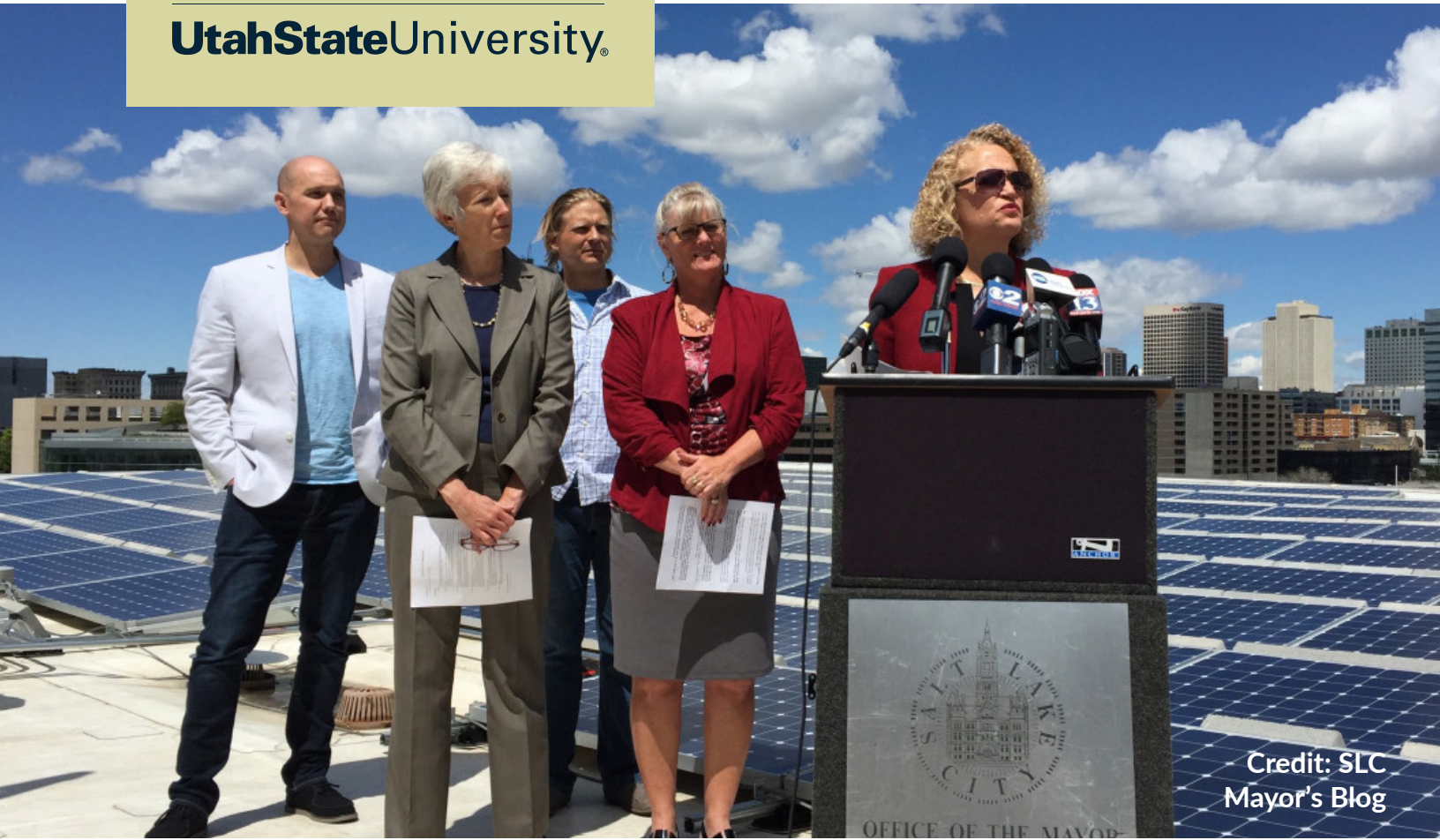


EXTENSION 

UtahStateUniversity®



Credit: SLC
Mayor's Blog

DEVELOPING AND IMPLEMENTING A 100% RENEWABLE ELECTRICITY RESOLUTION

A Research-based Framework

Emily Skill, Roslynn Brain McCann, and Sarah Klain
Utah State University, Department of Environment and Society

