



SAN ANDRÉS PHASE I VISIONING WORKSHOP

PROCEEDING AND INSIGHTS FROM THE SAN ANDRÉS WORKSHOP
OCTOBER 5–7, 2016

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ABOUT US

Fundación Rocky Mountain Institute (Fundación RMI) is currently a Colombian nonprofit entity comprised of Rocky Mountain Institute (RMI) and Carbon War Room (CWR). Fundación RMI works with partners—including the Clinton Climate Initiative (CCI), EEDAS, CORALINA, and DNV GL—to provide both technical and process guidance to help unlock near-term projects, develop a holistic strategy, and create additional projects for implementation. Key roles include:

- Gathering facts and analyses to inform discussions
- Leading workshops that bring together relevant stakeholders to discuss options
- Analyzing and presenting options for a viable utility business model
- Developing and driving a pace that leads to real progress in the next six months
- Bringing relevant experience from other geographies including regulatory reform, utility business models, community engagement, and operational excellence

RMI-CWR is formally partnered with the CCI, which was launched by the Clinton Foundation in 2006 to work with island nations around the world to create and advance diesel replacement solutions with support from the Government of Norway. CCI has helped generate over 63,000 MWh of clean energy annually in the Caribbean and East African Islands.

Since 2014, RMI-CWR and CCI have engaged in activities directly with SOPESA, EEDAS, and the San Andrés and Providencia local governments to support projects that will enable an energy transition.



ABOUT ROCKY MOUNTAIN INSTITUTE

Rocky Mountain Institute (RMI)—an independent nonprofit founded in 1982—transforms global energy use to create a clean, prosperous, and secure low-carbon future. It engages businesses, communities, institutions, and entrepreneurs to accelerate the adoption of market-based solutions that cost-effectively shift from fossil fuels to efficiency and renewables. In 2014, RMI merged with Carbon War Room (CWR), whose business-led market interventions advance a low-carbon economy. The combined organization has offices in Basalt and Boulder, Colorado; New York City; Washington, D.C.; and Beijing.



ABOUT CLINTON CLIMATE INITIATIVE

The Clinton Climate Initiative, launched by the Clinton Foundation in 2006, has committed to working with island nations around the world to create and advance diesel replacement solutions with support from the Government of Norway. Since 2012, CCI has signed MOUs with 25 island nations and formed a strategic partnership with partners including Rocky Mountain Institute-Carbon War Room and IRENA. CCI has helped generate over 63,000 MWh of clean energy annually in the Caribbean and East African Islands. CCI's Islands Energy program sees significant value in establishing a whole-systems approach for island nations to transition from fossil fuel-based to low-carbon economies.



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01

EXECUTIVE SUMMARY



EXECUTIVE SUMMARY

The San Andrés Phase I Visioning Workshop convened on October 5–7 at the Solar Hotel Centro in San Andrés, bringing together 58 stakeholders to discuss the future energy transition of the island. The purpose of the workshop was to engage the local community in defining what values should guide the energy future of San Andrés. The objectives of the meeting were to:

- Provide relevant technical energy information
- Build multiple shared understandings among stakeholders
- Develop a range of values to guide the investigation of the most optimal energy pathway for San Andrés

The workshop was hosted and facilitated by representatives of Rocky Mountain Institute-Carbon War Room (RMI-CWR), Clinton Climate Initiative (CCI), Corporación para el Desarrollo Sostenible del Archipiélago de San Andrés, Providencia y Santa Catalina (CORALINA), Empresa de Energía del Archipiélago de San Andrés, Providencia, y Santa Catalina S.A. E.S.P. (EEDAS), and the National Unit for the Management of Disaster Risks (UNGRD) Seaflower Alliance. RMI-CWR worked with facilitation experts at Reos Partners to help design and develop the methods used for the workshop.

Fifty-eight participants represented key stakeholders from San Andrés during the three-day workshop. The 58 participants represented 15 organizations, including not-for-profit, private sector, government, and community-based organizations. In addition, 37 percent of participants were San Andrés community members that did not formally identify with an organization.

The participating stakeholders identified the environment, education, efficiency, and space as the values that should guide the future energy transition of San Andrés.

Over the next four months, the RMI-CWR and CCI team will dig into the technical energy system on the island. The values identified during the workshop will guide the technical team in how to investigate future energy pathways and ensure that thoughts shared during the workshop are integrated into the process moving forward.

In February of 2017, RMI-CWR and partners will convene another workshop, engaging those who attended during Phase I, to identify the most optimal energy pathway for San Andrés.



02

INTRODUCTION



INTRODUCTION

Around the world, governments, communities, and electrical utilities face technological, societal, and political shifts that present opportunities for low-cost and clean energy systems. Nowhere is this more evident than on islands—where dropping costs for variable renewable supply, calls for increased efficiency, demands for more stable prices, and responses to climate change are quickly bringing political and financial issues to the table. However, it is one thing to ask for increased deployment of these resources and another to actually deliver them. The San Andrés community, local government, Government of Colombia, and Sopesa have an opportunity to define and implement an energy system that is local, clean, prosperous, and resilient, by addressing these challenges holistically.

The electricity system today in San Andrés Archipelago is costly, volatile, and polluting. Residents struggle to manage increasing energy costs while budgeting for their family or operating their business. Sopesa is tasked with ensuring system reliability and achieving renewable energy visions set forth by the National Government, while managing costs. In May of 2016, the San Andrés Local Government declared key energy objectives in its Four-Year Development Plan, emphasizing the important role that energy plays on the island. The National Government has made the San Andrés Archipelago a high development priority and hopes it can be a model for how to reach a clean energy system by cost-effectively integrating renewables and energy efficiency. These development priorities are laid out in the San Andrés Four-Year Development Plan.

