

RESILIENCE ASSESSEMENT TOOLS FOR POWER UTILITIES

Report for Workshop held in Apia, Samoa

WORKSHOP DETAILS

Held at the Millennium Hotel from the 7th
to the 8th February, 2023

Workshop Title:	Resilience Assessment Tools for Power Utilities
Workshop Developed by:	Economic Consulting Associates & SMEC
Instructors:	Richard Bramley & Alexander Joseph SCHMID
Client:	Pacific Power Association
Program:	Sustainable Energy Industry Development Project
Funding:	World Bank
Coordinator:	PPA – Gordon Chang, Reena Suliano, Abraham Simpson.

Contents

1. Introduction: 2

2. Participants: 2

3. Evaluation of the Workshop: 2

4. Conclusion:..... 14

1. Introduction:

ECA and SMEC were contracted (Grant N° TF 1505, Contract N° SEIDP/C2.2) to Develop Investment Plans for Enhancing Energy Resilience in Pacific Island Power Utilities. The scope of this exercise entailed producing plans for three power utilities. PPL of PNG, TEC of Tuvalu and EPC of Samoa were selected as representative a large, medium and small utilities of the PPA membership. Under this contract a resilience viability tool was developed to assess the economic viability of projects identified to improve the resilience of a power utility.

Furthermore, as a follow on, ECA and SMEC were contracted to develop a resilience assessment tool to enable power utilities to carry out a self-assessment to identify and plan projects for improving the resilience of a utility.

The objective of the workshop was to enable participants to use the resilience assessment and viability tools for developing investment plans for their utility.

2. Participants:

UTILITY	COUNTRY	#	NOMINEE	TITLE/ POSITION	EMAIL ADDRESS
1 Commonwealth Utilities Corporation	Saipan	1	Alfredo Palattao	Acting Chief Electrical Engineer	alfred.palattao@cucgov.org
2 Electric Power Corporation Samoa	Samoa	2	Leata Polataivao Tangatauli	Engineering Officer Electrical - Renewal Energy	manuleleuafe@epc.ws
		3	Moeona Leo	Manager Savaii Operations	
		4	Mevaraea Vaiaso	Network System Controller Trainee	
		5	Jonathan Yoshida	Senior Engineer Renewable Power Generation	Yoshida.j@epc.ws
3 Kosrae Utilities Authority	Kosrae	6	Casey Freddy	Assistant General Manager/Legal Counsel	caseyfreddy5@gmail.com
		7	Robert Taulupe	Operation Manager	taualuper@gmail.com
4 Marshalls Energy Company INC	Marshall	8	Wayne Raymi Kijiner	Junior Electrical Engineer	wayne.kijiner@mecrmi.net
5 Chuuk Public Utility Corporation	Chuuk	9	Albert Francis	Head of Regional Utility	albert.francis@cpuc.fm
		10	Kembo Mida	CEO	kembo.mida@cpuc.fm
6 Nauru Utilities Corporation (NUC)	Nauru	11	Ken Blake	General Manager Generation	ken.blake@nuc.com.nr
8 Palau Public Utilities Corporation	Palau	12	Samuel Hesus	Plant Electrician	d.ngirameked@ppuc.com/f.ky
					ota@ppuc.com/m.okada@ppuc.com/a.santos@ppuc.com
		13	Tilden Telltall	Plant Electrician	ttelltall1995@gmail.com
9 Pohnpei Utilities Corporation	FSM	14	O'neal Lebehn	IT Manager	oneal@mypuc.fm
		15	Ioanis Henry	GI & IP Manager	ihenry@mypuc.fm
		16	James Young	CEO	james.young@pub.com.ki
10 Public Utilities Board, Kiribati	Kiribati	17	Tiaon Aukitino	Project Manager, South Tarawa Renewable Energy Project	aukitino@gmail.com
11 Solomon Power	Solomon	18	Dickson Alamania	Manager Generation & Outstation	Dickson.Alamania@solomonpower.com.sb
		19	Graham Kidoe	Manager Projects, Capital Works Division	GrahamK@solomonpower.co
12 Tonga Power Ltd	Tonga	20	Finau Moa	Acting CEO	moafinau4@gmail.com/hlave
		21	Andrew Kautoke	Strategic & Business Development Manager	akautoka@tongapower.to
13 Tuvalu Electricity Corporation	Tuvalu	22	Taaku Sekielu	Manager Distribution	taaku.sekielu@gmail.com
		23	Mafalu Lotolua	General Manager	mafaluloto2@gmail.com
14 Te Aponga Uira	Cook Islands	24	Alistair Newbigging	Senior Engineering/Planner Officer	anewbigging@electricity.co.ck

3. Evaluation of the Workshop:

The evaluation of the workshop is based on feedback from participants taken at the end of the workshop.