March
2020

TABLE OF CONTENTS

- EXECUTIVE SUMMARY 1**
- INTRODUCTION 2
- WHAT'S THE PROBLEM? 2
- WHY RENEWABLES? 3
- WHO HAS ALREADY COMMITTED? 4

- A FIVE-STEP FRAMEWORK TO DEVELOP & ADOPT 100%
RENEWABLE ELECTRICITY RESOLUTIONS 5**
- STEP 1: USE CATALYST EVENTS FOR INSPIRATION 5
- STEP 2: ENVISION CHANGE 6
- STEP 3: IDENTIFY CHALLENGES & POTENTIAL SOLUTIONS 6
- STEP 4: BUILD SUPPORT 7
- STEP 5: TAKE IT TO A VOTE 9

- CREATING AN IMPACT 11**

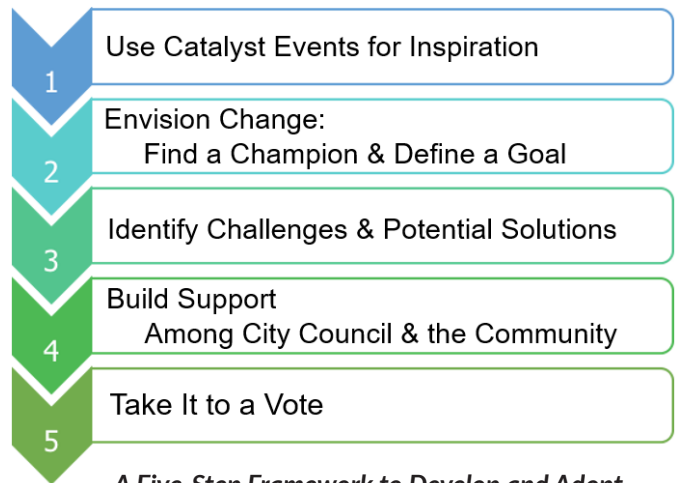
- RESEARCH FRAMEWORK 12**

- REFERENCES 13**

EXECUTIVE SUMMARY

Transitioning our energy infrastructure to renewable sources is necessary for mitigating climate change and building a healthier and less environmentally detrimental future.^{6,9} These renewable sources of energy are increasingly affordable and readily available. Our current primary source of energy, fossil fuels, negatively affects human health and accelerates climate change.^{6,9}

More than 100 cities in the United States have already committed to transitioning to 100% renewable electricity.¹³ This guide can assist you as you consider helping your own city transition to renewables. The content was developed through an in-depth document analysis and semi-structured interviews with government officials, city staff, and community members involved with the resolution process in Salt Lake City, Moab, and Park City—the first three cities in Utah to adopt resolutions for 100% renewable electricity by 2030. Resulting from the research study, a five-step framework was developed to assist those working to adopt 100% renewable electricity resolutions in their communities.



A Five-Step Framework to Develop and Adopt 100% Renewable Electricity Resolutions

FIVE-STEP FRAMEWORK

STEP 1. Note community catalysts that can create windows of opportunity for action.¹⁰ In this context, catalysts could include concern for planetary health, economic impacts from climate change, health issues, and a lack of federal action. Others could include climate action movements and international efforts that encourage action such as the Sierra Club Ready for 100 campaign and the Paris Climate Accords.

STEP 2. Identify champions who are passionate, inspiring, respected, and determined. Define a shared and concrete goal with a timeframe and list factors necessary for achieving the goal.

STEP 3. Proactively identify foreseeable challenges and generate potential solutions.

Address these issues early on to make the resolution easier to adopt and also more attainable.

STEP 4. Gather community support through effective communication, opportunities for engagement, education, feedback, and building partnerships. Acquire a city council's support by meeting with a council member one-on-one, showing community benefits, and demonstrating that there is community support.

STEP 5. Consider these five factors as the resolution is brought to council or county commission: (1) confidence that council is in support; (2) promoting the council meeting; (3) gathering attendance for the council meeting; (4) speaking up in support at the meeting; and (5) sharing stories about success to inspire other communities.

INTRODUCTION

WHAT'S THE PROBLEM?

