Energy Planning Framework

to support planning for energy transitions in Pacific Island Countries and Territories

Iain MacGill, Edoardo Santagata
The University of New South Wales | Collaboration on Energy and Environmental Markets

CONTEXT

Overview of planning, data & tools, and frameworks

Background & Motivation – Fifth PRETMM

Pacific Community
Communauté du Pacifique

FIFTH PACIFIC REGIONAL ENERGY AND TRANSPORT MINISTERS' MEETING

Warwick Hotel, Port Vila, Vanuatu, 08 – 12 May 2023

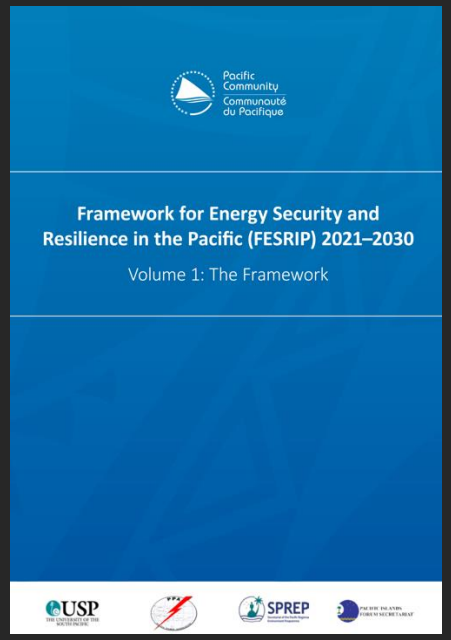
"Accelerating decarbonisation in the Blue Pacific".

EFATE OUTCOME STATEMENT

Port Vila, Vanuatu, 11-12 May 2023

29. **Call on** PICTs, SPC, PCREEE, PPA and other partners to develop and use enhanced and tailored energy planning frameworks and capacity expansion tools for net zero outcomes, with a focus on future demand assessments, universal energy access, transitioning fossil fuel dependent sectors, hydrogen energy sources, meeting 100% renewable targets, electrifying road transport/household/commercial uses, securing island grids with high variable renewable penetrations, expanding distributed microgrids, jurisdictional planning and expanding solar home systems for remote communities.

Background & Motivation



Priority A: Energy Policy, Planning and Capacity Development	
1. Development and implementation of robust national energy policies, plans and legislation	SPC, lead; PPA for power sector
2. Capacity development in the energy sector	USP, lead in cooperation with the other CROP agencies
3. Database development with energy resilience/security indicators	SPC and PPA, co-leads
4. Rectifying gender imbalance in the energy sector	SPC, lead
5. Non-commercial household energy	SPC, lead in cooperation with USP

Frameworks versus policies and plans

A framework is a set of principles and long-term goal(s) that form the basis for developing guidelines and provides overall direction for planning appropriate initiatives. Unlike a plan, it does not require an agreed end-point or comprehensive set of activities that have to be implemented for the goals to be achieved. This framework sets out long-term goals and the broad path to get there, including principles, processes and management arrangements.

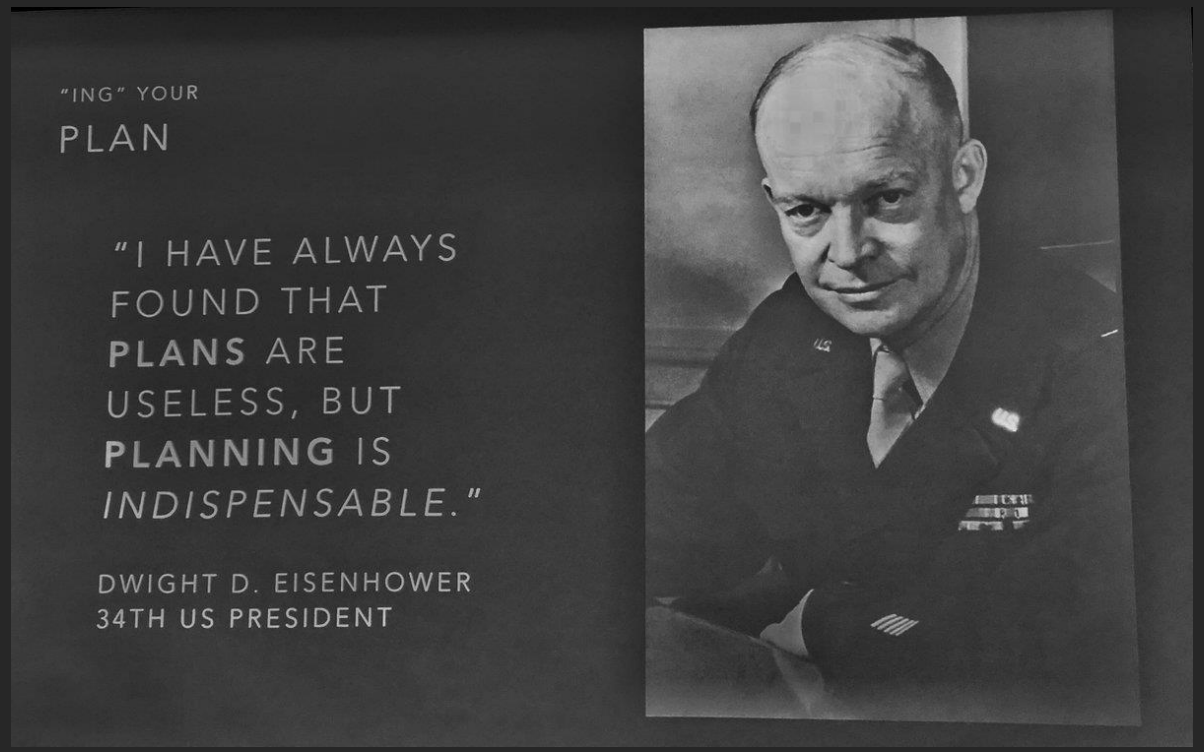
- FESRIP 2021–2030 does not include an associated detailed energy implementation plan by CROP agencies and none is recommended. Instead, detailed work-planning, such as medium-term strategic plans and annual work plans, will be done by the individual CROP agencies based on FESRIP 2021–2030, including the Priority Energy Initiatives (refer to section 6.2).