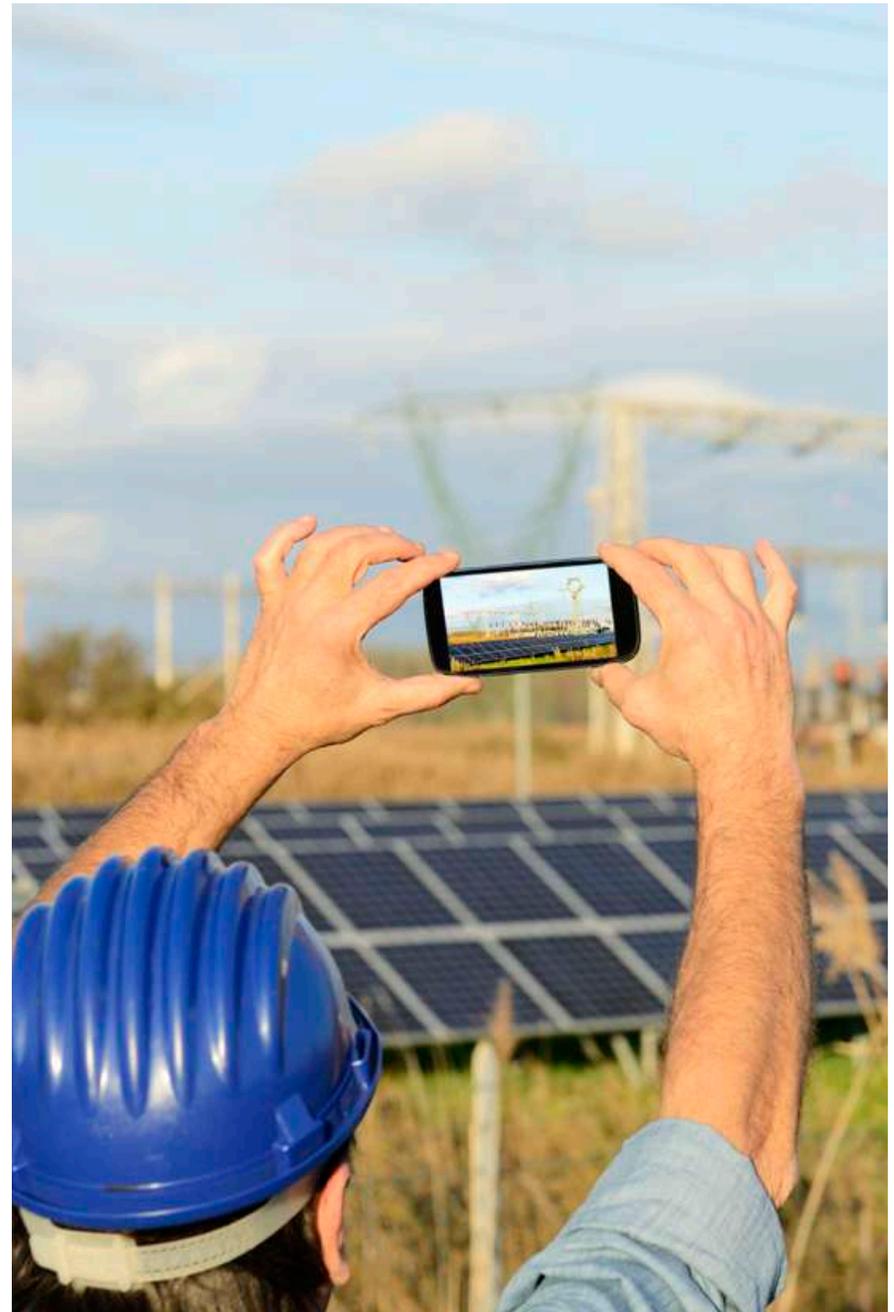


TABLE 1
SAN ANDRÉS FOUR-YEAR DEVELOPMENT PLAN: ENERGY OBJECTIVES

Scope	Indicator	Target
Energy generation with non-conventional sources	Number of actions to generate energy from non-conventional sources	4
By 2019, inform community of the Archipelago about economic and environmental advantages of non-conventional sources for energy generation	Community awareness and educational campaign on renewable energy	2
Define vision and agree on energy targets from non-conventional sources with targets for reduction in fossil fuel and GHG emissions	Strategy for clean energy implemented	1
By 2019, development of new sources of energy	Development of new sources of energy	1

To reach this vision, Rocky Mountain Institute-Carbon War Room (RMI-CWR), Clinton Climate Initiative (CCI), EEDAS, and CORALINA have partnered to engage the San Andrés community in a participatory process in planning this new energy vision. This process began in April 2016 with information about the history of energy on San Andrés, wind and solar energy potential, and the potential for integrating

energy efficiency into homes and businesses. On October 5, 2016, key stakeholders convened to discuss the values that should be present in the process of creating this energy vision. This report details the key methods, findings, and outputs developed in the workshop, which is the first step in a process of engagement to help build a different energy future for San Andrés.





WORKSHOP OVERVIEW

The San Andrés Phase I Visioning Workshop was hosted and facilitated by representatives of RMI-CWR, CCI, CORALINA, EEDAS, and the UNGRD Seaflower Alliance. The purpose of the workshop was to engage the local community in defining what values should guide the energy future of San Andrés. The objectives of the meeting were to:

- Provide relevant technical energy information
- Build multiple shared understandings among stakeholders
- Develop a range of values to guide the investigation of the most optimal energy pathway for San Andrés

The workshop included representatives of the following organizations:

Amen SD	INFOTEP
Camara de Commercial	Living in English Corporation
Casa Lúdica COVE	Posada Nativa
CORALINA	San Andrés Local Government
CTP	SENA
EEDAS	SGS ENERGY SAS
The Government of Colombia	Sopesa S.A. E.S.P.
Iglesia Adventista	

A list of attendees is provided in Appendix A. A list of invitees who confirmed attendance prior to the workshop is provided in Appendix B.