Little time remains to reduce greenhouse gas emissions in order to avoid catastrophic climate change.¹¹ Also, fossil fuel combustion contributes to our warming planet and is linked to poor air quality and harm to human health.^{6,9} Burning fossil fuels releases many pollutants into the atmosphere that are harmful to human health, such as sulfur dioxide, nitrous oxides, mercury, and lead.^{6,9} The release of carbon dioxide and methane indirectly jeopardizes human health through the adverse effects of climate change. Climate change threatens many aspects of our lives, including public health, food security, national security, and economic stability.^{3,14,16} The Third National Climate Assessment warns that the following are just a few of the health concerns that result from climate change:^{6,9}

- Extreme heat
- Water contamination
- Spread of disease
- Decreased air quality
- Increased frequency and intensity of storms
- Sea level rise
- Ocean acidification
- Lower crop yields

Furthermore, fossil fuels do not provide an indefinite fuel source, especially when considering the increase in energy demand. The depletion of these finite fuel sources leaves us with unanswered questions about the affordability and accessibility of energy in the future. Proactively transitioning our energy infrastructure to renewables is necessary for avoiding the issues associated with energy scarcity¹¹ and reducing the impacts of climate change.⁴

The United States (U.S.) remains heavily dependent on fossil fuel energy sources. In 2018, 63% of electricity generation in the U.S. was from fossil fuel use, 19% from nuclear, and 18% from renewable energy sources (hydropower, wind, biomass, solar, and geothermal) (Figure 1).¹⁷ The U.S. makes up 4% of the world population but contributes 17% of the world's CO₂ emissions,¹⁸ and the U.S. contribution to cumulative global emissions throughout the last century is even greater.⁷ In the U.S., electricity production is the largest contributor to greenhouse gas emissions, making up 29% of the country's carbon footprint.¹⁹ Large reductions in heat-trapping emissions is necessary for mitigating climate change.¹⁴ Research shows that it is critical that the U.S. begins transitioning to clean, renewable sources of electricity.

U.S. Electricity Generation By Source in 2018¹⁷

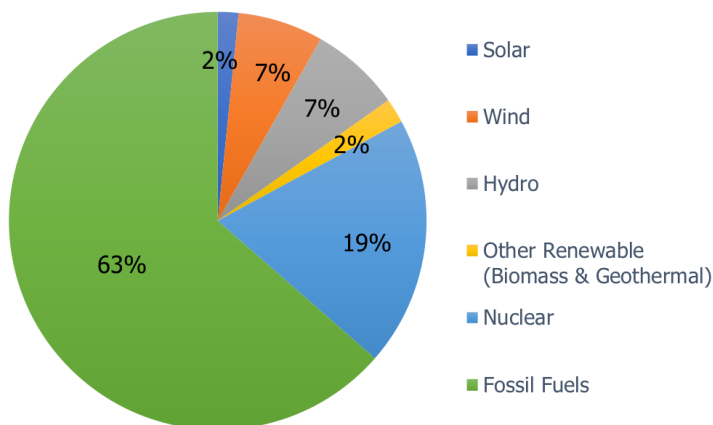


Figure 1: Data from the U.S. Energy Information Administration

WHY RENEWABLES?

Renewable electricity sources offer many benefits to our quality of life and well-being. Transitioning away from fossil fuels and towards renewable energy contributes to:

- Cleaner air
- Reduction in greenhouse gas emissions
- Energy independence and security
- Creation of new jobs
- Stable energy prices²

Renewables are now the lowest-cost source of new power generation across most parts of the world.⁷ The growth in renewable energy development, the prospect of new job creation, and the substantial cost reduction in renewables have contributed to the opportunity for a national transition to renewable energy.⁷ The development and construction of wind and solar generation facilities has already begun, but greater renewable energy adoption is needed to secure a future fueled by less harmful sources of electricity.

CAN LOCAL ACTION MAKE A DIFFERENCE?

While it may seem that the efforts of local governments have only a marginal impact on the global issue of climate change, local action can spread to generate large-scale change. The variety of local government approaches to address greenhouse gas reduction allows for experimentation of practices, which can help identify the most effective programs for future climate change mitigation.⁸ Local action can inspire other communities to adopt similar policies, creating the potential to expand and form regional action on climate change. Furthermore, local policies can influence state and federal policies.^{5,8,15} Local government action on climate change also allows for policies and programs to be tailored specifically to the needs of the community.⁸ Localized knowledge and community input develops more attractive and effective solutions to local issues, as community engagement cultivates commitment to the matter at hand.⁸



SALT LAKE CITY, UT

CREDIT: DESERET NEWS

WHO HAS ALREADY COMMITTED?

