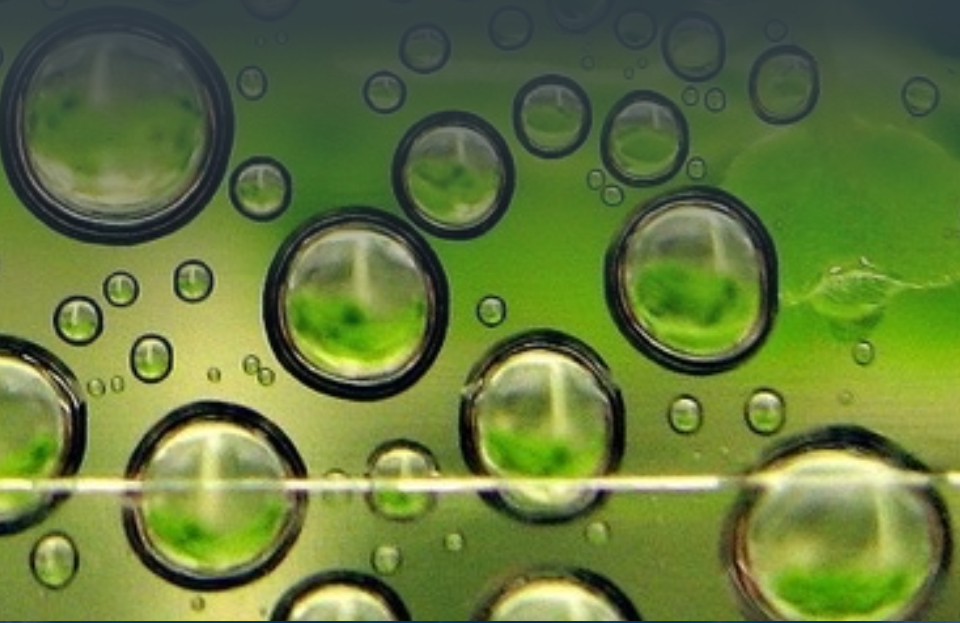




Greenhouse Gas Offset Overview

Greenhouse Gas Reduction Actions

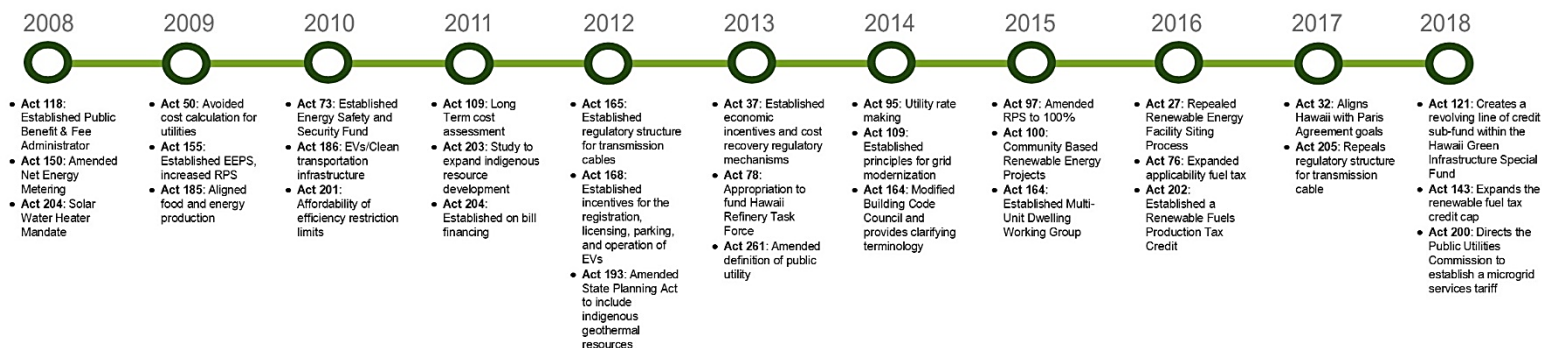


Additional Hawai'i GHG Reductions Initiatives

• Hawaii Clean Energy Initiative (HCEI):

The State of Hawai'i launched the HCEI partnership in 2008 with the US Department of Energy to collaborate on the reduction of Hawai'i's heavy dependence on imported fossil fuels.

The HCEI resulted in a total of 82 laws enacted between 2008-2017:



• Renewable Portfolio Standard (RPS) ([Hawaii Revised Statutes §269-92](#))

Requires all electric utilities in Hawai'i to establish an RPS of:

- 30% by 12/31/2020,
- 40% by 12/31/2030,
- 70% by 12/31/2040, and
- 100% by 12/31/2045.

