Burning Man Project: 2030 Environmental Sustainability Roadmap

It's time to rally the significant intellectual, creative, and financial resources of the Burning Man community to develop, proliferate, and scale environmental sustainability solutions.

Burning Man Project
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In 2016, the nonprofit Burning Man Project purchased the 3,800-acre Fly Ranch property, which now serves as a year-round platform for Burning Man-inspired projects and ideas. Photo by George Post.

1) Introduction

The TL;DR version: *Burning Man Project is beginning an open-source approach to become carbon negative, sustainably manage waste, and be ecologically regenerative by 2030. To get involved and stay informed, go here.*

From its humble beginnings on San Francisco's Baker Beach in 1986 to a worldwide network of dreamers, thinkers, and doers, Burning Man has evolved into a cultural leader and changemaker. Today nearly 80,000 makers, educators, creatives, and people from every imaginable field gather annually to co-create Black Rock City, Burning Man's largest convening. Tens of thousands more go to the 90 Burning Man regional events held around the world, and hundreds of thousands participate in events and activities inspired by Burning Man. The nonprofit Burning Man Project supports programs like Fly Ranch, which is becoming a year-round platform for the ingenuity of the Burning Man community, and Burners Without Borders, whose chapters organize relief projects and work to make communities more resilient. All in all, it's fair to say Burning Man has affected *millions* of people.

Through all of this, we strive to respect the environment and are committed to values such as Pack it In Pack It Out and Leave No Trace. The LNT Principle describes our expectations for ourselves and the environment:

> The Burning Man community respects the environment. We are committed to leaving no physical trace of our activities wherever we gather. We clean up after ourselves and endeavor, whenever possible, to leave such places in a better state than when we found them.

Black Rock City is the largest "Leave No Trace" event in the world. As an output from our cultural commitment, at our gatherings you'll typically find recycling, composting, and renewable energy. Through coordinated planning, participants have reduced traffic footprint with busses and carpools. Participants manage their own trash and carry their own cups. Burners go to great lengths to minimize their impact after events locally and around the world. But despite our best intentions, Burning Man events, offices, and properties, like the rest of modern society, produce emissions, contribute to landfills, cause pollution, and sometimes negatively impact the land and the environment.

We're in the midst of a global climate crisis. The United Nations estimates that a million species are at risk of extinction. The United States Geological Survey predicts an increase in natural disasters. Half the coral in the Great Barrier Reef has died since 2016.

NASA, the UN, and others have concluded that climate change is real and that human activities are the main cause. This is not an open question. A 2004 paper in Science noted that "all major scientific bodies in the United States whose members' expertise bears directly on the matter have issued similar statements."

According to the UN Intergovernmental Panel on Climate Change, we have just **12 years** to make substantial changes to our way of life or the global temperature will rise above the 1.5°C (2.7°F) level of warming the planet can sustain. To avoid the disastrous ecological consequences of reaching 2°C (3.6˚ F)of warming we will need to get net-zero greenhouse gas emissions by the middle of the century. This will require a swift and massive cut in emissions.

Billion tonnes CO₂ per year (GtCO₂/yr)