Mayors across the nation are signing on to the “Ready for 100” campaign, in which they commit to powering their cities with 100% clean, renewable energy.¹³ By 2020, more than 100 cities within the U.S. had already committed to transitioning to 100% renewable electricity.¹³ On a broader scale, more than 10 counties, Washington, D.C., and the states of Hawaii, California, and New Mexico have also committed to 100% renewable electricity.¹³ Six cities (Aspen, CO; Burlington, VT; Greensburg, KS; Kodiak Island, AK; Rock Port, MO; Georgetown, TX) have already achieved these goals and are currently powered by 100% net-renewable electricity.¹³ Despite limited federal action, these cities see transitioning to renewable electricity as essential for building and maintaining healthy and resilient communities, reducing carbon emissions, strengthening the economy, and improving the lives of citizens.¹²

With many cities having already adopted these resolutions, examples of 100% renewable electricity resolutions are abundant and accessible. Some cities post their resolutions on the sustainability pages of their government websites. They can also be found in the cities’ resolution document logs or archives. The renewable electricity resolutions adopted in Salt Lake City, Park City, and Moab are linked below:

Salt Lake City: Access the resolution via the SLC Green webpage and click on SLC’s climate plan. On this page, you can click on the “Joint Resolution” hyperlink to access the renewable resolution.

slcdocs.com/slcgreen/JointResolution.pdf

Park City: On the Park City website, select the “Government” drop down menu and click on “Municipal Codes, Ordinances, Resolutions...”

From there, select “City Resolutions” and search under 2016 for resolution 04-16.

parkcity.org/Home/ShowDocument?id=24447

Moab: On the City of Moab website, select the “Your Government” drop down and click on “City Archives” under the “Open Government” section. Select “Browse - City Resolutions.” In the 2017 folder, select resolution “2017-13.”

portal.laserfiche.com/Portal/DocView.aspx?id=797&repo=r-353153d2

The “Ready for 100” campaign webpage shows all of the cities that have adopted these resolutions. Researching the details in these other communities’ resolutions may help with the development of a resolution in your city.

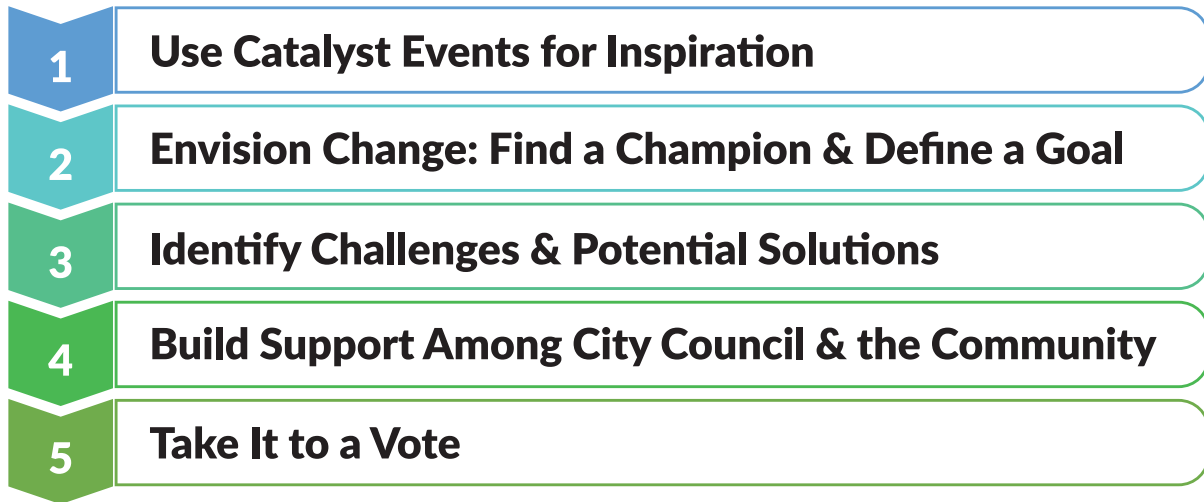
HOW DO I GET STARTED?

Are you interested in joining the 100+ cities that have already committed to renewables? This guide will walk you through a five-step framework that was developed from the results of a qualitative research study that explored how three Utah cities, Salt Lake City, Park City, and Moab, successfully adopted 100% renewable electricity resolutions.



CREDIT: SIERRA CLUB

A FIVE-STEP FRAMEWORK TO DEVELOP AND ADOPT 100% RENEWABLE ELECTRICITY RESOLUTIONS



STEP 1: USE CATALYST EVENTS FOR INSPIRATION

Catalysts are major social or ecological disruptions that create windows of opportunity for action.¹⁰ In the case of renewable electricity resolutions, examples of catalysts include:

- Concern for planetary health
- Potential economic impacts that climate change could have on a city
- Health issues that are caused or exacerbated by the use of fossil fuels
- Lack of federal action on climate change issues
- Positive efforts from state, national, and international movements that encourage action, such as the Paris Climate Accords, the Climate March, and the Sierra Club's Ready for 100 campaign

A catalyst moment that instills a strong desire to act was the first critical step identified in the

successful adoption of such resolutions. For example, concern of the effect of warmer temperatures on Utah's snowpack motivated Park City to act. Thus, to begin a movement that leads to the adoption of renewable electricity resolutions, identify catalyst opportunities that may exist in your community.



