&D) community. The NEWGEN team has begun discussing a potential FORGE Program task entitled Building a Diverse Geothermal Energy Sector (BADGES) to identify and nurture a cohort of talented undergraduate students who might not be aware of the career potential of the EGS sector, or of geothermal energy in general. Oregon State University is supportive of hosting the BADGES Program. If implemented, OSU will work closely with the partner academic institutions within NEWGEN, as well as with local community colleges and with the OSU-Cascades Campus, to identify promising undergraduates from groups traditionally underrepresented in the geothermal industry, and to link them with academic, industry and national laboratory mentors.
- Leveraged Research – Initiated dialogs with Principal Investigators conducting research under existing DOE GTO projects, as well as the GTO- and Fossil Energy-funded research projects within the Subsurface Energy Technology Research Development and Demonstration Crosscut (SubTER), to better understand the type of infrastructure that will be required at the NEWGEN FORGE site to demonstrate emerging technologies.
- Legislative Support – The Oregon Legislative Assembly unanimously passed House Joint Memorial 19, which urges the Secretary of Energy and the United States Congress to support selection of Newberry Volcano as the site for FORGE.

Collectively, this extensive and diverse set of stakeholder engagement activities has achieved an unprecedented level of support for implementing FORGE at Newberry Volcano.

H.4 Lessons Learned

The key to the success of the NEWGEN FORGE Phase 1 outreach program has been its proactive approach and transparency, which have allowed the NEWGEN team to build strong, positive relationships with various stakeholders based on a foundation of trust. This has been achieved through consistent contact, honest dialog, and open and objective discussions. Perhaps the best lesson learned from the local community was the need to communicate how the NEWGEN FORGE project is different from other research projects performed at Newberry Volcano, and particularly, the recent NEGSD project led by AltaRock. As an R&D field laboratory, the NEWGEN FORGE will enable researchers to demonstrate new and innovative technologies that are sure to include novel stimulation techniques and working fluids. Previous stakeholder outreach efforts have shown that the composition of fluids and chemicals injected into the subsurface is one of the most polarizing issues among the various stakeholders. Therefore, significant effort was expended during Phase 1 to communicate the objective to demonstrate cutting-edge research, including permeability manipulation, at the NEWGEN FORGE site during Phase 3. This transparent approach to communication has allowed the NEWGEN project team members to maintain their strong and trusted standing within the local community, and is positioning the project for success in future phases.

Multiple members of the NEWGEN Directorate have previous experience leading large-scale field demonstration projects both within the geothermal sector (e.g., the NEGSD project) and in other complementary sectors (e.g., FutureGen 2.0 in support of the DOE's Fossil Energy Office). Collectively, these experiences have served to highlight the need for and importance of formalized stakeholder involvement to ensure project success. NEWGEN Directorate engagement with the relevant site permitting agencies (BLM and USFS), and with state and federal governments, will be critically important to maintaining permits during all phases of the NEWGEN FORGE project, from inception through operation. Ongoing engagement will secure continued goodwill with the Oregon legislative and executive branches and provide information to the federal government that will assist with budgetary and policy decisions. Therefore, during Phase 2C the NEWGEN team will establish a Stakeholders Advisory Board, which will consist of representatives from local, regional, and national stakeholder organizations. The Board will serve as a sounding board for the NEWGEN Directorate, review quarterly reports, and advise the Directorate on proposed operating plans in the context of site and unit permit requirements. This will facilitate stakeholder support at critical stages during the project, and will lead to more efficient execution of new technology testing at the NEWGEN FORGE site.

While the primary focus of this appendix has been a retrospective look at stakeholder engagement activities performed during Phase 1 by the NEWGEN team, it is anticipated that this appendix will serve as a "living document" to track both the progress of the NEWGEN FORGE outreach program (Appendix G) and the means by which each stakeholder has been engaged. Relevant lessons learned will continue to be captured and shared with the scientific community as the NEWGEN FORGE team works with GTO to facilitate the testing and demonstration of novel technologies at the NEWGEN FORGE site and promote the development of EGS as a viable baseload energy source.

H.5 Stakeholder Letters of Support

The NEWGEN FORGE project has achieved an unprecedented level of support for implementing FORGE at Newberry Volcano, as documented via the extensive set of letters of support from local, state, and national stakeholders provided within the Project Management Plan.