• Energy Efficiency Portfolio Standard (EEPS) ([Hawaii Revised Statutes §269-96](#))

Establishes energy-efficient portfolio standards, and mandates 30% (4,300 GW) energy reduction goal by 2030.

Definition of Terms

Offset Verb - Offsetting

- Reduce GHG emissions offsite
- Reductions not officially certified

Offset Noun - GHG Offset Credit

- Officially certified credit representing reductions
- The focus of this symposium



Approved by the Governor

on JUN 04 2018

ORIGINAL

ACT 016

HOUSE OF REPRESENTATIVES
TWENTY-NINTH LEGISLATURE, 2018
STATE OF HAWAII

H.B. NO. 1986
H.D. 2
S.D. 2
C.D. 1

A BILL FOR AN ACT

RELATING TO THE ENVIRONMENT.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

1 SECTION 1. The legislature finds that the State's natural
2 environment and ecosystems are in a fragile state due to the
3 amount of greenhouse gases released through human activities and



12 other states and private industries have established these types
13 of credits for purchase by polluters to offset their carbon

Definition of Terms

Offset:

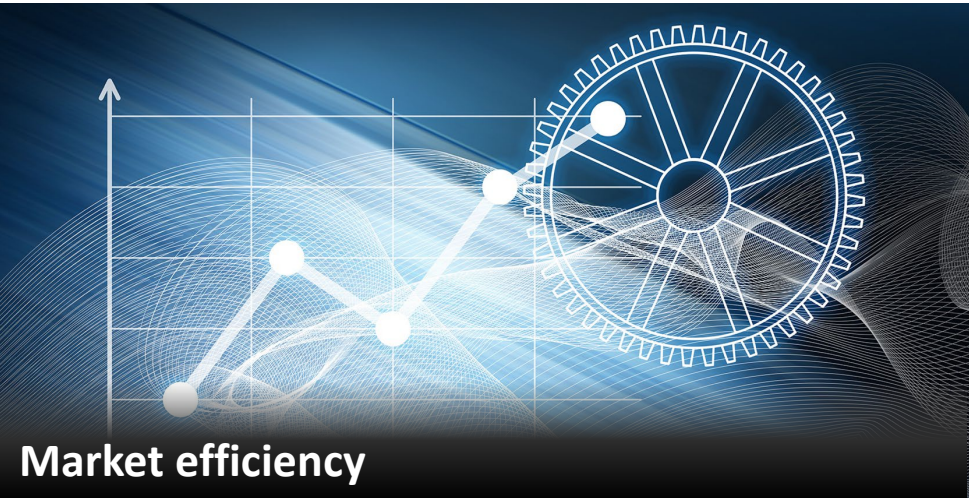
An offset credit, sometimes referred to as “GHG emissions reductions credit,” “offset certificate,” “offset instrument,” “carbon offset”, “GHG offset” or simply “offset,” is a credit for mitigating 1 metric ton (MT) carbon dioxide equivalent (CO₂e) by paying someone else to avoid 1 MT CO₂e elsewhere. Offset credits are monetarily tradeable as well as evaluated, certified, and guaranteed by a standard or program.

Important Note: GHG emissions reductions, including sequestration, are *not* necessarily offsets.



Offsets' primary purpose is to mitigate climate change by bridging the gap between high and low cost GHG reductions

Benefits of Offsets



Market efficiency



Technology transfers



Local air quality improvements



Support of developing regions



Other environmental co-benefits

Distinguishing Between Related Credits

Emissions Reduction Credits (ERC)

- A credit earned by an entity in a regional air quality jurisdiction based on the reduction in air emissions beyond what is required by rules or permits. ERCs are based on non-carbon related pollutants including NO_x, SO_x and VOCs

Renewable Energy Credits (REC)

- The generation of one megawatt hour (MWh) of electricity from an eligible source of renewable power and is tradable for voluntary and compliance requirements

Important Note: Offsets, ERCs, and RECs are three distinct types of credits. There are numerous other types of environmental credits, and these distinct types of credits are not directly interchangeable. The remainder of the symposium will focus on offsets specifically.

Offset Program Feasibility through Offset Project Understanding

Offset Project Feasibility

Feasibility of a GHG reduction project converting to an offset can be assessed through:

- Quality Criteria - current presentation
- Additional / Additionality - current presentation
- Financial Viability - Steve Baczko
- Environmental Justice - Trisha Kehaulani Watson

Important Note: Most GHG reductions are *not* converted to offsets.