CLIMATE MARCH 2017
CREDIT: PROTECT OUR WINTERS

STEP 2: ENVISION CHANGE

Envisioning change consists of two major components for the development of 100% renewable resolutions: (1) **identifying champions**, and (2) **defining the goals** within the resolution.

Identify champions to lead the movement for 100% renewable resolutions. Qualities of champions who lead successful 100% renewable movements are depicted in the word cloud. Individuals interviewed for this research stated that effective champions were passionate, inspiring, respected, and determined individuals (Figure 2).

When **defining renewable goals**, our research revealed four critical elements:

- 1. A shared vision of a desired future.** A shared vision fits the unique needs of the community, strengthening the success of the goal.¹⁹ For example, clean air in Salt Lake City or preserving winters for a healthy ski season in Park City are examples of shared visions in these communities.
- 2. A concrete and clear aim.** When a goal is concrete and clear, it avoids confusion, allowing more people in the community to understand the goal. Understandable goals help foster ownership and trust with community members.²⁰ And, a better understanding of the goals allows individuals to more easily decide if this is an idea they support. A goal to achieve 100% renewable electricity by 2030 is easier to understand than a goal that states 80% reduction in 2017 greenhouse gas emissions by 2030.
- 3. A timeframe.** Developing a timeframe to achieve the resolution adds a unit of measurement, which will help determine progress toward the goal. When creating a timeframe, interviewees indicated that it can be helpful



Figure 2. Qualities of champions determined in case-study research. The size of each word indicates its frequency in the interviews

to consider utility contracts, the city's carbon footprint, and what timeframe other cities are setting.

- 4. Awareness of factors necessary for achievability.** Seven of the thirteen participants in our study highlighted the importance of proactively identifying additional components that are necessary to achieve the goal. For example, this could be the need to develop a carbon inventory and make a sustainability staff hire. Multiple cities have indicated that having a sustainability director was a key component to successfully achieving ambitious renewable goals.

STEP 3: IDENTIFY CHALLENGES AND POTENTIAL SOLUTIONS

Our research found that it is critical to proactively identify foreseeable challenges and generate potential solutions. Awareness of difficulties and starting conversations early on to address these issues will not only make the resolution easier to adopt, but it will also make the goals more attainable.

Seven challenges emerged in case studies of

three Utah cities working toward 100% resolutions. These challenges and their solutions (shown next to bullets), are listed below.

1. Utility contracts

- Engage in utility negotiations to design a new agreement that will help your city achieve its goal rather than re-signing the current contract.
- Develop partnerships with communities or state legislation to help leverage changes with the utility.

2. Limited resources and economic concerns

- Build partnerships with cities working toward similar goals to share experience and knowledge.
- Establish partnerships with companies and organizations that offer grant opportunities.

3. Absence of or outdated carbon footprint analyses

- Make budget allocations and/or staff hires to generate a carbon database.

- Moab, UT, for example, required the city create a staff position for sustainability in their renewable electricity resolution.

4. Prioritization

- Create a priority matrix to organize issues the city is working to address.
- Identify overlapping goals to accomplish tasks simultaneously. For example, pairing affordable housing efforts with energy efficient upgrades in homes.

5. Outdated state building codes

- Have the city set its own building ordinances for LEED or net-zero design.
- Encourage legislators to update codes.

6. Absence of education

- Identify effective local communication outlets.
- Proactively offer information to citizens about renewables and what the resolution will mean for them.

7. Lack of wide spread support

- See **STEP 4**.

These instances, although specific to three cases in Utah, will hopefully help you identify challenges your city may experience, as well as potential solutions as you work to adopt 100% renewable electricity resolutions.

STEP 4: BUILD SUPPORT

Step four outlines tactics identified through our research to gather community support and explains additional strategies to gain support among the city council. There are three main approaches to gathering **community support**:

Effective Communication

Participants in our research highlighted the importance of framing messages so that the resolution connects with the culture of the community. To do this, participants stated that using **localized knowledge**, aligning the message



PARK CITY COMMITS TO 100% RENEWABLE CREDIT: PARK CITY

with the **community's values**, and displaying the **benefits** that the resolution could offer the community are some strategies for effective message framing.