CO₂ emissions decline from 2020 to reach net zero in 2055 or 2040
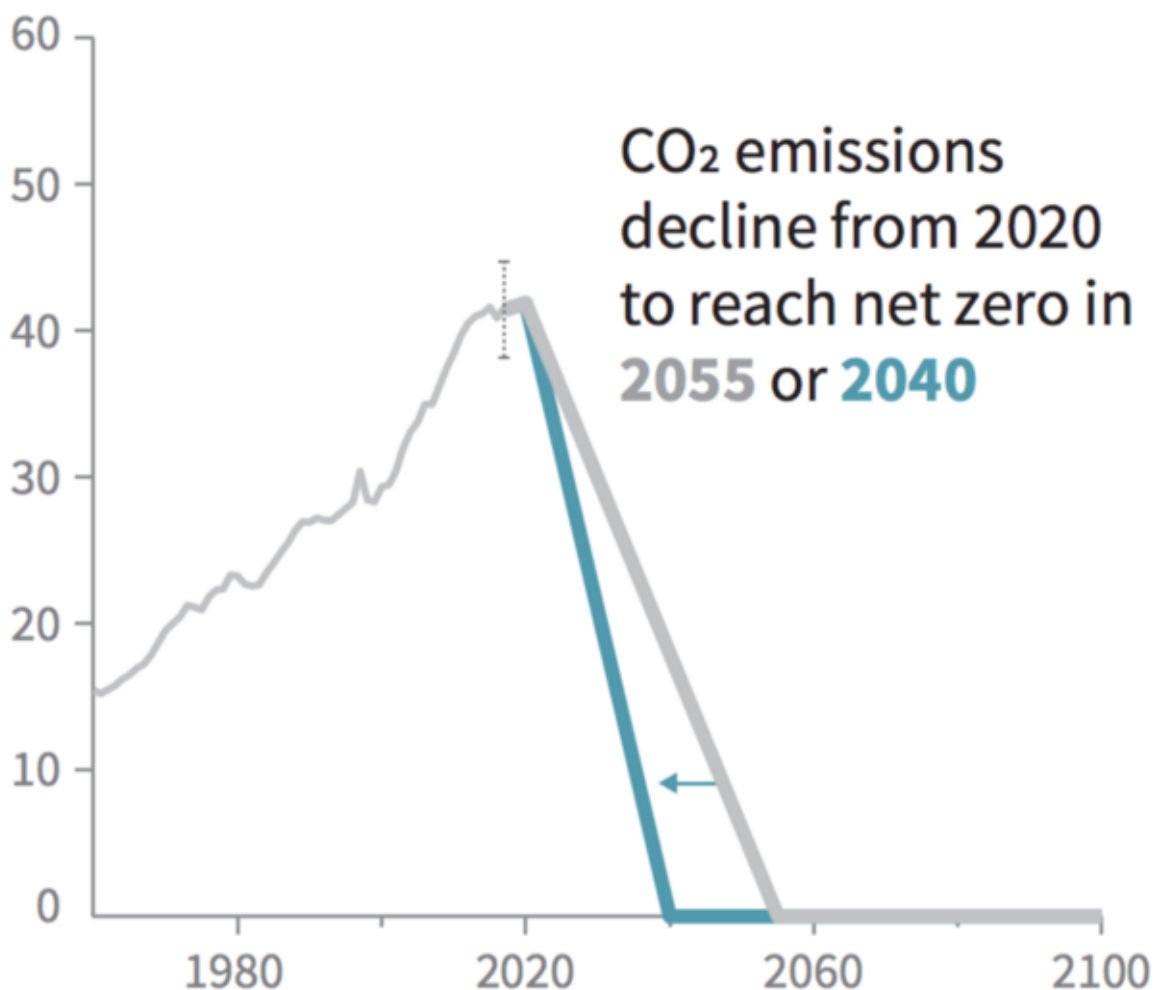
Faced with the real and timely risks climate change presents for our planet, we have a responsibility to act. Given the global reach, scale, and unique capacity of the Burning Man community, we could be a change-maker. Even if we can't solve the problem globally, or we fail in our efforts, we have to try. In this moment of crisis it isn't enough to be carbon neutral or sustainable. We need to do more. So, we're setting an ambitious vision for revolutionizing our community and our operations. The scope of the environmental sustainability roadmap below is massive. It will only work with a combined effort on all fronts from everyone.

What follows are five sections that outline a draft sustainability plan. It is important to say what this document is and is not. It is meant to set the direction for the community and its impact on the environment. It is not a final plan. It is not a finite timeline. Yet.

- Section 2 lists three goals.

- Section 3 outlines three phases of a 10-year roadmap.

- Section 4 discusses four areas for additional research.

- Section 5 offers concluding thoughts.

- Section 6 is an appendix with a table showing impact areas, issues, solutions, and lists contributors.

2) Three Goals

Although Burning Man makes every effort to lessen our impact on the environment, we see several critical opportunities to improve. As is, it's enormously challenging to be an ecologically responsible person, much less an event or city. Most municipalities use landfills. Waste filtration systems often expel pollutants into waterways. Food and water are sourced using destructive means. Many goods are manufactured to be thrown away. Transportation is based on fossil fuel. Infrastructure uses bad materials.

Events, cities, and projects often negatively impact the earth. When people travel, build, and gather, we consume resources, create emissions, and accelerate erosion, each of which can contribute to desertification.