Quality Criteria for Offsets

- Real
- Quantifiable
- Permanent
- Enforceable
- Verifiable

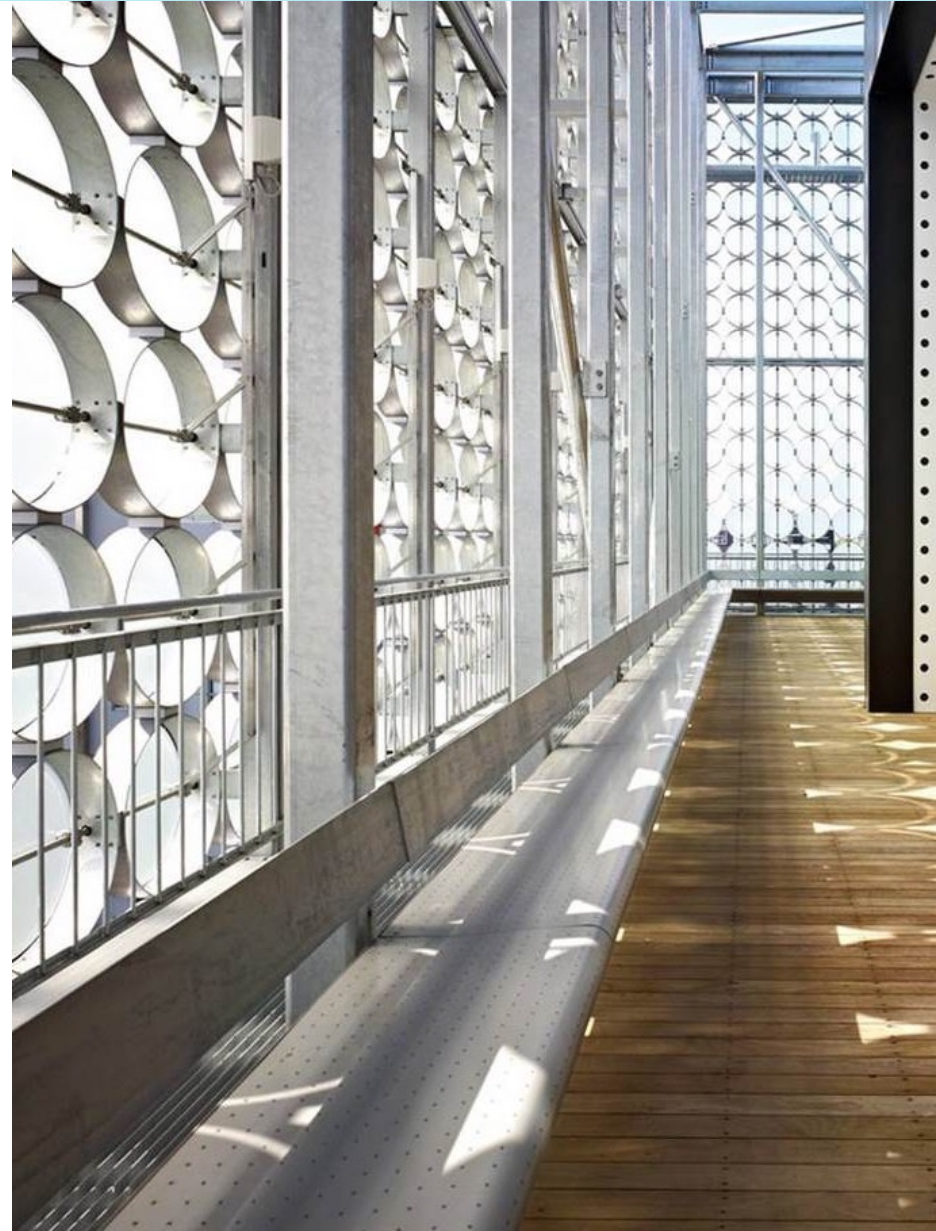


Quality Criteria for Offsets

Real/Actual:

Quantified through technically and scientifically sound accounting practices that represent actual emissions reductions beyond a baseline.

- Initial question: What is the GHG reduction associated with the action?



Quality Criteria for Offsets



Quantifiable / Quantification:

The ability to consistently manage, measure, and calculate the total quantity of offsets produced.