When talking to community members who are more skeptical of the resolution, participants stated that an **economic conversation** discussing the cost-benefits of a renewable resolution can help gain their support.

Participants indicated that the messenger also matters. Referring back to **STEP 2**, identify the champions and leaders across multiple sectors of the city and work with these individuals to communicate within their own groups about the resolution so that diverse support can be gained.

Our research found that the use of efficient **information outlets** is key for involving the public: local newspapers, radio shows, city council meetings, social media, and forms of personal contact such as email, phone calls, face-to-face conversations, and texting to communicate with citizens about the renewable electricity resolutions.

Many interviewees expressed the importance of encouraging community members to **share their support** for the resolution by writing letters to the editor of the local paper, emailing city council members, sharing their positive attitude toward the resolution on social media platforms, and encouraging other supporters to do the same.

Opportunities for Engagement, Education, and Feedback

Our research found that offering public opportunities to learn about renewable electricity resolutions was helpful for gaining community support.

In our study areas, providing opportunities for the community to engage with the development of the resolution and voice concerns was found to increase community empowerment and enhance the resolution as it was fitted to meet specific community needs.

Building Partnerships

Internal and external partnerships were found



MOAB COMMITS TO 100% RENEWABLE ENERGY

CREDIT: SIERRA CLUB

to increase the awareness and need for renewable electricity goals and help your city identify feasible ways to achieve your goals.

Well-known and respected businesses and organizations that speak out in favor of the resolution have the potential to gather support from their customers. In Park City, for example, the ski resorts, hotels, and the business alliance were important to have on board with the resolution to show that the resolution was favored by the business community.

External partnerships were found to help inform strategies and provide technical support to achieve the goals, work on changes with state legislation, provide grant opportunities, and assist with communication and public engagement.

There are also three specific steps to help gain **city council's support** on the resolution that were identified in our research.

a. Meet with a council member one-on-one.

This allows an opportunity for the council member to express chief concerns and provide other feedback on the renewable electricity goal. After gaining feedback, the resolution idea and goals can be reworked to address these concerns. Then, schedule a follow-up meeting to present a revised goal that incorporates the council member's feedback.

b. Show community benefits. Explain how this resolution benefits the community and will have a long-lasting positive impact on its community members. Doing so will help reduce any perceived risks around the goal among the city council.

c. Demonstrate that there is community support. Evidence of strong community support on an issue was determined in this research as a major factor for success. Because the

city council is representative of the community, constituents who want this change need to make this support widely known. Support from community members and businesses can be demonstrated to city council through written letters or emails to council, the presence of a large group of supporters at city council meetings, speaking at public hearings in favor of the resolution, writing letters to the editor of the local paper, and displaying support through other effective information outlets that were described earlier.

STEP 5: TAKE IT TO A VOTE

The final step to adopt 100% renewable electricity resolutions is to take the resolution to a vote, whether that is with the city council, county commission, or other local governing board. Before bringing the resolution to council, our research found that these five things should be considered:

a. Build confidence that council is in support.

First and foremost, a council member needs to draft the resolution and establish the resolution as an agenda item for the council meeting. Before a vote is scheduled, however, participants stated that it is critical to know where each council member stands on the topic. Recalling **STEP 4**, engaging in-person with the council members establishes an understanding of their attitudes on the topic, and also provides an opportunity to gain support. If the majority of council members are not yet in favor of the resolution, more time should be spent on **STEP 4** before the council votes on the resolution.

b. Promote the council meeting. Use effective communication outlets to advertise and increase awareness of the meeting, such as local newspapers, radio stations, social media, phone, email, and face-to-face interactions.



CITY HALL SALT LAKE CITY
CREDIT: EMILY SKILL, UTAH STATE
UNIVERSITY

Participants stated the importance of engaging key individuals to spread the message and gather attendance from diverse community groups.

c. Gather attendance for the council meeting.

Many interviewees stated that high attendance at the meeting is fundamental to illustrate community support for the resolution. As mentioned, visible community support is important for successful adoption of the resolutions.

d. Speak up in support at the meeting.

If there is a public hearing for the resolution before the vote, our case studies indicated that it is essential that the supporters speak up and explain why the adoption of the resolution is important to them and fundamental for the community.

e. Share stories of success. Telling an exciting story of this ambitious effort was found in our research to motivate other cities to adopt 100% resolutions, creating a ripple effect that allows local level efforts to build effective change nationwide.