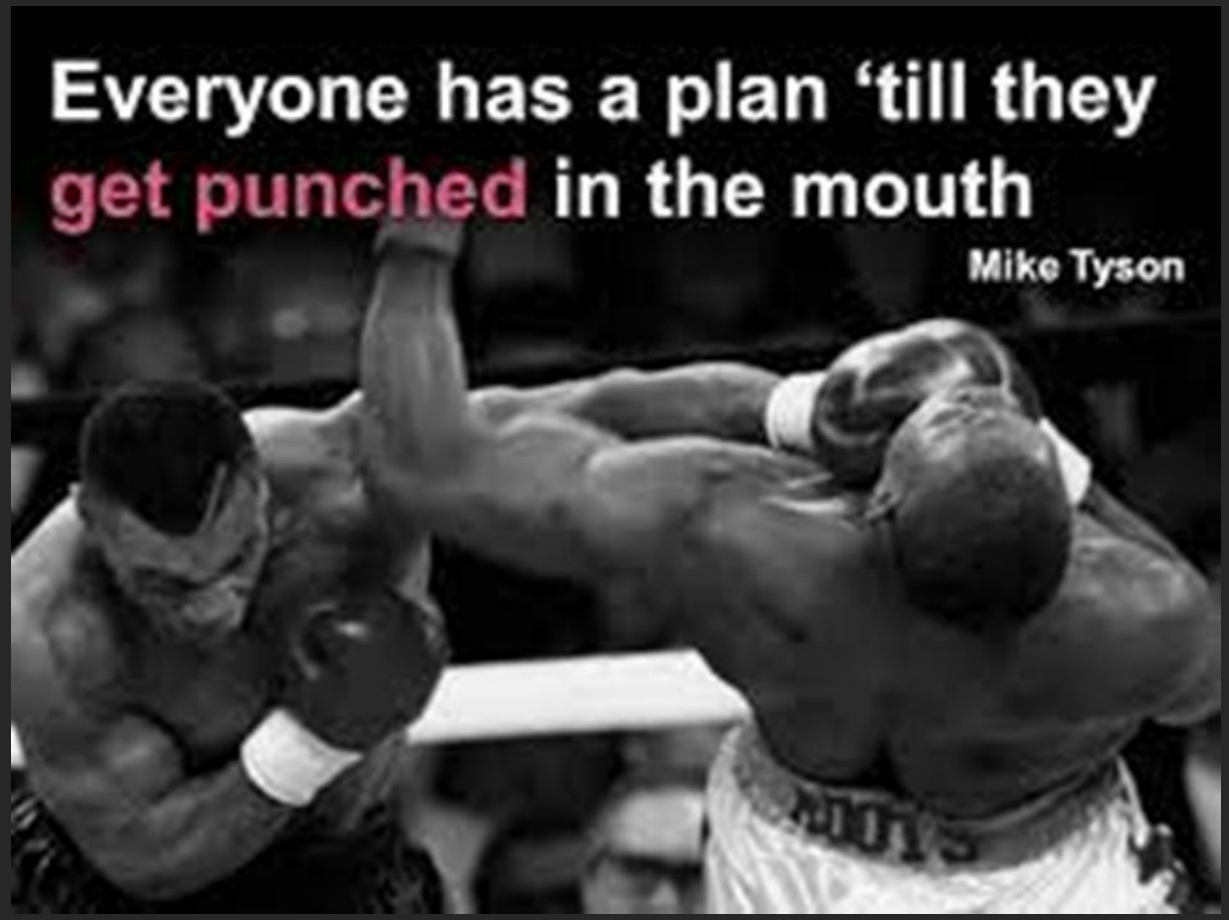
Development and implementation of robust national energy policies, plans and legislation