AGENDA

The San Andrés Phase I Visioning Workshop was designed unlike typical conferences. Meetings were curated to bring all participants through an arc from start to finish. Rather than defining challenges and immediately jumping to solutions, the meeting agenda took participants through a purposeful detour to ultimately arrive at objectives for maximum impact.

Day 1: On the first day, significant time was dedicated to introducing the workshop frameworks and identifying and exposing divergent opinions and ways of thinking by:

- Establishing ground rules that create a safe, confidential space
- Familiarizing participants with the frameworks of the workshop
- Inspiring participants with new tools and ideas to tackle setting a vision for the energy future of San Andrés

Day 2: On the second day, participants went through several facilitation exercises in order to further expose diverging opinions and practice listening and coaching techniques, such as:

- Practicing constructive dialoguing and empathetic listening
- Reframing specific frustrations and difficulties into broader structures and patterns
- Surfacing stakeholders' mental models
- Challenging assumptions and generating questions
- Expressing and understanding various stakeholders' perceptions
- Developing a shared understanding of the current energy system
- Reflecting and internalizing the key framework learnings from Day 1

Day 3: On the third day, participants utilized the coaching techniques they had practiced in Day 2 to converge and propel the group through rapid cycle prototyping by:

- Reflecting and considering the broader structure, patterns, and mental models exposed on Day 2
- Reframing specific challenges into the broader scope
- Challenging ideas and assumptions, generating productive questions, adapting to those questions
- Identifying a set of values to guide future decision making



04

KEY OUTCOMES



KEY OUTCOMES

VALUES

The participating stakeholders identified the values that will guide the future energy transition of San Andrés:

- Environment
- Education
- Efficiency
- Space

AGREEMENTS

Throughout the workshop, the community collectively agreed that:

- The community wants renewable energy
- Action is needed, not just talking
- We must ensure that all communities benefit from the energy transition

MENTAL MODELS

Mental models are deeply held assumptions and beliefs that drive behavior. Mental models commonly expressed by participating stakeholders during the workshop included:

- Distrust of the system, mostly stemming from continually changing systems and lack of communication between SOPESA, EEDAS, the government, and the community
- Fatigue of no action
- Feeling that electricity prices are too high
- The belief that the current system relies heavily on the Government of Colombia



05

PROCESS TOOLS



PROCESS TOOLS

Participants were introduced to three methodologies—Working on Complex Issues, Four Ways of Talking and Listening, and Diverge-Converge-Emerge—in order to encourage productive, mindful dialoguing and frame the course of the workshop. These were the only non-interactive sections of the workshop presented to the group. For a description of the methodologies, see Appendix C.

After learning the methodologies, the workshop attendees participated in the following facilitation exercises:

HOLDING THE CONTAINER

Each day began with a process called check-in and ended with a check-out. On the first day we also established ground rules for all participants and facilitators to follow.

PROCESS TOOL: Check-In/Check-Out

A check-in question helps participants get to know one another, invites communication, and helps orient to the work at hand. Check-in is also used to build trust and transparency and to “democratize” the plenary space and flatten hierarchy in the team—everyone is invited to talk within a 60-second time limit.

A check-out question invites participants to reflect on the work done so far and/or think about the next stage. Check-out also allows participants to get a sense of what others are thinking, and provides a formal close to the day.

Day 1 Check-In: Bring an object that you feel represents something unique about the character of San Andrés and describe why you chose that object.

Participants shared items and explained their significance; many represented the importance of family and environmental conservation, the potential of renewable resources on the island, the history of the Raizal people, and the push to act soon.

Day 1 Check-Out: What is something you understand about wind energy and its use in San Andrés?

Participants recalled that the first electric energy on the island was from a wind plant, before there was ever a diesel plant on the island. Participants demonstrated a desire for technical knowledge, but understood that wind has a large potential to play in the future of San Andrés, especially due to the concessionary agreement requirements.

Day 2 Check-In: What is one thing that intrigues you about today?

Participants expressed concern about a wide range of issues, ranging from land use issues to ensuring the workshop would define actionable next steps. Many participants expressed a desire for technical and economic information.

Day 2 Check-Out: What is something good about this workshop (Plus) and what is something that could improve (Delta)?

Plus:

- “If we had a workshop like this 20 years ago, the history of the island would be different.”
- “All of the activities were great and very engaging. The materials were very interactive.”
- “The workshop brought people together with different backgrounds.”

Delta:

- “I was expecting to discuss more technical issues.”
- “More participants. Everyone has been pleading for this, but there are many meetings happening elsewhere at the same time.”
- “We want to be sure we will come up with a solution. The Raizal people are expecting a solution.”

Day 3 Check-In: What is becoming clearer to you?

A common theme was that it is clear that action is required in San Andrés in the interest of environmental conservation. One participant expressed clarity that the ideal energy path for San Andrés is, in fact, unclear as of yet.

Day 3 Check-Out: How are you feeling right now, in one word?

Satisfied	Motivated	Encouraged
Pleased	Questioning	Thoughtful
Happy	Hopeful	Empowered
Excited	Expecting	Tired

PROCESS TOOL: Ground Rules

Ground Rules are instrumental in building trust and transparency in the team, “democratizing” the plenary space, and flattening hierarchy in the team (everyone is subject to the same “rules of engagement” for this work), and because “being present” (i.e., not checking cell phones, not thinking about other business, not just debating with colleagues in the meeting) is important for progress.

The Ground Rules established for this meeting were:

1. Keep confidences: While participants could say who was present and what was said, they could not to repeat who said what.
2. Be present: Participants were asked to refrain from using phones and computers during the workshop, but to take calls outside of the workshop room when necessary.
3. Democracy of time: Given that all participants were considered equals, participants were asked to respect each other’s time and refrain from monopolizing group discussions.
4. Speak in the language you are most comfortable with: The group was relatively divided between those who preferred to speak English and those who preferred to speak Spanish, though there was a high comprehension level of both languages.