We can't just alter our current system; we need to create a new one. Over the next few years we'll build capacity, leverage the resources of our community, and attempt to create a paradigm shift. We are using measurable goals that fit in the form: "move x from y to z." This framework allows us to track progress and determine if we have

succeeded. A 10-year timeline allows for an evolving experimental process, rather than attempting an overnight revolution. We may adjust course and modify goals as we learn, but this is the direction we're heading.

1) No Matter Out of Place. Handle waste ecologically. (2–4 years)

Our goal is to eliminate all non-sustainable waste streams from Burning Man events and operations. When we co-create gatherings anywhere in the world, we should observe Leave No Trace as we prepare for the event, during the event, on the way home, and in the way we ultimately dispose of our waste. This is Radical Self-Reliance and Civic Responsibility. We need to encourage both upstream and downstream solutions to make landfills obsolete. Downstream, this may involve continuing to build facilities, such as waste-to-energy or recycling. Upstream, if we don't buy or bring stuff to events that would eventually become trash or go into a landfill, we will solve this issue. Put simply: buying less and buying more carefully will make for less waste.

2) Be Regenerative. Create a net positive ecological and environmental impact. (5–8 years)

Burning Man can prototype solutions that enable our species to become a regenerative force for the planet. By the end of the next decade, we aim for it to be better for the ecology of Earth for Burning Man to exist than to not exist. There isn't a model for regeneration. We'll involve a wide scope of experts as we measure and define this goal.

3) Be Carbon Negative. Remove more carbon from the environment than we put into it. (8+ years)

Mitigating greenhouse gas emissions and being regenerative will not be enough to address climate change. Creating negative emissions through carbon drawdown is the third pillar of a sustainable carbon cycle. The carbon footprint for Black Rock City is likely around 100K tons. This is based on estimates from Black Rock Labs scaling the 2007 Cooling Man model to consider current population. Becoming carbon negative in the next 10 years is an ambitious stretch goal. Traditional offsets and renewables deployment cannot be the sole strategy. There is an emerging constellation of drawdown techniques (e.g., planting mangroves, removing carbon-dioxide from the air, sequestering carbon in rocks). The technology is rapidly scaling as the production costs for facilities and development falls exponentially. We intend to use multiple projects and approaches to prototype solutions towards this goal.

3) Three Phases

There is no silver bullet or quick fix. Transitioning to sustainable offices, events, and property management will take years. We can learn from organizations that are already sustainable in their supply chains, energy, manufacturing, waste, and more. As you can see from their sustainability reports, Apple, Shambala, and Google are carbon neutral or heading there. The Buddhist Kingdom of Bhutan is carbon negative.

1) Measure and Reduce Impacts, Consider Offsets, Test Pilot Projects (1–2 years)

- **Emissions inventory.** Black Rock Labs will be leading an emissions inventory over the next year. We will need to be very clear about how we use sustainability metrics and possible offsets, as there are numerous weak and misguided emissions and offset inventories in the world. The framework for quantifying negative emissions will be key. *For example*: how will we count planting trees towards carbon sequestration? How about selling solar to a community that would otherwise use a natural gas peaker plant? How about subsidizing the use of regenerative agricultural practices that avoid the use of synthetic fertilizer?

- **Laying the groundwork.** We will begin to work with staff, artists, camps, participants, outside service providers, and infrastructure vendors to sustainably manage our waste, pollution, and resources. We will host a series of sustainability gatherings to kick this off with the community in Black Rock City, at Fly Ranch, and elsewhere. We will orient the Fly Ranch design challenge around these goals. We will support decentralized teams and the efforts of green camps and projects.

2) Offset Emissions by Purchasing Credits (2–3 years)

- **Effective offsets.** An effective offset program must sequester atmospheric carbon and consider the slow carbon pool. Carbon takes millions of years to cycle between rocks, soil, ocean, and atmosphere. Offsets can be part of the solution, but will not be all of the solution. We've experimented with standard offsets before. In 2017 and 2018 Burning Man Project promoted a carbon offset program led by Black Rock Labs and IDEATE. Kiwiburn uses offsets.

- **Stimulating a market.** Offsets have noble aspirations but can be confusing, though some organizations do offsets at scale. As far as we know, right now there isn't an effective offset we could buy into that is sufficient for our scope. As solutions emerge we will identify and highlight resources and producers based on their best practices. By identifying this as our goal and identifying our scope, we hope a market of legitimate offsets will emerge. Black Rock Labs has identified these four

criteria:

- **Legitimate**. Must be permanent, surplus (additional), and enforceable.
- **Co-benefits**. E.g., reforestation involves carbon, habitat, and water.
- **Scalable**. Offsets can be scaled to meet demand.
- **Impactful**. Offsets influence other offset providers to be more innovative.