(SPC, lead; PPA for power sector)

CROP agency support will be provided for PICTs to develop, review, assess and refine their policies and plans with the objective of improving robustness of the plans and their implementation. Among others, planners and plans often do not adequately consider future uncertainties or allow for the known near-future impacts of disruptive climate change, such as flooding of new facilities. PIC energy policies, particularly within the power sector, have generally been developed to meet specific forecast expectations of energy demand or a narrow range of demand scenarios. Under the high uncertainty anticipated for 2021 through 2030 and beyond, effective planning requires an assessment of the range, likelihood and type of current and upcoming risks, then choosing and implementing the option that is the most practical and robust to the most uncertainties. CROP agency assistance to PICTs for energy policies and plans and their implementation will adopt this approach, avoiding a 'predict one outcome, then act' approach. In addition, in the context of energy and climate change mitigation planning, CROP agencies will support PICTs to consider the issues of carbon pricing, fossil fuel subsidies and a just transition from fossil fuels. Another important aspect is aligning national energy policy targets with NDC targets. Among other benefits, this will assist with accessing climate financing for the implementation of NDCs and national energy policies. Furthermore, given the

Key insight – we need planning, not just plans





Everyone has an energy plan until the world catches COVID, or extreme weather events take out key infrastructure, or supply chains tighten, or there is a global fossil fuel price shock, or…

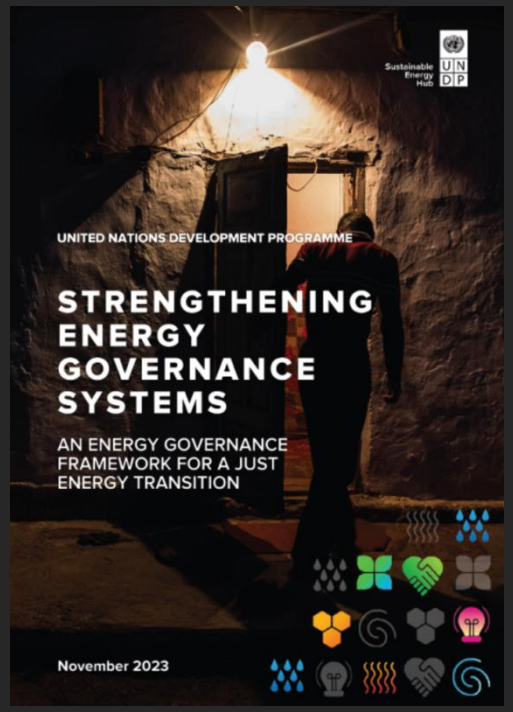
PLANNING OUTCOMES

STRATEGIC PLANS

Long, complicated, detailed plans	90% OF PLANS FAIL	Concise, elegant plans
The “deliverable” is a document		The “deliverable” is aligned commitment
Process measures		Leading and Lagging Outcome measures
No personal accountability		A champion accountable for each measure
Disparate budget, performance metrics, and strategic plan		A Strategic plan budget and individual performance metrics
A document “on the shelf” or “in the cloud”		A “living” set of goals and measures embraced by all