BELIEVERS AND SKEPTICS

Participants were arbitrarily assigned as either “believers,” who wholeheartedly believe that renewable energy has a role to play in San Andrés, or “skeptics,” who are skeptical that renewable energy has a role to play—regardless of what they actually believed.

PROCESS TOOL: Believers and Skeptics

As an introductory exercise, participants are arbitrarily assigned as either “believers” or “skeptics,” of a certain issue—regardless of what they actually believe. Believers and skeptics are paired up and debate their positions. Afterwards, volunteers present their partner’s argument to the group: believers present the skeptics’ arguments, and vice versa.

The **believers** asserted that renewable energy could decrease electricity prices, San Andrés has strong renewable energy resources, and renewable energy would preserve the environment.

The **skeptics** expressed doubt that solar/wind/battery technologies are proven technologies, emphasized the difficulty for companies to adopt new technologies, and questioned the importance of environmental stewardship.

SYSTEMS THINKING: ICEBERG EXERCISE

After being introduced to the frameworks, participants engaged in a systems thinking exercise to practice empathetic dialoguing and mindfulness of mental models held by themselves and the group. The event presented to the participants was SOPESA installing new electrical meters. For details on the patterns, structures, and mental models the groups came up with see Appendix D.

PROCESS TOOL: Iceberg Exercise

The Iceberg Exercise helps group members step back and identify patterns related to a problem, the structures supporting those patterns, and the ingrained thinking that created the structures (mental models).

The facilitators present an event to the group. The event is a discrete action or definable incidence. In an analogy of an iceberg, the event is the tip of the iceberg that is visible above the water. The patterns, structures, and mental models are the underlying contributors to this event. In the iceberg analogy, they make up the larger, underwater portion of the iceberg.

Participants work in small groups to identify the patterns, structures, and mental models underlying the event, and then report them out to the group as a whole. Working in smaller groups encourages democratic participation. Volunteers are then asked to cluster the mental models into overarching themes.

MOVING CONVERSATIONS

Moving Conversations explored differing opinions and common beliefs among participants. Some statements, such as “diesel will always have a place on the island,” showed a wide range of differing schools of thought. However, participants were surprised to find they agreed on much, such as “San Andrés should use alternatives that are environmentally friendly.”

PROCESS TOOL: Moving Conversations

Moving conversations is a process tool to help explore the diversity and nuance of opinion in a group around polarizing topics. Moving conversations begins with a facilitator posing a statement to a group standing around the facilitator. Participants are then invited to move towards or away from the facilitator depending on whether they agree or disagree with the statement. The facilitator can explore the emerging dynamics of the group by asking individuals why they chose to stand where they are standing, and ask the participants to realign themselves based on their reaction to individual responses (e.g., “If you agree with Jim, move closer”).

TROIKA CONSULTING

Since the goal of this exercise was to solidify the definition of clarifying and coaching questions and to practice a coaching mentality, the question that was asked was broad: What is one challenge you are facing in your work. While several participants shared work issues unrelated to energy, others expressed challenges relating to renewable energy in San Andrés. See an example in Appendix E.

PROCESS TOOL: Troika Consulting

Troika Consulting is a process tool designed to flex both the listening and coaching skills of participants, including distinguishing between clarifying and coaching questions. Troika Consulting takes place in groups of three, with participants taking turns in “consultant” or “client” roles. Participants are primed with a question such as “What is one challenge you are facing at work?” First, the client has an opportunity to share his or her challenge, and consultants have a short period in which to ask clarifying questions. Then, the client is instructed to turn his or her back and listen while the consultants converse and generate ideas, provide coaching advice, or suggest solutions. Finally, the client is instructed to turn around and share what was most helpful about the advice given. Then, the roles switch and consultants tackle the next client’s question until each participant has had a turn to act as the client.

LEGO SERIOUS PLAY (LSP)

Lego Serious Play (LSP) was used to answer the guiding question: **“What values must be part of the process for determining and choosing how we will meet our energy needs?”**

The participants divided into four teams, each with a different color for their team name.

PROCESS TOOL: Lego Serious Play (LSP)

In LSP, individuals are asked to quickly develop a rough-draft model that answers a guiding question. Individuals are then assigned to small teams and each given the chance to briefly present his or her model. Teams then build one model, combining the best parts of each model while still answering the guiding question. Teams are given the opportunity to briefly present their model to another team, answer clarifying questions, and receive coaching questions for consideration when developing the next iteration of their model. Teams then regroup and advance their concept further while only using half as many Lego bricks. There are four rules:

1. Everybody participates.
2. If you don't know what to build, just start building.
3. Your model means what you say it means.
4. Always tell a story with your model.



Blue Team

The people surrounding the wind turbines show that the people have partial ownership of the system. The gold next to the people and the policeman (represents the government) shows that both the people and the government own the system (50/50). They buy shares into it. SOPESA manages the system still, maybe owns part of it, not everyone agrees about how

SOPESA fits in. The pen represents the importance of education and that the new system won't be accepted without educating the people. The animals and trees represent the importance of nature and the environment and biodiversity. The car represents the island moving into the future and reaching a final goal. The three people in the center represent SOPESA because they have to be part of the system as well, just not exactly clear how. The two small blue and clear stacks represent houses with solar panels, showing that people can own their own systems too, and not just be part owners in the larger island systems. The solar panels on the top corner are showing that solar can also be on a large scale, and not just on houses.