CREATING AN IMPACT

Climate efforts made by local governments can be undermined, as the greenhouse gas emissions from a single municipality are minuscule when compared to global emissions. However, local governments can have a ripple effect with the potential to generate substantial change, as can be seen in the case study highlight below.

This framework was designed to assist communities across the nation that are working to adopt ambitious renewable goals. Local governments have the ability to foster change and hopefully this guide can provide encouragement and support as more municipalities seek to join.

CASE STUDY HIGHLIGHT:

How local action and the creation of regional efforts in Utah have the potential to alter the energy mix of a regional utility

After unprecedented negotiations, the utility Rocky Mountain Power agreed to develop new renewable electricity infrastructure to meet the renewable electricity needs of Park City, Moab, and Salt Lake City. The regional partnerships formed by these three cities, Summit County, and Rocky Mountain Power led to the adoption of the Community Renewable Energy Act, HB 411, in 2019. HB 411 authorizes Utah cities and counties served by Rocky Mountain Power with resolutions to achieve net-100% renewable electricity by 2030 to enter into a program with Rocky Mountain Power to procure new renewable electricity resources to meet these goals. Because these resolutions require that new renewable electricity is provided by Rocky Mountain Power, these cities could transform Rocky Mountain Power's resource portfolio to one that consists of more renewable sources. With 44% of PacifiCorp's (parent company of Rocky Mountain Power) customer base in Utah, demand for renewables in Rocky Mountain Power's energy mix from these Utah cities and counties could affect change in power generation at a national scale as PacifiCorp adapts its

power supply to meet customer demand and the terms of HB 411.

HB 411 led to an additional 18 communities in Utah signing resolutions for 100% renewable electricity, resulting in a total of 23 communities across Utah committed to 100% renewable electricity by 2030.¹



EVENT CELEBRATING THE PASSAGE OF HB 411
CREDIT: KPCW RADIO

RESEARCH FRAMEWORK

This guide was produced from a qualitative, multiple-case study on the successful adoption of renewable electricity resolutions in Salt Lake City, Park City, and Moab, Utah (Figure 3). To obtain the data for this study, the Utah State University research team collected documents, such as city reports, newspapers, and city council meeting minutes, and conducted semi-structured interviews with government officials, city staff, and community members involved with the resolution process. The researchers analyzed the data with a time series analysis and a thematic analysis. The purpose of the time series analysis was to trace events over time to determine if there were events that multi-

ple interviewees identified as critical to resolution development and/or adoption in their community; events such as these may suggest key components to the successful adoption of the resolution. A thematic analysis was used to identify patterns and themes across the three cases.

Identification of similar themes and patterns across the three cases suggested steps that may be key in successfully adopting these resolutions. The findings from these analyses were compared to three theories that the research team determined offered the most pertinent and useful information to assist with interpreting the research findings; these three theories are social-ecological system transformations, community coalition building, and grassroots innovations. The research team compared their research findings with these theories to determine if the findings could be informed by or supported through these theories. The findings that aligned with these theories could indicate strategies applicable at a broader scale, supporting cities outside of the study area working to adopt renewable electricity resolutions. The combination of the time-series analysis, thematic analysis, and theory comparison helped the researchers build a transferable “how to” framework to assist cities working to adopt a similar resolution.