10% OF PLANS SUCCEED

Some relevant planning frameworks

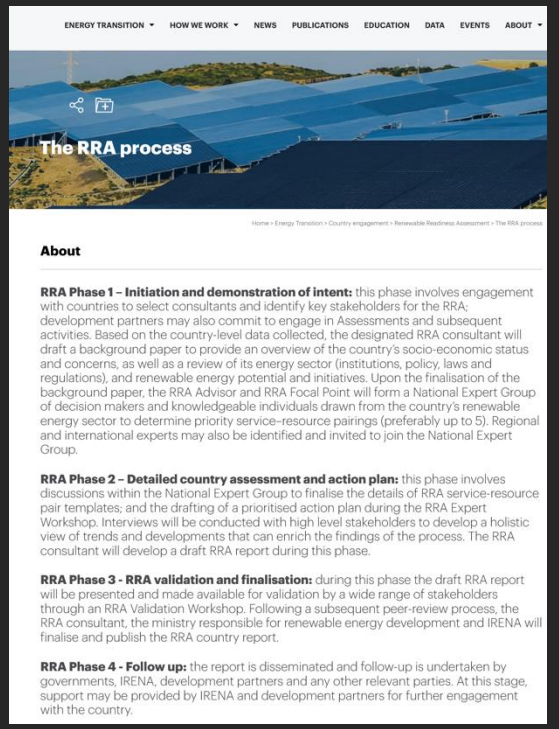


UNDP

Defining energy governance models to broadly structure planning

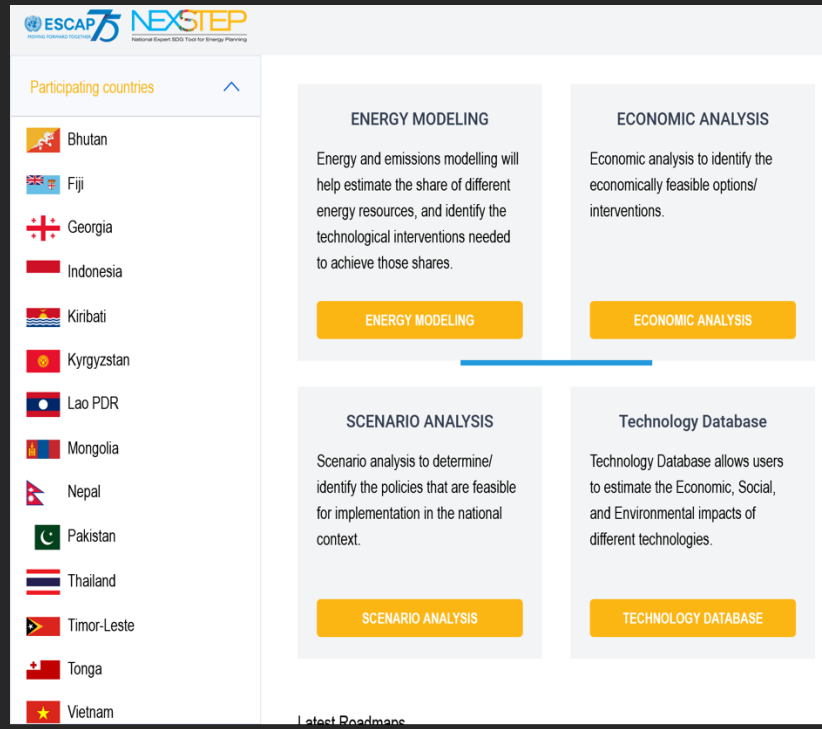
IEA

Planning as the energy policy cycle and its implementations



IRENA

Renewable Energy Readiness Assessments



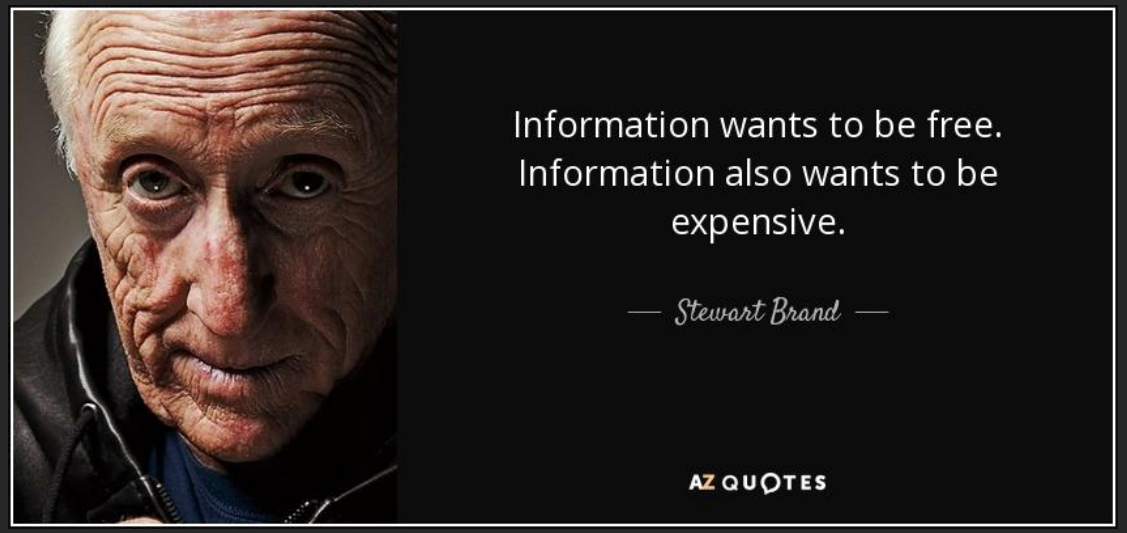
ESCAP

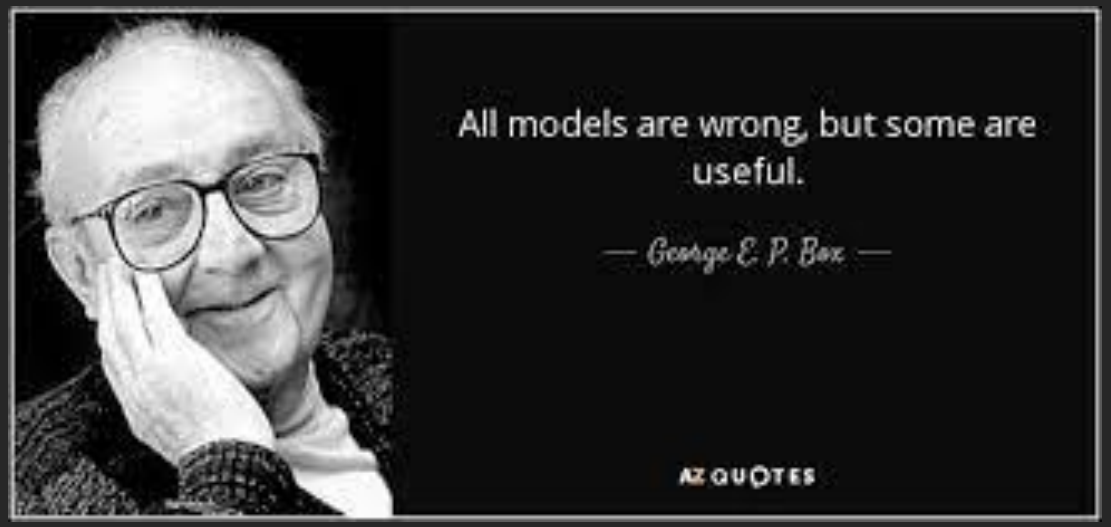
NEXSTEP – National Expert SDG Tool for Energy Planning

PLANNING – anticipatory decision making

- A **decision** is the commitment to irrevocably allocate valuable resources *with consequences*.
- Decision-making **framework**
  - What objectives? – *lots of them in energy, how to deal with tradeoffs*
  - What decisions? *(available choices) – what exists, proven, what might be possible*
  - How are they taken? *Who are the decision makers, what of stakeholders?*
- **Good** decision making more likely with
  - Clear and agreed objectives – *many potential stakeholders*
  - Clarity on actually available options – *'real world' data, modelling tools,*
  - Well informed and motivated decision makers – *lots of decision makers*
  - With a good process that
    - includes all stakeholders – *everyone a stakeholder in energy transition, how can they participate?*
    - Autonomy for the decision maker (decision theirs to make) … but also accountability
    - Monitors and evaluates progress, changing context
    - Continually revises and refines plans as things change
- *DATA and TOOLS don't do planning, instead they provide DECISION SUPPORT within planning frameworks*

Data and tools





Open-source data tools to help

- Make it easier to collect
- Make it available
- Make it pretty
- *Make it actionable*

Open-source energy modelling, simulation, optimisation tools to help

- Stakeholders engage
- Explore multiple possible energy transition pathways
- Continue to evolve plans as circumstances change
- Ensure tools being used are ‘fit for purpose

PLANNING FRAMEWORK

To support energy transition planning in PICTs

(upcoming publication)

METHODOLOGY

CONCEPTUAL FOUNDATIONS

Energy planning
Planning Frameworks
Planning for security & resilience
Risk

+

PICTs Context

Challenges & Risks
Planning Processes
Policy Status
(Regional, National, Utility)

"improved planning frameworks" and "to identify current approaches to planning […] in the region"
- PRETTM 2023