- **Burn emissions.** Burning art creates atmospheric pollution. There are valuable lessons in impermanence that come with creating and burning art. We have to acknowledge that the release of these emissions is of concern. In addition to encouraging artists to consider alternatives to burning and to imagine a life for their work beyond a specific Burning Man event, we are putting a call out to the community to help us find a way to mitigate emissions, and to be thoughtful and intentional about how/when/where and why we burn art.

3) Become Regenerative (4–10 years)

- **Multipronged approach.** In this stage we will work to end our contributions to landfills and non-regenerative systems. For example, we could produce solar, wind, and geothermal energy. We could produce water. Through hydroponics, aquaponics, and aeroponics we can grow food on the 3,800 acres we own at Fly Ranch and on the 360 acres Burning Man Project owns on the edge of Gerlach. The most impactful changes we can make will come from producing our own power, ending the use of fossil fuels, and participating in an offset program that sequesters atmospheric carbon. Together, these changes will allow us to move from being carbon positive to becoming carbon neutral, with the end goal of becoming carbon negative.

- **Timeline.** Larger sustainable infrastructure projects that involve industrial-scale facilities (e.g., solar, recycling, water, wind, geothermal, etc.) will take a few years to plan, secure partnerships and capital, and get permits. Then probably 2–4 years to build. This is industry-standard. The Solar Energy Industries Association benchmarks six years to build a large solar facility. Then it will likely take a few years to integrate new infrastructure with power grids and systems in Black Rock City, Fly Ranch, and communities in Northern Nevada.

- **Pilot solar project.** As a first test we could produce solar power for Gerlach, Black Rock City, and for our properties. Not only does it address the need in the global carbon cycle to keep carbon in the slow pool, it shows that Burning Man Project is demonstrating its dedication to the environment by finding our own ways to offset

our carbon use. Black Rock Labs has developed a feasibility study that provides a useful frame of reference. We'd probably need ~20 MW on ~75 acres for Black Rock City. We could sell power and eliminate the emissions of non-renewable power plants and count that in our offsets. For example, NV Energy is seeking RFPs for buying 330 MW of renewable energy. We will create a plan that provides direction for replicating the model for a theme camp, an event, or for a home.

4) Open Issues

This document is meant to be a starting place. We recognize that there are broader areas for future development that this document doesn't address.

- **Leave No Trace Approach.** We need to understand what the next philosophical and practical framework for evaluating emissions will be. It will be important to draw geographic and emissions lines to give us a sense of focus and constraint. We shouldn't start out too detailed and fail to offer inspiration and vision. We also need to consider materials and their lifecycle. Landfills are bad and recycling is broken. Stainless steel, glass, and ceramics are safe. Silicone and other plastics or plastic lined metals are not. We need to migrate to reusable materials and genuinely compostable waste, not "compostable" items that can only be treated in an industrial facility. While LNT is the hallmark sustainability Principle, there's space for us to bring a larger community into this dialogue as we examine materials and LNT on a longer timeline. We can learn and gain skills as we determine next steps.

- **Systems Framework.** Considering overall system dynamics could lead to broader insights and opportunities. This may be a motivating and engaging way to get buy-in. For example, a waste-to-energy facility could provide a meaningful fraction of total baseload energy demand for Black Rock City. Or camps could further coordinate the logistics of transportation to Black Rock City in groups, and eliminate vehicle-related emissions through consolidated transit, while simultaneously reducing the footprint of Black Rock City, traffic, and litter.

- **Ownership.** This is communal effort! Like the model of Black Rock City itself, this is meant to be a collaboration between the organization and the community. Burning Man Project has an opportunity to step up by stating our values and goals, sharing what actions and commitments we are taking, and then inviting and encouraging the community to be part of the solution, and to help lead the way forward. The organization is not dictating something; we are setting the vision and inviting the community to help.