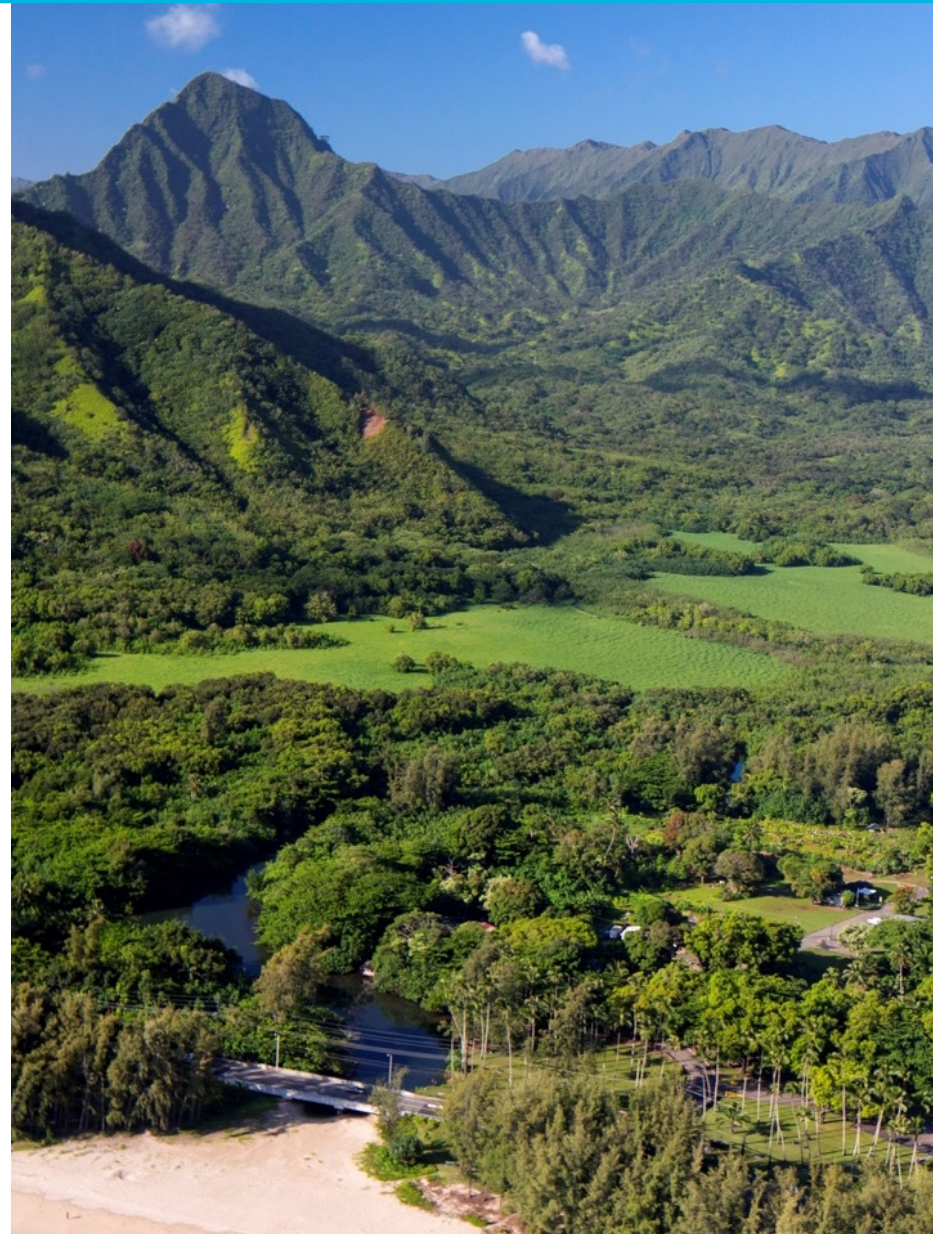
- Deceptively challenging, particularly paired with other quality criteria.

Quality Criteria for Offsets

Permanent / Permanence:

The GHG emissions reductions will last in perpetuity without reversal.

- Relatively straight forward for GHG reductions involving destruction of High-Global Warming Potential (GWP) GHG.
- More challenging for land use change efforts involving sequestration.



Quality Criteria for Offsets



Enforceable/Enforceability:

Assurance that the offset credits are trackable and supported by regulatory or third-party framework that defines their creation, provides transparency, and guarantees exclusive ownership.