Yellow Team

The model reflects environmental concerns by including wind, solar, and ocean energy. It also considers the interactions between people and the environment, represented by the Lego people and the surrounding shrubbery. The idea is that there should be participation by all involved to reach a decision on how to improve the current system. A bridge

is included to represent the integration of the environment with technology. The black tiles represent solar panels. The green clover on the tower represents a wind turbine. The team extrapolated their model to reflect the solutions they propose: alternative energy and biosphere information should be included in school curricula; the quality, coverage, and price of energy services should be improved; using free natural resources should reduce the electricity rates; there should be subsidies for service; pilot projects can build trust in the community; load forecasts will avoid service interruptions and damage to appliances; and service quality can be improved by moving transmission lines underground.



Green Team

The concepts emphasized by the Green Team's model were limited space, balance between people and nature, and only consuming what can be produced locally on the island. The green base tile represents the island; it is a limited, finite area of space that is independent of external imported resources. The idea is that "we should only use the amount of energy that can

be produced on the island—like the carrying capacity of a ship." The dark blue area represents the ocean, and the Lego towers represent windmills in the ocean since space is limited on the island. The animals represent the livestock on the island, which people depend upon. There are a limited number of people in the model, symbolizing curtailing tourism with the idea of "less people, higher prices, better service." The bushes have two meanings: they represent the relationship between humans and nature and they also represent the farming that exists on the island. The brown lamp represents the light/ electricity required on the island. Educating the people on the island and incoming tourists was a key component to the Green Team. Finally, the policeman represents the authority/law that will enforce everyone on the island to abide by efficiency and nature-conscious practices.



Orange Team

The Orange Team focused on the intersection of people and nature. The compact layout of the model mirrors the limited space on the island. In a small place, all things need to interact with harmony and respect; people need to coexist with animals, nature, infrastructure, etc. The two buildings with plants growing on top represent the intersection

of infrastructure and nature. The lion and the shark represent the strong voices that potentially push momentum in the wrong direction, while the rest of the community has a purpose to succeed. The lightning rod represents the ideal situation that everyone should focus their efforts on getting to. The theme of technical analysis and education arose: people need to understand energy production, finances, technology, and pilot project results. The model also represented the concept of harmony between the government and community.

PRIORITIZING VALUES

Using the models designed in LSP for guidance, teams identified the most important values that should help determine the future energy system of San Andrés through harvesting, clustering, and voting.

PROCESS TOOL: Harvesting, Clustering, and Voting

Harvesting, clustering, and voting is a methodology to quickly and democratically converge as a group; it also provides a standing visual of the result. Individuals write the values that are most important to them on cards. Then, as a small group, each team decides which 2–4 of these values are most important to the team. These 2–4 values are written on hexagonal papers. Each team reports their 2–4 most important values and places them on the wall. As the values are placed on the wall, they are clustered into thematic groups. After clustering, each participant receives three dots. The participants vote for the values that are most important to them by placing dots next to that cluster of hexagons. Participants are able to place all three dots on one hexagon, or divide their dots among multiple hexagons based on how weighty they feel each value is.

The most important values identified by the participants of the San Andrés Phase 1 Visioning Workshop were:

1. Environment
2. Education
3. Efficiency
4. Space

Other values proposed were:

- Working together
- Equity of service provision
- Community financial participation
- Timeliness



SURVEYS

PROCESS TOOL: Surveying

Pre- and post-surveys are designed to gauge initial expectations, faith in the process, and overall experience. Surveys ask participants to rate their answers on a scale of 0 to 10, where 0 is low and 10 is high. Surveys also solicit free response answers.

Pre-survey results indicated participants held medium-high expectations for the workshop. Participants expressed hope about finding a solution for the energy problem on the island, excitement to learn about new technologies, and a desire for cooperation.

Post-survey results indicated a higher level of satisfaction with the workshop than the pre-survey predicted. Participants reported learning technical energy information, questioning their own beliefs, and coming to an agreement and planning together with people of opposing opinions. The survey results are detailed in Appendix F.



LEARNING CONVERSATIONS

Learning conversations aimed to provide relevant technical energy information, build a platform for shared understandings among participants, and create transparency between SOPESA, EEDAS, the National Planning Department (DNP), and consumers. Three guest speakers participated, each from a different organization and each representing a different topic. Three groups rotated through the different speakers. There were several questions during the learning conversations regarding demand patterns and variability of resources.

PROCESS TOOL: Learning Conversations

Learning conversations is a process tool that introduces expert guests' technical knowledge and content in an interactive and intimate way. Each speaker provides a presentation about his or her topic of expertise and hosts a Q&A session.

Participants asked mostly technical questions, such as how much space wind turbines use once installed (5–10 meters per turbine), a few questions about financing renewable energy investments, and a couple regarding the concessionary agreement between SOPESA and EEDAS.



ENERGY EFFICIENCY— MARÍA PAULA ESCOBAR RIOMALO, NATIONAL PLANNING DEPARTMENT

María Paula Escobar Riomalo is the San Andrés Island Coordinator with the National Planning Department.

María Paula Escobar Riomalo explained two existing

programs to participants:

- An energy sticker program that informs people of how much energy appliances use.
- A voluntary program to switch out appliances on a payment plan with low interest. This program is for individual, business, and industry consumers.

María also noted refrigerators use 50% of the energy in a house.

Participants asked questions about the programs and the durability of energy efficient products, expressed enthusiasm for energy efficiency efforts, and suggested educating the community about these programs and how to consume energy more efficiently.



THE CURRENT ENERGY SYSTEM—JOHN HORTUA, SOPESA

John Hortua is the Director of Transmission with the on-island utility company SOPESA.

John Hortua explained how the electricity that is currently produced by diesel generators is transmitted to

the end users:

- There are 10 diesel generator units, with a total of 65 megawatts of capacity.
- The generators are 24-hour units.
- There are multiple types of generators: 2 MAN generators (German brand), 2 MB (English brand), 6 EMD (U.S. brand). The MAN generators are the most efficient and the largest.
- Peak demand (“load pick”) is 31 MW on San Andrés.
- The voltage from the generators is 13.8 kV; the voltage of electricity being transported on the distribution lines is 34.5 kV.
- Transformers are used to change voltage from generators/distribution lines to end users.
- Electricity travels from the generators to transformers, to transmission lines, to the El Bight Substation (with 8 circuits/feeders) and then to the School House Substation (5 feeders).