- **Tensions.** There will be operational and philosophical tensions. Operationally, people want projects to be high-quality, inexpensive, and fast. In most cases only two of these are possible at the same time, which can be frustrating. Projects can be fast and inexpensive, but not high-quality. They can be high-quality and inexpensive, but take longer. Or it could be high-quality and fast, which is expensive. Speed will be difficult and may create discomfort, as institutions like Burning Man Project and potential collaborators do not tend to move quickly. Philosophically, some of the solutions to our environmental crisis may feel at odds with the Principle of Radical Self-Reliance. If we're working together as a community to solve our problems, when does Radical Self-Reliance make way for Communal Effort?

5) Conclusion

At the time of this writing, the year is 2019. Climate change is real, and the scientific evidence is irrefutable. This is not a political issue, this is a human issue. Yet there remains a tension between planetary citizenship and individualism, and irresponsible capitalism continues to incentivize self-gratifying consumerism. Put plainly, selfishness and greed are driving the decline of our natural world. Meanwhile, in spite of a growing awareness of the urgent need to address these issues through cooperation, conflicting interests of groups and individuals coupled with a lack of incentive and clearly defined goals leaves too many people doing nothing.

Without a substantial effort to come together and overcome this collective action problem, things will continue as they are. But the status quo is no longer acceptable. This problem is too big and too important to not address.

Achieving the goals outlined in this roadmap will require a great deal of time, effort, and capital. But the stakes are the highest they've ever been and we're running out of time. Twelve years from now will be too late. If a few good actors are carbon neutral while bad actors continue to pollute, we'll continue on the path to destruction. A large number of communities, countries, and companies need to be not just sustainable or carbon neutral. We must be regenerative and carbon negative.

We'll recall how astrophysicist Carl Sagan put it:

The Earth is the only world known so far to harbor life. There is nowhere else, at least in the near future, to which our species could migrate. Visit, yes. Settle, not yet. Like it or not, for the moment the Earth is where we make our stand.

We can and should leverage the knowledge and reach of the Burning Man community and 10 Principles to proliferate and inspire others to create transformation in their own communities, organizations, and countries. This won't work as a centrally-planned, slow, or closed project. We need to work quickly, openly, and from the inside out and outside in. This will be an open-source project that anyone can contribute to and replicate. It's up to all of us to help create that shift by setting an example, inspiring our community to take action, and embracing environmental sustainability promptly and comprehensively. The technology is scaling, the demand signal is strong, and the global warming imperative is more pressing than ever. We invite the community to contribute ideas as we seek to leave Earth in a better place than we found it.

The future of our survival begs us not to ask how can we afford to do this, but rather, how can we *not*?

6) Appendix

Appendix i. Roadmap: Table of Component Investigations.

Numerous organizations have contributed to these early ideas which warrant further definition and investigation. The following appendix lists some of Burning Man Project's properties and events, related emissions and waste, and possible solutions. This is an incomplete and preliminary list. These are all ideas we are willing to examine; some may not be possible. We welcome feedback, additional ideas, and possible solutions from the community.

Phase	Impact Area	Possible Behavior Modification	Goal Impacted
All	BRC waste and greywater	No single-use disposable items	Goal 1
One, two	BRC waste and greywater	Water only in reusable containers	Goal 1
One	BRC waste and greywater	Cafe cups as BYO only	Goal 1
Two, three	BRC waste and greywater	Gasification and incineration	Goal 1
Two, three	BRC waste and greywater	Compost and treat water at Fly Ranch	Goal 1, 2

Two, three	BRC waste and greywater	Compost and treat water at Fly Ranch	Goal 1, 2
All	BRC waste and greywater	Spur innovation with event theme	Goal 1, 2
All	BRC materials		Goal 1, 2
All	BRC materials	Source used materials	Goal 1, 2
All	BRC materials	Use alternatives to replace firewood	Goal 1, 2
All	BRC materials	Incentivize sustainable shelters	Goal 1, 2
All	BRC generators	Neighborhood resource sharing	Goal 1, 2
All	BRC generators	Sustainability incentives for camps (fuel)	Goal 2, 3
All	BRC generators	Sustainable infrastructure storage	Goal 2, 3
Two, three	BRC generators	Power BRC with solar and batteries	Goal 2, 3
Two	BRC generators	Discontinue generator use	Goal 2, 3
All	BRC fire	Offsets and new solutions	Goal 2, 3
All	BRC food	Sustainability incentives for camps (food)	Goal 1, 2
Two, three	BRC food	Grow food at Fly Ranch	Goal 1, 2
All	BRC food	Partnerships with sustainable providers	Goal 1, 2
All	BRC toilets	Composting toilets	Goal 1, 2
Two, three	BRC toilets	Sustainable pumping for trailers	Goal 2, 3
Two, three	BRC traffic	Go electric for staff fleet vehicles	Goal 2, 3
All	BRC traffic	Incentives for renewable vehicles	Goal 2, 3
All	BRC traffic	Smart traffic systems	All
All	BRC traffic	Coordinate transportation systems	All
Two, three	BRC flights	Offset flights to event	Goal 2, 3
All	BRC flights	Encourage regional participation	Goal 2, 3
Two, three	BMP property emissions	Gasification and incineration	Goal 1
All	BMP property emissions	End landfill contributions	All