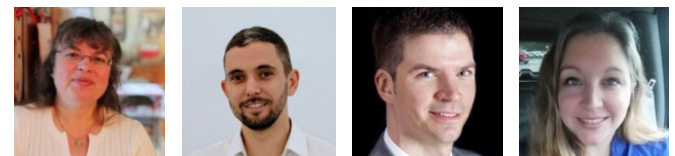
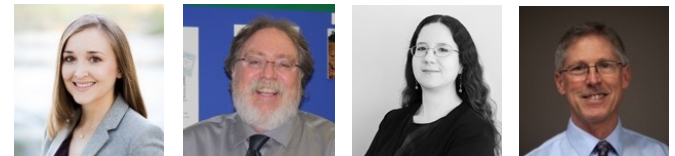
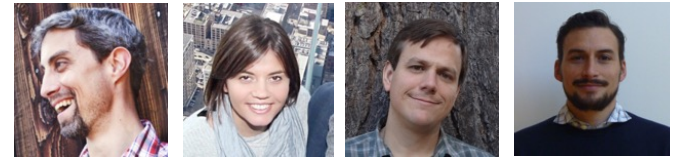
- Compliance programs can satisfy requirement.
- Insurance and other financial mechanisms can also provide assurance.

Quality Criteria for Offsets

Verifiable/Verification:

An annual auditing process performed by an approved party according to the offset project's program, whereby the project's offset credits are calculated according to the approved protocol.

- Requires performance by a third party with no conflict of interest.



Additional/Additionality

The GHG reduction project must be an additional project, not one that would have been created in a baseline scenario. The primary tests for determining additionality include:

- **Legal Requirement Test:**

The GHG reduction is not required by any federal, state, or local law, statute, rule, regulation, ordinance, court order, or other binding mandate.

- **Performance Test:**

The project achieves greater GHG reductions or removals than the standard performance threshold for the given project type, demonstrating the emissions reduction would only occur through development of the offset credit.



Additionality Related to Leakage

Leakage: An undesirable situation in which reduction of one entity's GHG emissions leads to an increase in GHG emissions elsewhere in the world.

As GHGs are a pollutant with global consequences, regardless of the location of emissions.



Standards, Protocols and Registries

Who sets Quality Criteria and determines Additionality?

Standards or Programs

International

- Clean Development Mechanism (CDM)
- Reduction in Emissions through Deforestation and forest Degradation (REDD+) (*note: not always market based/offset generating*)
- Joint Implementation (JI) (*note: Kyoto Protocol trading only*)

State Level

- California Air Resources Board (CARB) Compliance Offset Program
- Regional Greenhouse Gas Initiative (RGGI) Offset Program

Voluntary

- American Carbon Registry (ACR),
- Climate Action Reserve (CAR),
- Verified Carbon Standard (VCS), and
- Gold Standard



UN-REDD
PROGRAMME



RGGI Inc.



CLIMATE
ACTION
RESERVE



How are Quality Criteria determined?

Existing Protocols under Programs or Standards

Offset Protocol Category	Examples of Current Project Protocol Options	Current Project Locations
Renewable Energy Generation	Wind and solar projects	Developing countries
	Biomass energy projects	Developing countries
	Hydropower projects	Developing countries
Energy Distribution, Demand, or Efficiency	Multiple project types	Multiple countries, including US
Transport	Multiple project types	Multiple countries, including US
Industrial Process and Fugitive Emissions	Multiple project types	Multiple countries, including US
Waste Handling and Disposal	Landfill and wastewater projects	Multiple countries, including US
Land Management: Agriculture, Forestry, Grassland or other	Multiple project types	Multiple countries, including US
Livestock and Manure Management	Multiple project types	Multiple countries, including US

How are Quality Criteria accounted for?

Tracking Offsets Through Registries

- Offset programs must use registries such as APX and IHS Markit to track offset projects.
- A registry is an independent entity that guarantees a GHG offset credit is counted only once through tracking offset production and purchases, to guarantee singular ownership.
- GHG offsets are retired through these third-party registries.



GHG Offset Project Development BASICS

Step 1 Protocol Selection or Development

- Identify appropriate protocols and methodologies
- Use existing protocol, modify an existing protocol, or develop a new protocol
- Identify stakeholders

Step 2 Project Development

- Evaluate costs and revenues
- Initiate the project
- Construct or establish necessary

Step 3 Management, Monitoring and Verification

- Develop management and monitoring plans
- Measure and gather annual data
- Complete third party verification

Step 4 Registration/Exchange

- Connect with registries through standards and programs
- Guarantee that offsets meet necessary requirements
- Track offset records for trading and retirement

Step 5 Consumers and Potential Government Policy

- Sell offset credits to compliance or voluntary buyers
- Future acceptance of offset credits for government-based program, if applicable
- Retire offsets from future trading