RENEWABLE ENERGY—RANDY BENT, EEDAS

Randy Bent is the General Director with EEDAS.

Randy Bent explained the basics of renewable energy on San Andrés:

- While Colombia relies on 80% hydroelectric power, the energy that is used on San Andrés is traditional energy (gasoline and diesel) that leaves hydrocarbon pollution in the ground and CO₂ in the air.
- We need to innovate and include energy systems from wind and sun because they don’t pollute and don’t have the negative consequences that gasoline and diesel have.
- In 2010, the government decided to make a new energy strategy to diminish the impacts of traditional energy. The agreement says:
 - With traditional energy, consumers normally pay COP 800/kWh. The government will pay 50% (400/kWh) and the consumer will pay 50% (400/kWh).
 - The money that is saved through the subsidies will go to social projects.
- San Andrés is a closed circuit system—what we produce is what we consume.

07

NEXT STEPS



NEXT STEPS

Over the next four months, the RMI-CWR and CCI technical team will be investigating many technical components of the energy system. This includes the following:

- Investigating future growth of electricity on the island (load growth)
- Completing studies concerning how the grid operates under different energy scenarios
- Developing an economic model that investigates the cost of bringing certain renewable energy technologies online while running the current diesel generator set
- Investigating the rate structure that people pay on the island and the complex subsidy provided by the National Government to San Andrés electricity users
- Reviewing the regulatory and legal boundaries that renewable energy can operate within San Andrés and how this might influence change in the future.

By completing the above steps, the technical team will be able to identify energy pathways for San Andrés. These pathways will be a combination of renewable energy, energy efficiency and diesel generation. These pathways will be a spectrum of potential paths within the values that the workshop created with additional values to be added by other stakeholders.

In February of 2017, RMI-CWR and CCI would like to ask all participants to return to another participatory workshop to determine which pathway to move forward with as a community for San Andrés.





APPENDICES

APPENDIX A: LIST OF ATTENDEES

Title	Name	Organization	Wed	Thu	Fri
	Adriana Williams	INFOTEP	X	X	X
	Albert Mitchell	CTP		X	
	Alicia Mitchell	Casa Lúdica COVE		X	X
	Alicia Samuel	Diputado		X	
	Arlington Howard	Gobernación - Secretario de Planificación	X		
	Camilo Duran	EEDAS			X
	Chad Austin		X		
	Charles Cotes	Gobernación - Secretario de Servicios Públicos y Medio Ambiente			X
	Dayana Mitchell Celis	EEDAS	X		
	Deidy Stephens	EEDAS	X		
	Delford Brackman Ortiz	Gobernación Departamental	X		
	Denis Del Carmen Molina Fontalvo	Iglesia Adventista		X	X
	Edburn Newball	SOPESA SA ESP	X	X	X



Title	Name	Organization	Wed	Thu	Fri
	Eduardo Vasquez	EEDAS	X	X	
	Evans Baldonado	CTP	X	X	X
	Fabio Palacio Howard				X
	Gustavo Gaitan B.	SOPESA SA ESP		X	
	Harry (Harrington) McNish		X	X	X
	Ian Pallares	EEDAS	X		
Gerente	Ivan Salcedo	SOPESA SA ESP		X	
	Jennifer James Gordon	SGS ENERGY SAS	X	X	
Secretaría de Servicios Públicos	Jennifer Villalba Archbold	Gobernación	X		
	Jerry Hudson		X		
	Jobsaas B Taytos	Independent		X	X
	John Hortua	SOPESA SA ESP	X		
	Jonathan Fakuseh	SOPESA SA ESP		X	X

Title	Name	Organization	Wed	Thu	Fri
	Jorge Garnica			X	X
	Jose Espinella	EEDAS	X		
	Jose Hooker	SENA		X	
	Jose Salcedo	EEDAS	X		
	Joseph Jessie	CORALINA	X	X	X
	Justin Gordon		X		
	Kilberth Manuel			X	
	Lepard Stephenson Steele		X		X
	Lily Mitchel			X	
	Lily Robinson	Cámara de Comercio			X
	Lisandro Pomare		X	X	
Directora Proyectos	Luci Restrepo C.	SOPESA SA ESP	X	X	X
Director	Maria Paola Escobar			X	
	Mishelle Taylor	CORALINA	X		

Title	Name	Organization	Wed	Thu	Fri
	Monica Blanco	EEDAS	X		
	Pamela Newball	Living in English Corporation		X	X
	Patricia Bowie	EEDAS	X	X	X
	Radley Huffington		X		
	Randy Bent	EEDAS	X	X	X
	Rosibel Roa Mesino				X
	Roy Newball Grenard	Amen SD	X	X	
	Sebastian	Department of Planning			X
	Sidney Pusey		X		
	Vastay Dilbert	Posada Nativa Williams Paradise		X	
	Virginia Livingston	CORALINA		X	X
	Walden Downs-Pommare	Secretario de Gobierno	X		
	Walt Hayes	Living in English Corporation		X	X
	Wayne Corpus Stephens	Independent	X	X	X

APPENDIX B: LIST OF REGISTERED PARTICIPANTS

Title	Name	Organization
	Adriana Williams	INFOTEP
Director Ejecutivo	Alain Manjarres	Cámara de Comercio
	Alejandro M	R-Youth
	Alicia Mitchell	Casa Lúdica COVE
	Alonso Forbes	Sound Bay Baptist Church
	Alverdo Christopher	Adventist Church
	Antonio Alejandro Sjogreen Pablo	Asopacfa
	Arlington Howard	Diputado
	Arturo Parra	Central Baptist Church
Prensa	Claudia Aguilera	Gobernación
	Claudia Marcela Delgado	Coralina
	Cleotilde Henry	Asociación de Posadas Nativas
	Carlos Whitaker	Consejo Departamental de Planeación