The feedback comprise two parts: Part A where participant rate various aspects of the workshop from '0' – unsatisfactory to '5' – mot satisfactory, and Part B where participants are requested to comment on various aspects of the workshop.

a. Part A of the Evaluation:

Figure 1 shows the results of the ratings of the workshop provided by participants. Participants rated the workshop against seven factors of aspects of the workshop. Figure 1 shows the minimum rating, maximum rating and average rating for each factor.

The overall average rating of the workshop is 4.4/5 or 88% indicating that participants felt that the workshop was developed and delivered at a high standard and relevant and useful.

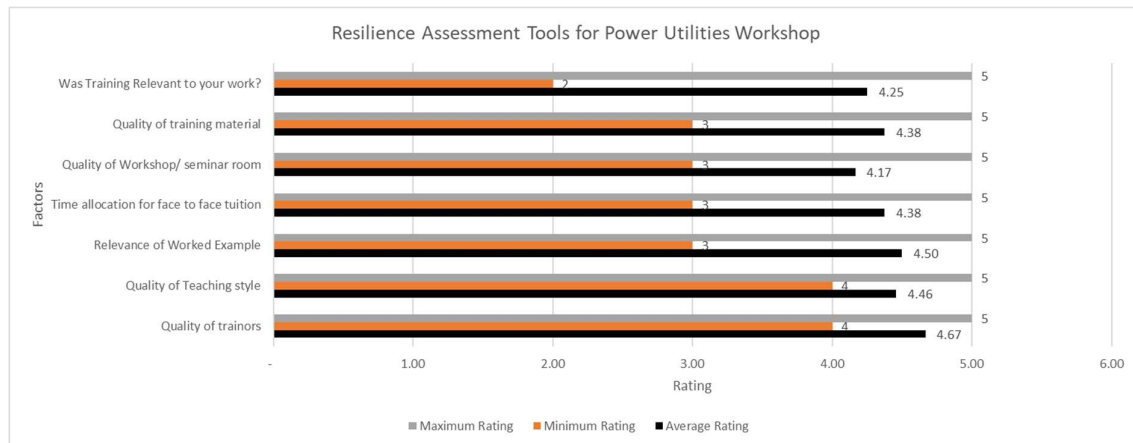


Figure 1: Rating of Workshop by Participants

b. Part B of the Evaluation:

Part B of the evaluation provided participants with the opportunity to comments and various aspects of the workshop to further assess their feedback regarding the workshop. Their responses are as follows:

1. What was the greatest benefit to you in attending the Workshop?

Most of the responses to this question was on the relevance and usefulness of the resilience assessment tools to assessing resilience and planning for improvements, as follows:

1. For me, the greatest benefit I got in this workshop is the viability discussions as to calculating and inputting the strategic ways to analyse cost in our utilities operational cost.
2. Plan strategies and planning of cost and implementation which is available to utilities.
3. Getting to learn how to use the tools and hearing from other participants the challenges faced by other Pacific Utilities.
4. The spreadsheet allowed in-house evaluation of current systems versus resilient system.
5. Aside from learning the use of the tools, the sharing of knowledge from different countries/ utilities.
6. To meet other participants of Pacific utilities and share some accomplishments & difficulties that we can learn from. Chance to learn new tools & assessment that will help our company.