All	BMP property emissions	Reduce packaged good use	All
All	BMP property emissions	End use of disposable materials	
Two, three	BMP property emissions	Compost	All
Two, three	BMP property emissions	LEED Certification	Goal 2, 3
All	BMP property emissions	Go renewable on grid NV and CA	Goal 1
Two, three	BMP property emissions	Develop renewables for use	Goal 2, 3
Two, three	BMP property emissions	Plant trees on our property & elsewhere	Goal 2, 3
Two, three	BMP property emissions	Energy infrastructure	Goal 2, 3
Two, three	BMP property emissions	Offset & regeneration infrastructure	Goal 2, 3
Two, three	BMP food & water	Burning Man farming and agriculture	Goal 1, 2
All	BMP food & water	Reduce water use	Goal 1, 2
Two, three	BMP food & water		Goal 2
One, two	Fly Ranch cows	Rotational and sustainable grazing	Goal 1, 2
Two, three	Fly Ranch cows		Goal 1, 2
All	BMP pollution & waste	Organic, vegetarian food	Goal 1, 2
All	BMP pollution & waste	Unbleached paper	Goal 1, 2
All	BMP pollution & waste	No bad chemicals used for cleaning	Goal 1, 2
All	BMP pollution & waste	Monitor and administer utilities	Goal 1, 2
All	BMP pollution & waste	Partner only with sustainable partners	Goal 1, 2
Two, three	BMP pollution & waste	Go paperless	One
All	BMP year-round events	Select responsible venues	Goal 1, 2

Appendix ii. Contributors & Acknowledgements

For more context, it's worth noting a number of community initiatives that have sprung up over the years that we can further support and build on.

The Burning Man culture and Black Rock City have long inspired and supported sustainability projects and endeavors. Earth Guardians, Recycle Camp, IDEATE composting, and the Alternative Energy Zone formed in Black Rock City. In 2006 a Green Working Group inside the Burning Man organization further led to the 2007 Green Man theme and challenged participants to calculate their own carbon footprint. This sparked green technology and experiments prototyped in a way not yet seen at the

event before. Artists have used renewable materials and brought environmental themes to the world through their projects. Born from Burning Man culture Black Rock Solar became Black Rock Labs and is committed to spreading sustainable technology. Burners Without Borders is implementing a 'Leave a Positive Trace' mentality. After the event there is Playa Restoration, Highway Cleanup, and the Leave Nevada Beautiful campaign. Friends of the Black Rock organizes weekly nature walks at Fly Ranch. Burners around the world have organized Leave No Trace workshops and neighborhood, beach, and park clean-ups.

There is so much inside and outside the Burning Man Project which has contributed to the road we are on with sustainability and Burning Man. We have pooled together input from a wide range of experts. We've read books and articles, attended conferences, debated late at night into early morning. We are more than any one person, any one idea or any one certainty other than we have a moral duty to reflect our principles in the context of the greater world. Radical Self Reliance, Radical Self Expression, Communal Effort, Gifting, Participation, Civic Responsibility, Immediacy, Radical Inclusion, Decommodification and last but not least Leave No Trace. These ideas guide us.

Creating this document has been a collaborative effort involving many people. With gratitude we acknowledge:

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Burning Man is global cultural movement inspired by the values reflected in the 10 Principles and united in the pursuit of a more creative and connected world. The hub of this

global network is the 501(c)(3) non-profit Burning Man Project. We work to build Black Rock City, the largest annual Burning Man gathering, and nurture the culture emerging from that experience.

You can read more about what we're up to in the Burning Man Journal and get email updates via our newsletter, The Jackrabbit Speaks.

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