Title	Name	Organization
	Dayana Mitchell Celis	Gobernación -Secretaria Servcios Publicos y Medio Ambiente
	Dean Hyman	
	Delis Hernandez Thyme	Junta de Acción Comunal Smith Channell
	Denis Del Carmen Molina Fontalvo	Gobernación Departamental
	Diogenes Newball	Independent
	Domingo Sánchez McNabb	CORALINA
Director	Durcey Stephens	CORALINA
	Edburn Newball	Iglesia Adventista
Director	Edmon Facuseh	SOPESA SA ESP
	Edward Espitia	R-Youth
	Elkin Llanos	R-Youth
	Endis Livingston	Director Voe
	Enrique Pusey Bentcamilo	Light House Baptist Church
	Fabio Palacio Howard	

Title	Name	Organization
	German Mcnish Williams	Linval And Cove Baptist Church
	Guillermo Francis Manuel	The Sons Of The Soil (S.O.S) Foundation
	Gustavo Gaitan B.	SOPESA SA ESP
	Harry (Harrington) McNish	
	Hernan Baldonado	Posadas Nativas
Gerente	Ivan Salcedo	SOPESA SA ESP
Autoridad Raizal	Jairo Rodríguez Davis	
	Jennifer James Gordon	SGS ENERGY SAS
Secretaría de Servicios Públicos	Jennifer Villalba Archbold	Gobernación
	Jobsaas B Taytos	Paradise Farm
	John Hortua	SOPESA SA ESP
	Jonh Escolar Ramos	SENA
	Jorge Garnica	
	Jorge H. Sanchez	Help 2 Oceans Foundation

Title	Name	Organization
	Jorge Restrepo	Buzo
	Jose Antonio Florez Corpus	Fundación Helping Youth
	Juan Gonzalo Restrepo Terreros	SOPESA SA ESP
	Leonor Umbacía	Lideresa
Directora	Lorena Aldana	SENA
Directora Proyectos	Luci Restrepo C.	SOPESA SA ESP
	Luis Díaz	R-Youth
	Nolan Herrera	R-Youth
	Octavio Quintero	R-Youth
	Ofelia Barker	Linval Association
	Orvel Duffis	
Diputado	Oscar Bowie	Asamblea Departamental
	Pamela Newball	Living in English Corporation
	Peggy Samuel	Receptour Del Caribe S.A.S.

Title	Name	Organization
	Penn Dale Humphries	KETNA
	Rose Abrahams	R-Youth
	Roy Newball Grenard	Helping Hands Foundation
	Roy Newball Grenard	Amen SD
	Shelly Palmer	Ingeniera Ambiental
	Shirley Cottrel	Representante ONG'S
	Sissy Mitchell Kelly	Lideresa
	Tonney Jean Salazar	Defensoría del Pueblo
	Valentino Duffis	Asociación ASOPACFA
	Vastay Dilbert	Posada Nativa Williams Paradise
	Walt Hayes	Living in English Corporation
	Wayne Corpus Stephens	Independent
		SENA (4)

APPENDIX C: METHODOLOGIES

Participants were introduced to three methodologies—Working on Complex Issues, Four Ways of Talking and Listening, and Diverge-Converge-Emerge—in order to encourage productive, mindful dialoguing and frame the course of the workshop. These were the only non-interactive sections of the workshop presented to the group.

Working On Complex Issues

When working on highly complex social challenges, there are three layers of systemic complexity.

FIGURE 1

THREE LAYERS OF SYSTEMIC COMPLEXITY



Social Complexity: Social complexity occurs when many actors have diverse perspectives and needs. It's essential to include the voices and abilities of diverse stakeholders for many reasons. A more diverse stakeholder team allows greater variety and greater depth and breadth of insight.

Dynamic Complexity: Many of the challenges we face today are accumulations of long-standing or seemingly distant cultural, ecological, industrial, financial, and other influences. Dynamic complexity is at play when the driving causes of a problematic situation are often far removed in space and/or time from the effects. The best approach to working on challenges of dynamic complexity is systemic or whole-system, meaning that only a systemic point of view can reveal the underlying causes of distinct events.

Generative Complexity: Generative complexity indicates that the future is both unfamiliar and undetermined. There are no pre-existing solutions, and those who want to address problems of generative complexity will have to forge their response as they go. They will need a creative and experimental approach, or better said co-creative, since they will have to work together.

Because all three types of complexity are typically in play in any given complex social challenge, a constructive approach to working on such challenges will be participative, systemic, and creative. Each of these aspects requires its own set of tools and disciplines to maximize the impact of the change initiative.

Four Ways Of Talking And Listening

In order to encourage constructive dialoguing within the workshop, the concept of Four Ways of Talking and Listening was introduced. The Four Ways of Talking and Listening are:

Downloading: In downloading, the most common mode, we talk politely, saying what we are expected to say. For example, “How are you?” “I am fine.”

Debating: A team shifts from downloading to debating when someone speaks his or her mind openly, even at the risk of fragmenting the system. For example, “How are you?” “I am terrible.” In this mode, the listener is judging whether or not he or she agrees with the speaker.

Dialoguing: Essential for deep change, dialoguing requires empathy and self-reflection. The listener is seeking to understand where the speaker is coming from.

Presencing: A rarer mode of conversation, generative dialogue allows those who are talking and listening to discover their deeper shared purpose.