7. Group discussions on Pacific wide problems.
8. Able to understand the importance of resilience assessment tools.
9. To be able to use the resilience and viability tools in Solomon Power. This will be very useful for our current and future plans for both operations and capital works projects.
10. The tools provided.
11. Identifying the hazards and mitigations and potential impact to our power system, Understanding how to use the resilience tools.
12. Sharing challenges among utilities, learning from each other.
13. The tools to manage and mitigate risk.
14. The given tools.
15. New assessment tools
16. Know the difference between utilities and how to assess the power loss.
17. To know that it is important to have a disaster management team and undertake resilience mitigation.
18. Provide relevant tools to assist us in a more resilience workplace.
19. To use the tools.
20. Learn about the tools
21. Economic side of things.
22. The model is good which we will be able to present to donor for a funded project.
23. Interesting insight on the battery BESS market as well as how the RAT would display how viable a climate resilience project would be.
24. No comments

2. Were the instructors able to explain clearly and in a comprehensible way the objectives Workshop?

“Most participants felt the instructors clearly and comprehensively met the objectives of the workshop.”

1. Yes, very clear and understandable.
2. Yes, very appropriate and understandable.
3. Objectives was well explained.
4. Yes, very clearly.
5. Yes, above and beyond to show how the tools work, but more importantly how it would benefit us.
6. Yes, they did a great job and willing to help each and every one with their questions and difficulties of their utilities.
7. Yes
8. Yes
9. Yes
10. Clear instructions were provided by the instructors.
11. Yes
12. Very well
13. Very clear

14. Yes, however not much time given.
15. Well presented
16. Excellent
17. Yes, they were loud and clear and informative.
18. Yes.
19. Yes, definitely
20. Yes, more examples, case studies.
21. Yes
22. Yes, all good.
23. Yes
24. No comment

3. Did you learn anything new from the instructors?

“Most participant learnt something new that was useful to their work.”

1. I learnt a lot of new things, especially on using the tools in analysing project costs and a lot of new stuff.
2. Yes
3. Some insights of how to use the tools.
4. Quiet a bit. Things I can use for the management, Board and leaders.
5. Yes, more on relevant studies and information that are new and important for us to consider.
6. Of course I did learn something from workshop and also from other participants. Site visit was a great opportunity to learn more on hydro plant.
7. Yes
8. Yes, learnt a bit about the economical aspects of resilience
9. Yes, a lot
10. Yes
11. Resilience assessment tool and viability tool.
12. Yes, this tool is new
13. A lot of new information to disaster risk management.
14. Yes.
15. Wrkho was a bit short, but will help once I have a better understanding of the tool.
16. Yes.
17. Yes. I learn it is important to have a plan B in case of disaster. Also learn from neighboring countries.
18. Yes
19. Yes
20. Yes, the assessment tool
21. Yes
22. Yes, definitely and we will use the model back home.
23. Yes

PRACTICAL WORKS

1. What was the greatest benefit to you from the practical works?

“Most participants responded that the greatest benefit was learning to use the tools to plan and assess projects for improving resilience of their power system”

1. It was the use of the tools strategically in comparing present costs with future costs to improve operations.
2. Yes
3. How to populate the spreadsheet
4. Learning to use the spreadsheets.
5. It allows us to make mistakes now so we can ask questions on how to utilize the tools.
6. In order to do assessment and see the difference and choose the best path to follow.
7. No comments
8. Being able to use the tools presented by ECA. I would definitely go back to Solomon Power and have a wider discussion on these tools with our operations/planning and projects teams.
9. Acquiring the tools
10. No comment
11. Knowing how to use the tools to plan and compare options and having a relationship with the community.
12. Getting insight into other utility's operations.
13. Greatest benefit would be the given tools.
14. Use of the new tools developed.
15. Will allow my utility to work together with the other utilities.
16. Helpful to understand what we need to do to help our utilities.
17. Benefit us in technical areas.
18. Learn to use the tools.
19. Project design
20. Resilience assessment tool related to your country situation
21. Seeing EPC system and how maintenance enable operation of schemes from 1956.
22. No comment

GENERAL

1. Did the contents of the workshop presentations match your expectations?

“Most participants felt their expectations of the workshop was matched or exceeded.”

