USA Project update

EGNRET -59

Manila, Philippines

October 17-18, 2023

USA 2021 Session 1 Project: Lessons learned on resiliency and uptake of variable energy resources from islanded grids that support APEC clean energy goals (EWG 04 2021A)

APEC forum: EWG/ERTF & EGNRET

Co-sponsoring economies: Australia, Canada, Hong Kong China,
Thailand, Philippines, Chinese Taipei,

Start date: January 3,2022

End date: May 31, 2023 (a project extension has been received)

Expected project cost(USD): 120,000

APEC (USD): 100,000 ASF/EELCER

Project Overseer:

Cary Bloyd
Senior Advisor
Pacific Northwest National Laboratory
Richland, Washington

Status: Completed, project report available at: https://www.apec.org/publications/2023/05/lessons-learned-on-resiliency-and-uptake-of-variable-energy-resources-from-islanded-grids-that-support-apec-clean-energy-goals

Project Outputs

- The project report provided a summary of the costs and operational experiences of providing reliable electricity while utilizing maximum variable energy resources from islanded grids in the APEC region
- A secondary output was a one-day virtual meeting held midway through the project which will enable the feedback from the participants to be incorporated into the research and then the final report

Lessons learned on resiliency and uptake of variable energy resources from islanded grids that support APEC clean energy goals: Selected Case Studies

Figure 14 – The ten case studies analysed

Lessons learned on resiliency and uptake of variable energy resources from islanded grids that support APEC clean energy goals: Selected Case Studies

Appendix A – Technical System Characteristics of Selected Case Studies

	King Island	Onslow	Kaua'i Island	Kodiak Island	Cordova	Old Crow	Isla Huapi	Samoa	Lord Howe Island	Hawaii Island
Nameplate Capacity	9.42 MW	3 MW	259.2 MW	75 MW	18.3MW	4.4 MW	416kW	78.51 MW	2.84 MW	525.6 MW
Maximum Demand	2.5 MW	-	75.17 MW	27.8 MW	6.5 MW	587 kW		33 MW	489 kW	
Annual Generation	12 GWh	-	435 GWh	145.6 GWh	26.8 GWh			173.6 GWh	2 GWh	1043 GWh
VRE Penetration	65%	50%	69.5%	99.7%	78%	24%	100%	38%	69%	60%
Centralised Wind	2.45 MW	-	-	9 MW				0.55 MW		31 MW
Centralised Solar	Solar 0.47 MW	Utility Solar Farm 1 MW	Solar 118.9 MW	N/A		940 kW		15 MW	1 MW	60 MW
Distributed PV	-	Residential Solar 1.34 MW Commercial/Industrial Solar 0.64 MW	Residential Solar 21 MW	-			416kW			116MW
Other	Wave Generator 0.2 MW [59]	-	Hydro 17.3 MW Biomass 6.7 MW Fossil 110.5 MW	Hydro 31 MW Back Up Diesel 31 MW	Hydro 7.5 MW Diesel 10.8 MW	Diesel 2.8 MW		Hydro 15.46 MW Diesel 39.5 MW	Diesel 0.84 MW	Hydro 16.6 MW Biomass 21.5 MW Geothermal 38 MW Fossil 242.5 MW
Storage	BESS 3 MW/1.5 MWh	Utility Power Station BESS 500 kWh Utility Network BESS 1 MWh	BESS 47 MW/ 222 MWh	Lithium-Ion BESS 3 MW	BESS 1 MW/1 MWh	BESS 616 kW/612 kWh		BESS 8 MW/13.6 MWh	BESS 1 MW/3.7 MWh	BESS 152 MWh
BTM Resources	-	Residential ESS 190 kWh Commercial/Industrial Smoothing Storage 361 kWh	-	-			Residential ESS 3.78MWh			
Other	Flywheel 2 MVA Dynamic Resistor 1.5 MW	-	-	Flywheel 2 MW						

USA 2021 Session 2 Project: APEC Workshop Furthering University Collaboration to Support Data Gathering and Analysis in Energy Efficiency, Renewable Energy, and Energy Resiliency (EWG 12 2021A)

APEC forum: EWG/EGEEC & EGNRET

Co-sponsoring economies: Thailand, Philippines, Chinese Taipei, Australia
APEC forum: EWG/EGEEC & EGNRET
Start date: March 2022
End date: June 2023
Expected project cost(USD): 140,000 APEC (USD): 100,000 ASF/EELCER
Project Overseer:
Kathleen Purvis-Roberts
Professor of Chemistry & Environmental Science
Claremont McKenna College
Claremont, California
Status: Completed, final report available at: https://www.apec.org/publications/2023/09/final-report---building-back-better-energy-efficiency-renewable-energy-and-energy-resiliency-in-the-new-normal

Project Objectives

1. Build the capacity of workshop participants by continuing to develop collaborations between the EWG, APERC, and University faculty in APEC economies.
2. Continue discussion of data gaps and needs in Energy Efficiency, Renewable Energy, and Energy Resiliency and develop policy recommendations for the EWG in these areas
3. Share examples of collaborative projects that began at the June 2021 online workshop by policymakers and Universities in APEC economies that address APEC energy efficiency, renewable energy, and energy resiliency goals.
4. Identify other methods of analysis to be included in projects, such as economic analysis
5. Discuss potential ideas for new collaborative projects

EWG 07 2021S: Promoting Net Zero or Carbon Neutral Commitments in APEC

APEC forum: EWG

Co-sponsoring economies: Hong Kong, China, Thailand

Start date: October 2021

End date: December 2024

Expected project cost(USD): 250,000

Project Overseer:
Ron Cherry, US Department of Energy
Ann Katsaik, US-SEGA Project, Nathan Associates

Status: In implementation

Project Objective

- The proposed project is a multiyear workstream for information sharing and capacity building to support APEC economies seeking to make net zero or carbon neutral commitments.

Project Outputs to Date

- Compendium of best practices
- Guidelines to conduct Voluntary Peer Reviews for Net Zero or Carbon Neutral Commitments

USA 2023 Session 2 Project: Driving Trade & Investment for DC Power Systems and Microgrid Frameworks Through Public Policy Alignment (EWG 208 2023A)

APEC forum: EWG/ERTF

Co-sponsoring economies: Chile, Hong Kong China,
Philippines, Chinese Taipei, Viet Nam
Start date: November 2023
End date: June 2025
Expected project cost(USD): 186,000
APEC (USD): 100,000 ASF/EELCER
Project Overseer:
Cary Bloyd
Senior Advisor
Pacific Northwest National Laboratory
Richland, Washington
Status: Project approved in principle, full proposal is under evaluation

Project Outputs

- This project seeks to build the capacity of APEC members and promote energy security and low-carbon energy systems by fostering harmonization of regulatory and conformity assessment approaches for DC power and microgrid systems.
- Regulatory non-alignment is a major barrier to energy-related trade and investment – particularly in emerging technologies
- Outputs will include a project workshop and summary report

USA 2023 Self-funded Project: Microgrids for a Just Energy Transition (EWG 04 2023S)

APEC forum: EWG

Co-sponsoring economies:
Start date: October 2023
End date: January 2024
Expected project cost(USD): TDB
Project Overseer:

Cary Bloyd
Senior Advisor
Pacific Northwest National Laboratory
Richland, Washington

Status: Project is being implemented

Project Outputs

- This project will host a half-day workshop to build capacity in APEC economies to leverage microgids and related technologies towards a just energy transition
- Outputs will include a project workshop and summary report