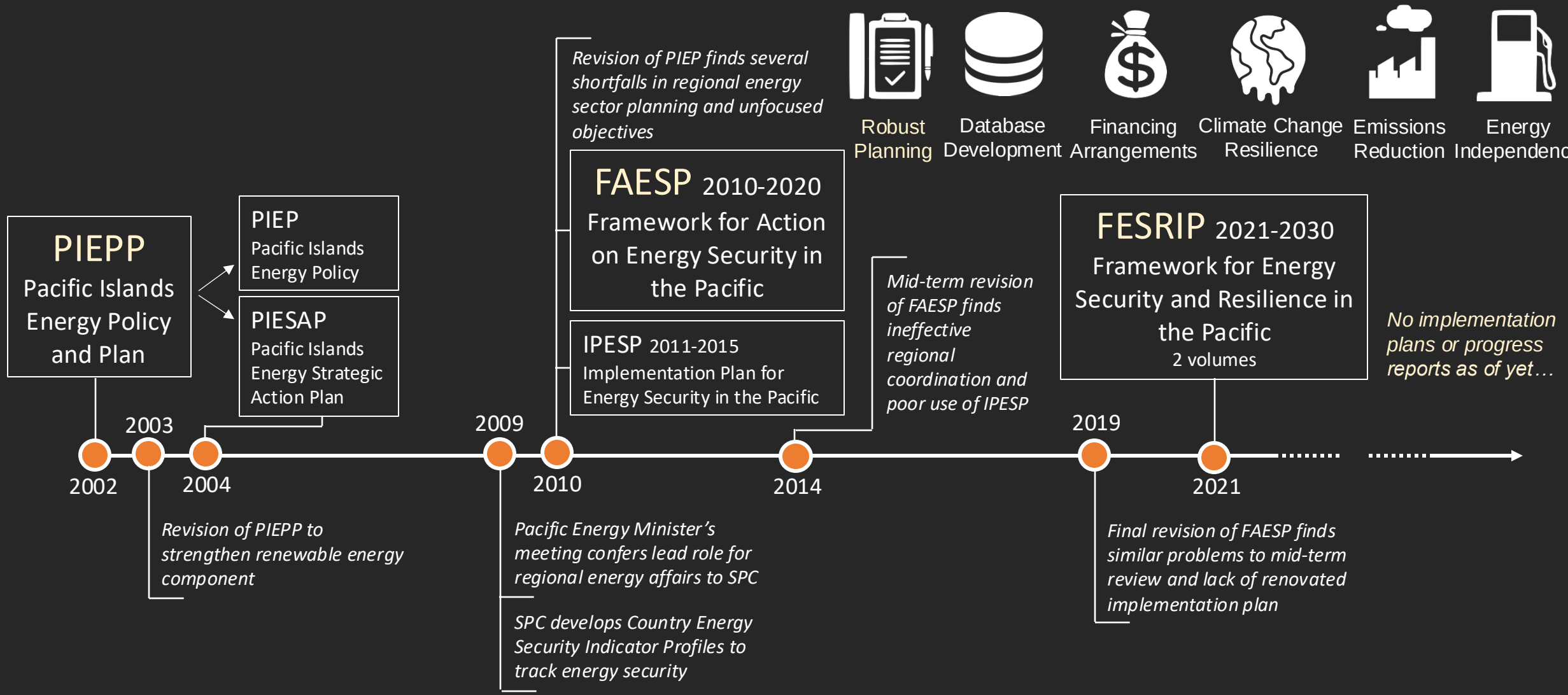
PRACTICAL ENERGY PLANNING NEEDS

1. Define structured planning processes
2. Understand risks and how to respond to them

ENERGY PLANNING FRAMEWORK

Application for Vanuatu

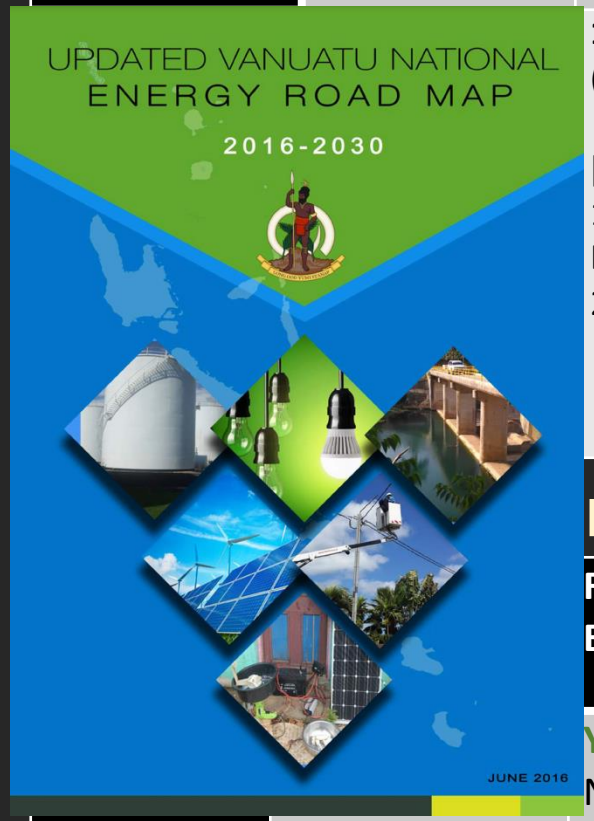
REGIONAL FRAMEWORKS

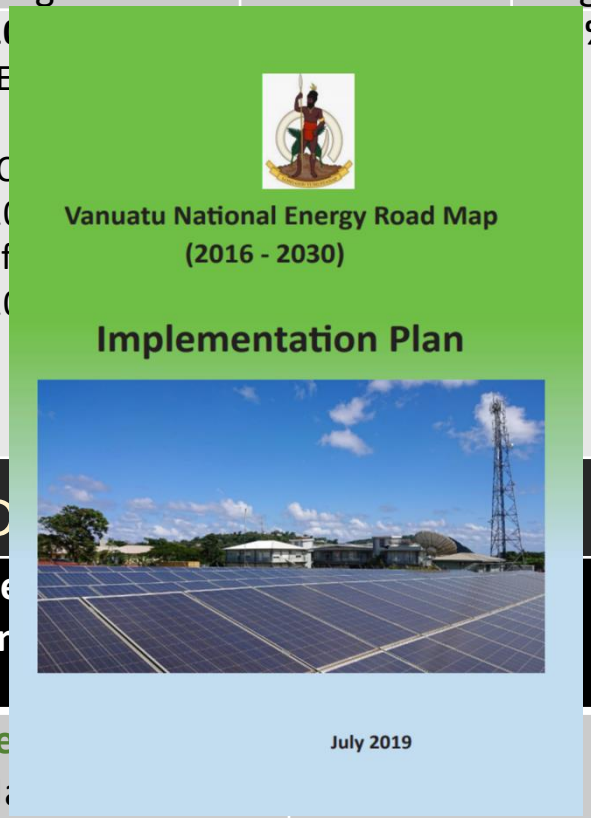


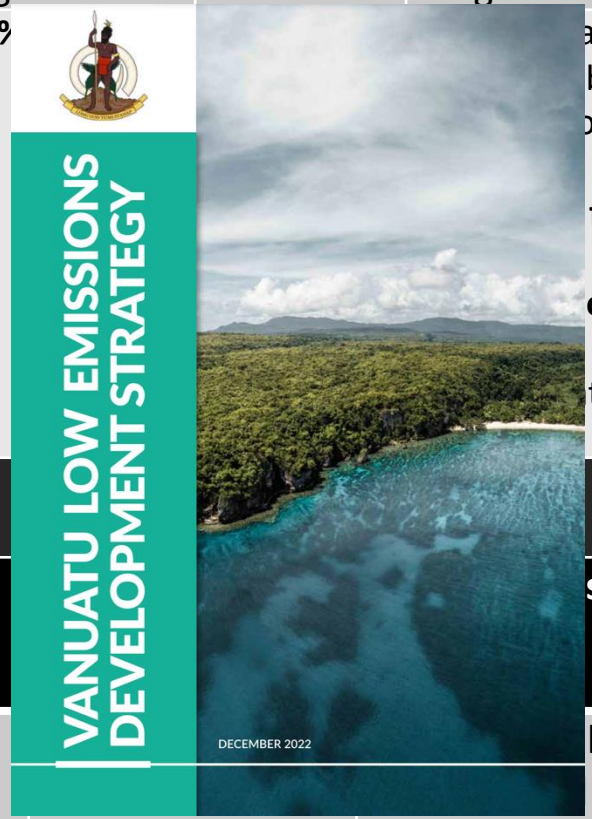
NATIONAL - VANUATU CASE STUDY

ENERGY & EMISSIONS TARGETS

PICT	Renewable Energy		Energy Access		Energy Efficiency		Emissions	
	Current	Target	Current	Target	Current	Target	Current	Target
	Roadmap 2016-2030	Road Map 2016-2030	Road Map 2016-2030. Also a few relevant acts present.	Transport Response Plan (2020)	Map (2016) + Implementation Plan; NAMA (2016)	roadmap in development by UNSW		emissions by 40% by 2030 and 100% by 2050







UTILITY PLANNING

- Integration and ownership structures – challenges around *corporate governance* and *financial management*
- Procurement processes – donor funding, PPAs, industry affiliations, etc.
- Key priorities are load forecasting and financial planning – where is the whole-of system integration?
- Roadmaps and strategies, for example around *security & resilience* – in which framing should components be determined?
- Issues around information accessibility and updating strategies
- Tracking – how does data support planning and what role do utilities play in this??