1. All contents of the workshop surely matched my expectations
2. Yes
3. Yes
4. Yes and beyond.
5. Yes, from the title of the workshop this was something expected and more.
6. Yes, way beyond my expectation.
7. Poor, actually facilities wasn't good.
8. No comments
9. Yes
10. Yes
11. Yes
12. Excellent
13. Exceeded.
14. Yes
15. Well presented.
16. Not exactly.
17. Yes.
18. Yes.
19. Yes.
20. Yes
21. Yes
22. Very much
23. Yes

2. Were you able to help fellow workers from other utilities during and after class?

“The workshop involved group discussions and exercises on using the tools. Most participants felt their participation in these discussions helped the other participants.”

1. I was able to help my fellow workers from the other utilities
2. Yes
3. Yes
4. Yes, I believe by sharing about our other projects and challenges.
5. Yes, Yes, again shared information and understanding common issue was critical.
6. Yes, willing to help others and also my fellow workers back home.
7. Yes
8. Yes during discussion exercises.
9. Had a lot of discussions during the workshop
10. Yes
11. Yes
12. A lot of sharing and learning from each other.
13. Yes, it was a team effort.
14. Yes
15. Hope my contribution during the workshop was helpful to others.

16. Yes.
17. It was good to hear from other utilities and compare the issues.
18. Yes.
19. Yes, Through interaction told them how my company mitigated the problem of wood poles falling down during typhoons and replaced with 210 mph concrete poles.
20. I'll be happy too.
21. Yes.
22. Very much
23. Yes

3. Did you learn anything from your fellow workers (participants)?

“Most participants learnt from the group discussions and exercises.”

1. Yes, I learnt a lot from the other participants
2. Yes, In group discussions of problem and mitigation.
3. Yes, in terms of the challenges they faced.
4. Yes, a lot. They experience similar challenges that we may face.
5. Yes.
6. Yes, being part of the group session helped me in this workshop
7. No comments
8. Yes
9. A lot
10. Yes
11. Yes
12. A lot.
13. Area to improve for our utility in terms of risk.
14. I learnt a lot from my peers.
15. All have similar uses with new technology.
16. Yes.
17. Yes.
18. Yes.
19. No comment
20. Yes, learnt from their past experience.
21. Yes
22. Yes, learn what is happening at their utilities.
23. Yes

4. Do you recommend a change in the way the workshop was offered?

a). The length of the workshop.

“Eleven out of the 23 participants that responded to this questions felt the workshop should be extended although the suggested extension ranged from one day to one week. The same number felt the workshop duration was just right”

1. The length of the workshop is excellent
2. Length is OK
3. Should be three to four days and give more time for practical.
4. Yes, should be at least one week.
5. Good, short and sweet.
6. I think it is great to add more days.
7. Ok
8. If possible to add more days
9. No
10. No, length was fantastic
11. Suitable
12. Very well
13. No change
14. Short.
15. More days
16. OK
17. Was a little short.
18. Whole week preferred.
19. No comment
20. Fine
21. 2 days is enough.
22. 3 days
23. 1 week

b). The location.

“Fifteen out of 23 responded that the location of the workshop was good. One felt the facilities was poor.”

1. The location is perfect
2. Location is ok
3. OK.
4. No.
5. Excellent
6. None
7. Poor – actually facility wasn’t good.
8. Also have it in the northern hemisphere.
9. No
10. No Location beautiful
11. No comment
12. Excellent
13. No change

14. Great location
15. Good
16. OK
17. Good
18. Yes, more comfortable location.
19. No comment
20. All good
21. OK
22. A country where there is a new system to see.
23. Yes

c). The instructors.

“All participant commented positively on the quality fo the instructors.”

1. Excellent instructors
2. OK
3. OK
4. No
5. Excellent
6. None
7. Great
8. Great
9. No
10. No Great Instructors
11. No comments
12. Excellent
13. No change
14. Professional
15. Very good.
16. OK
17. Were loud and clear.
18. No
19. No comment
20. Fine
21. OK
22. Ok
23. No

d). The method of instruction.

“The method of instruction was consider good to excellent by most participants

1. Excellent
2. OK
3. OK
4. No

5. Excellent
6. None
7. Great
8. All good
9. No
10. No
11. No comments
12. Excellent
13. No change
14. Job well done.
15. Very good.
16. OK
17. Was good
18. No
19. No comment
20. Fine
21. OK
22. All good.
23. Yes

5. Were the sessions well structured?

“Participants were happy with the structure fo the workshop.”