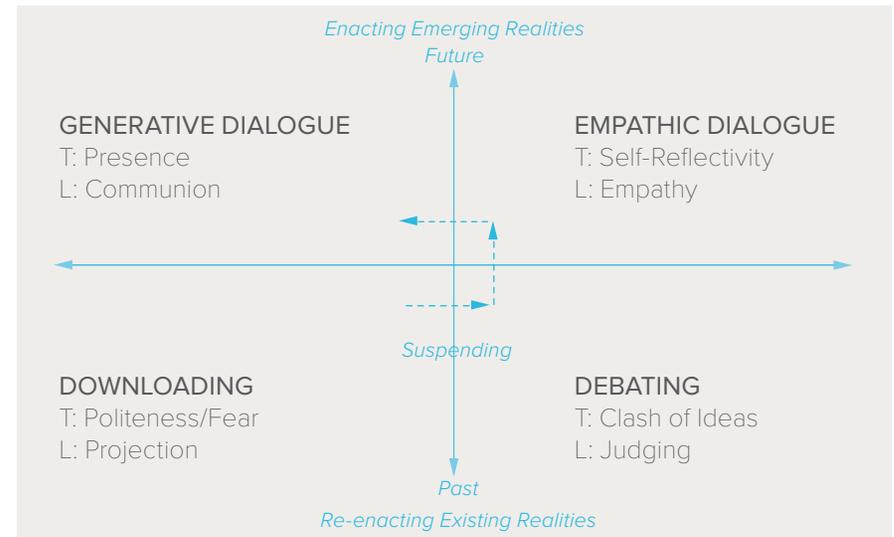
PROCESS TOOL: Four ways of talking and listening

The framework Four Ways of Talking and Listening is important because:

- Collaboration can help expand a group’s collective understanding of a problem, leading to more robust interventions and increased feasibility.
- A meeting designed with collaboration at the center can bring together people from a broad range of perspectives.
- When attendees participate and collaborate, the odds that they’ll make a meaningful contribution increase.

FIGURE 2

FOUR WAYS OF TALKING (T) AND LISTENING (L)



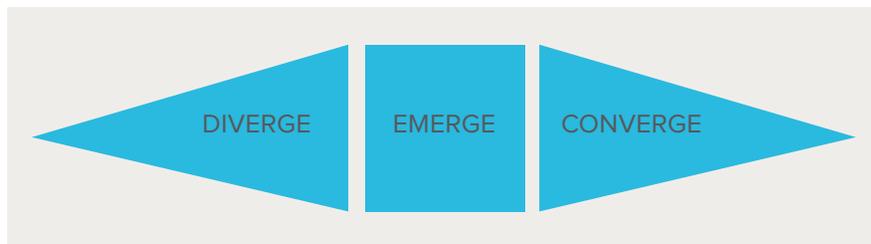
Diverge-Emerge-Converge

The workshop was designed to move the group through the following three phases in the creative process:

- **Divergent Phase:** Ideas bubble up and are shared openly. Participants express differing opinions, surfacing the mental models behind ideas, and intentionally keeping the range of possibilities open. This was intentionally the longest phase of the workshop.
- **Emergent Phase:** Participants explore the ideas and information previously generated, looking for and identifying common themes.
- **Convergent Phase:** Participants prioritize the possibilities, make choices, and discuss next steps.

FIGURE 3

DIVERGE, EMERGE, AND CONVERGE



APPENDIX D: ICEBERG EXERCISE RESULTS

Term	Definition	Example(s)
Event	Discrete action or definable incidence	SOPESA installs new electricity meters
Patterns	Trends or events that repeat over time	<ul style="list-style-type: none"> • New meters were installed • New technologies are developed • People resist new technologies • Bills have increased since the new meters were installed, despite using roughly the same amount of electricity • Fires have occurred in houses with new meters
Structures	Rules, norms, policies, guidelines, power structures, resource distributions, etc. that might explain existing patterns	<ul style="list-style-type: none"> • Some people illegally connect to the grid, and honest users pay for them • Price structures let the client know what SOPESA is charging • The archipelago is an area of isolated service • Monopoly on all electric service operations • Technology is improving • The quality of service is improving • Tariff laws, environmental laws, installation laws, law of service • SOPESA charges for energy • In order to charge for service, SOPESA uses meters • Everyone is supposed to pay for their consumption • Energy costs money to produce and distribute
Mental Models	Ideas, beliefs, dogmas, and world-views that support existing structures	<ul style="list-style-type: none"> • Mistrust: There is mistrust between SOPESA, EEDAS, the government, and the community, most of which appears to stem from the lack of communication and continually changing systems • There is no other alternative to SOPESA • New technology is better and more efficient • We fear new technology • Current laws and responsibilities: Everyone should pay for what they consume • Energy is too expensive • We are dependent on the government

APPENDIX D: ICEBERG EXERCISE IMAGES



APPENDIX E: TROIKA CONSULTING EXAMPLE

Question: What is one challenge you are facing in your work?

Challenge: Which technology should I use for my home—solar or wind?

Coaching advice:

- Have you considered how much land wind takes up, or doesn't take up?
- Have you considered the potential of each (i.e., how much wind vs. sun is available to harness)?
- Have you considered which is easier to install?
- Have you considered the size of wind turbine you would need?
- Have you considered what time of day you would need power?



APPENDIX F: SURVEY RESULTS

Pre-Survey Question	Average Response (0-10 Scale)	Post-Survey Question	Average Response (0-10 Scale)
How energized are you about being a participant of the San Andrés Visioning Workshop?	8.6	Please rate the overall quality of your experience.	9.5
How confident are you in this group's ability to fulfill the convening objectives of the workshop?	8.1	How energized are you about being a part of this process over the next year?	9.9
How optimistic are you that this group can work together in unique ways to generate new solutions?	8.5	How confident are you in this group's ability to fulfill achieving a renewable energy vision within the values developed by the group?	9.5





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