Figure 3. Research study area

CREDIT: LAUREN TANGO, UTAH STATE UNIVERSITY

REFERENCES

1. Beebe, L. (2019). In Utah, the path to 100% clean energy is clear. Retrieved March 14, 2020, from <https://www.sierraclub.org/articles/2019/12/utah-path-100-clean-energy-clear>
2. Bird, L. A., Cory, K. S., & Swezey, B. G. (2008). Renewable Energy Price-Stability Benefits in Utility Green Power Programs.
3. Brown, M. ., Antle, J. ., Backlund, P., Carr, E. ., Easterling, W. ., Walsh, M. ., ... Tebaldi, C. (2015). Climate change, global food security, and the U.S. food system. Retrieved from https://www.usda.gov/oce/climate_change/FoodSecurity2015Assessment/FullAssessment.pdf
4. Bruckner, T., I.A. Bashmakov, Y., Mulugetta, H., Chum, A., de la Vega Navarro, J., Edmonds, A., ... X. Zhang. (2014). Energy Systems. In Climate change 2014: Mitigation of climate change. Fifth assessment report of the Intergovernmental Panel on Climate Change. (p. 88). Cambridge University Press. Retrieved from http://www.ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc_wg3_ar5_chapter7.pdf
5. Engel, K. H. (2005). Mitigating global climate change in the United States: A regional approach. *Environmental Law Journal*, 14, 54–85.
6. Henson, R. (2014). *The thinking person's guide to climate change*. Boston: American Meteorological Society.
7. IRENA. (2019). Renewable power generation costs in 2018. International Renewable Energy Agency. Abu Dhabi. Retrieved from https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2019/May/IRENA_Renewable-Power-Generations-Costs-in-2018.pdf?la=en&hash=99683CDDBC40A729A5F51C20DA7B6C297F794C5D
8. Lutsey, N., & Sperling, D. (2008). America's bottom-up climate change mitigation policy. *Energy Policy*, 36, 673–685. <https://doi.org/10.1016/j.enpol.2007.10.018>
9. Melillo, J. M., Richmond, T. C., & Yohe, G. W. (Eds.). (2014). *Climate change impacts in the United States: The third National Climate Assessment*. U.S. Global Change Research Program. <https://doi.org/10.7930/j0Z31WJ2>
10. Moore, M., Tjornbo, O., Enfors, E., Knapp, C., Hodbod, J., Baggio, J. A., & Norström, A. (2014). Studying the complexity of change: toward an analytical framework for understanding deliberate social-ecological transformations, 19(4).
11. Shafiee, S., & Topal, E. (2009). When will fossil fuel reserves be diminished? *Energy Policy*, 37, 181–189. <https://doi.org/10.1016/j.enpol.2008.08.016>
12. Sierra Club. (2017). Mayors for 100 percent clean energy. Retrieved November 16, 2017, from <https://www.sierraclub.org/ready-for-100/mayors-for-clean-energy>
13. Sierra Club. (2019). 100% commitments in cities, counties, & states. Retrieved November 14, 2019, from <https://www.sierraclub.org/ready-for-100/commitments>
14. Stern, N. (2008). The economics of climate change. *American Economic Review: Papers & Proceedings*, 98(2), 1–37. Retrieved from <http://www.aea-web.org/articles.php?doi=0.257/aer.98.2>
15. Tang, Z., Brody, S. D., Quinn, C. E., Chang, L., & Wei, T. (2010). Moving from agenda to action: Evaluating local climate change action plans. *Journal of Environmental Planning and Management*, 53(1), 41–62. <https://doi.org/10.1080/09640560903399772>
16. United States Department of Defense. (2015). National security implications of climate-related risks and a changing climate. Retrieved from <http://archive.defense.gov/pubs/150724-congressional-report-on-national-implications-of-climate-change.pdf?source=govdelivery>
17. U.S. Energy Information Administration. (2018). What is U.S. electricity generation by energy source? Retrieved July 23, 2019, from <https://www.eia.gov/tools/faqs/faq.php?id=427&t=3>
18. Union of Concerned Scientists. (2011). Each country's share of CO2 emissions. Retrieved November 7, 2017, from http://www.ucsusa.org/global_warming/science_and_impacts/science/each-countrys-share-of-co2.html#.WgHTehNSzow
19. U.S. EPA. (2015). Sources of greenhouse gas emissions. Retrieved March 15, 2018, from <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>
20. Wolff, T. (2001). A Practitioner's Guide to Successful Coalitions. *American Journal of Community Psychology*, 29(2), 173–191. <https://doi.org/10.1023/A:10103663108>

In its programs and activities, including in admissions and employment, Utah State University does not discriminate or tolerate discrimination, including harassment, based on race, color, religion, sex, national origin, age, genetic information, sexual orientation, gender identity or expression, disability, status as a protected veteran, or any other status protected by University policy, Title IX, or any other federal, state, or local law. The following individuals have been designated to handle inquiries regarding the application of Title IX and its implementing regulations and/or USU's non-discrimination policies: Executive Director of the Office of Equity, Alison Adams-Perlac, alison.adams-perlac@usu.edu, Title IX Coordinator, Hilary Renshaw, hilary.renshaw@usu.edu, Old Main Rm. 161, 435-797-1266. For further information regarding non-discrimination, please visit equity.usu.edu, or contact: U.S. Department of Education, Office of Assistant Secretary for Civil Rights, 800-421-3481, ocr@ed.gov or U.S. Department of Education, Denver Regional Office, 303-844-5695 ocr.denver@ed.gov. Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Kenneth L. White, Vice President for Extension and Agriculture, Utah State University.