1. Perfectly well structured
2. Yes and we have to implement exercises to get familiar.
3. Yes
4. Yes
5. Yes.
6. Yes, great venue, great food & all.
7. Great
8. Yes
9. They were
10. Yes, well structured
11. Yes
12. Very well
13. Very well structured.
14. Yes.
15. Very good.
16. Yes.
17. Yes.
18. Yes
19. No comment
20. All good
21. Yes
22. Very well

23. Yes

6. Were questions answered well by the presenters? And was there enough time for questions and discussions?

“Most participants were satisfied with the time for questions and discussions although a couple would refer that more time be given.”

1. Yes
2. Yes
3. Yes
4. Yes, yes
5. Yes & Yes
6. Yes
7. Yes
8. Yes
9. The time was enough
10. Yes
11. Yes
12. Excellent
13. Some questions, yes
14. Yes, but need more time.
15. Well explained.
16. Yes.
17. Yes
18. Need more time.
19. No comment
20. There was enough time.
21. Yes
22. Very well
23. Yes

7. According to you, what was particularly well done and what needs to be further improved in the workshop?

“Most participants commented positively on the execution of various aspects of the workshop. Six participants preferred or did not care to respond to this question.”

1. Group discussions and sharing of knowledge or situations in each countries utilities really helped my learning and how to further improve my work.
2. Everything well done.
3. The presentation of material used was good.
4. Spreadsheet was well done, longer workshop would be better.
5. Maybe send the agenda earlier.
6. All good, but its good to have more days for the workshop.

7. No comments
8. No comments
9. Overall, I'd say it was well organized.
10. Nothing at this stage
11. The explanation of content for this workshop
12. Split into groups and sharing.
13. No change
14. I think the workshop was conducted professionally.
15. Require more days for workshop to better understand the tools.
16. More discussion on power loss.
17. No comment
18. Presenting the model
19. No comment
20. More practical and share the tools earlier for practice and understanding.
21. Explaining the tools to assist with climate resilience, Provide more examples.
22. No comment
23. Group activity was great and example project were well presented. Just need a little overview about hat the project was about.
24. No comment

8. Should these kinds of workshops be repeated and how often?

"22 of the 24 participants indicate the workshop should be repeated. How often the workshop should be conducted ranged from every quarter to every two years."

1. Yes and repeated annually
2. Yes, definitely
3. Should be done annually.
4. Yes, every 2 -3 years.
5. At least once a year.
6. Yes.
7. Yes, very beneficial.
8. Yes, hope there is a repeat of this workshop in the future.
9. Maybe, annual recurrence which would give participants to present their resilience results over each year.
10. Repeated with different agenda and topics.
11. Yes, every two years
12. Quarterly
13. Annual Basis
14. Yes, I believe this kind of workshop should be repeated to keep the Pacific utilities aware of what is happening every 6 months.
15. Two times a year.
16. Yes, once a year.
17. Yes, it will be good to repeat.
18. Yes.

19. No comment
20. No comment
21. Once a year
22. Very much
23. Yes, over a month or so.
24. Twice a year

9. Any further comments

“Most participants have no further comments to make. One commented on the provision of free wifi. (Note: this was originally confirmed by the hotel but was not provided.)”

1. Provide free wifi in the workshop. Power point presentations to be shared with participants.
2. Workshop to be held in country that has already being studied.
3. Enjoyed the sessions as it was an eye opener, especially the tools.
4. None
5. None.
6. Thank you ECA for the course and thank you to PPA.
7. No comments
8. No comments.
9. No further comments
10. Not at this stage
11. No comment.
12. Need more funding for this workshop.
13. Very well done. Be great to make it annual as disasters are becoming more unpredictable and more frequent.
14. Very informative workshop.
15. No comment.
16. The workshop is well arranged.
17. No comment, Everything was good and useful.
18. No comment.
19. No comment
20. No comment.
21. No comment
22. None in particular.
23. No further comments.
24. No comment

4. Conclusion:

The development of the resilience assessment tools was a timely intervention that is expected to greatly assist the capacity of power utilities improve their resilience to natural and climate change disasters and this workshop needs to be repeated to help power utilities of the PICT proactively improve their resilience.



Abraham Simpson

Manager SEIDP