FRAMEWORK STRUCTURE

Energy Risk Mapping

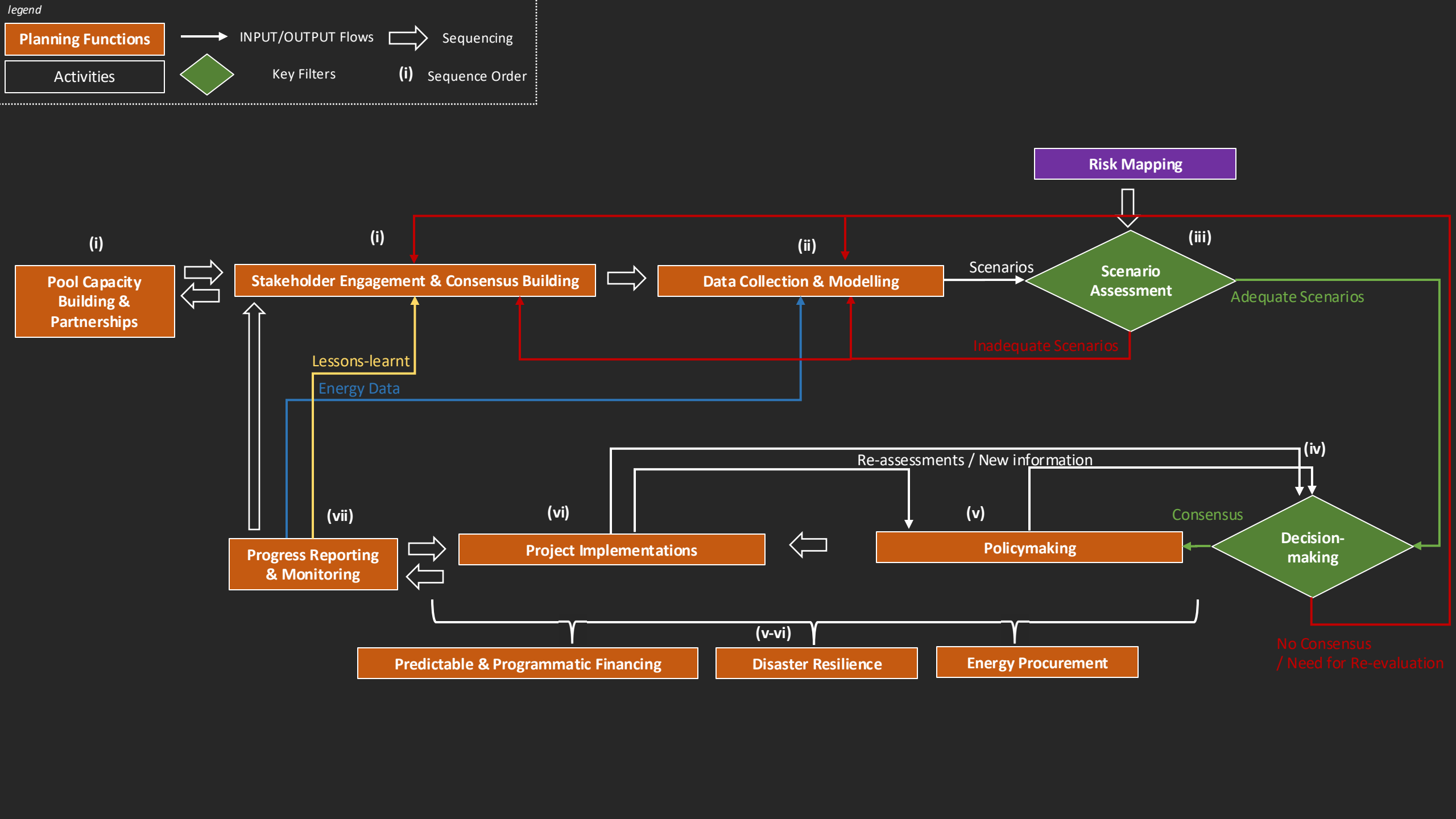
Identifying the suite of risks that affect the energy supply chain

Planning Functions

Define the fundamental processes through which energy planning takes place

Planning Flow

Define the procedural flow of planning functions


legend
Planning Functions
Activities
INPUT/OUTPUT Flows
Sequencing
Key Filters
(i) Sequence Order
Risk Mapping
(i)
Pool Capacity Building & Partnerships
(i)
Stakeholder Engagement & Consensus Building
(ii)
Data Collection & Modelling
Scenarios
(iii)
Scenario Assessment
Adequate Scenarios
Inadequate Scenarios
Lessons-learnt
Energy Data
(iv)
Re-assessments / New information
(vii)
Progress Reporting & Monitoring
(vi)
Project Implementations
(v)
Policymaking
Consensus
Decision-making
No Consensus / Need for Re-evaluation
(v-vi)
Predictable & Programmatic Financing
Disaster Resilience
Energy Procurement

APPLICATIONS – how can it be useful?

- Checklist on key planning processes – are we doing these?
- Procedural flow – how do different aspects of planning interact with each other? How to structure planning?
- Risks – which ones should inform our strategies and at what points of the planning process are they relevant
- Objectives, for example around *security* & *resilience* – in which framing should components be determined?
- Tracking – how does data support planning?

CONCLUSIONS & REFLECTIONS

What are the key planning challenges for utilities and how can planning be improved?

What role should board directors have in the planning process?

Feedback on the framework structure – e.g. do you think this can help structure planning processes?

SLIDO: 1303867

ACKNOWLEDGEMENTS

Australian Government

Department of Climate Change, Energy, the Environment and Water

Thank you!

Tankyu! Merci! Faafetai! Tubwa! Vinaka! Malo! Komm̧ool! Whakawhetai ki a koe! Fakafetai fāfetai! Si Yu'os Ma'åse'!

Iain MacGill
i.macgill@unsw.edu.au

Edoardo Santagata
edoardo.santagata@unsw.edu.au