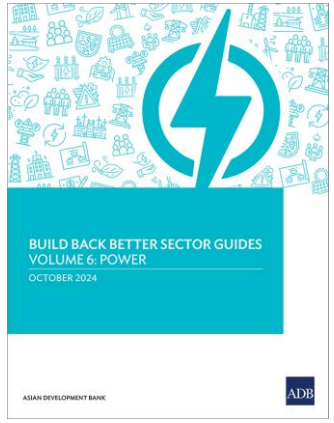
The views expressed in this presentation are the views of the author/s and do not necessarily reflect the views or policies of the Asian Development Bank, or its Board of Governors, or the governments they represent. ADB does not guarantee the accuracy of the data included in this presentation and accepts no responsibility for any consequence of their use. The countries listed in this presentation do not imply any view on ADB's part as to sovereignty or independent status or necessarily conform to ADB's terminology.

BUILD BACK BETTER

Sector Dialogues

Event 3: Power

Tuesday 28 January 2025, 11.00am-12.00pm Manila



https://www.adb.org/publications/series/build-back-better-sector-guides

BUILD BACK BETTER

Sector Dialogues

POWER SECTOR DISASTER IMPACTS AND RECOVERY OBJECTIVES

Examples of Power Sector Disaster Effects and Recovery Needs

Event	Disaster Effects (damages and losses, $ million)		Recovery Needs ($ million)	
	Infrastructure[a]	Power Sector	Infrastructure[a]	Power Sector
Floods (Pakistan), 2010[b]	1,746	309 (18%)	2,556	106 (4%)
Earthquake (Nepal), 2015[b]	652	207 (32%)	743	186 (25%)
Tropical Cyclone Gita (Tonga), 2018[b]	13	8 (62%)	47	45 (96%)
Floods (Pakistan), 2022[b]	4,323	91 (2%)	5,438	117 (2%)

BUILD BACK BETTER

Sector Dialogues

POWER SECTOR DISASTER IMPACTS AND RECOVERY OBJECTIVES

- Key Objectives for Post-Disaster Recovery and Reconstruction of Power Systems
  - Accelerate clean energy transition, reduce GHGs/air pollution, energy independence
  - Improve access and affordability, adopt new technologies
  - Generate new and more diverse livelihood opportunities
  - Enhance power system security and improve efficiency

BUILD BACK BETTER

Sector Dialogues

POWER SECTOR DISASTER IMPACTS AND RECOVERY OBJECTIVES

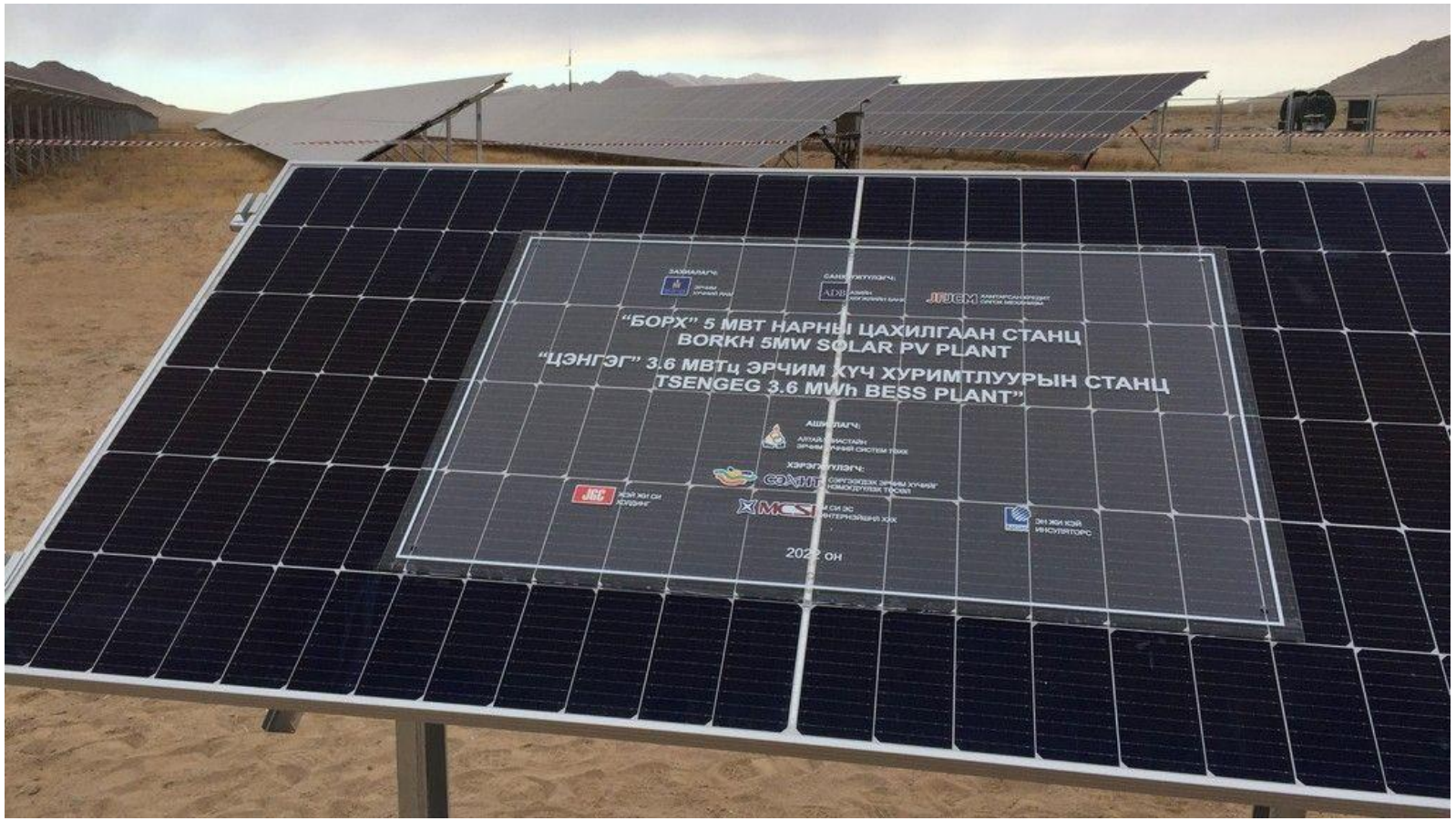
- Delivering Power Sector Projects in Post-Disaster Contexts: Considerations
  - New stakeholders/opportunities post-disaster
  - Project landscapes shifting through technological change, changing climates
  - Barriers to change (legal, institutional, policy)
  - Changing of consumption profiles with population/economic growth, population movement, technological change
  - Risks of digital attacks against power systems

BUILD BACK BETTER

Sector Dialogues

CLIMATE AND DISASTER RESILIENCE MEASURES

- Use Distributed Electricity Generation and Storage Technologies
  - Decentralized power systems with fewer potential single points for failure tend to be more disaster-resilient



BUILD BACK BETTER

Sector Dialogues

CLIMATE AND DISASTER RESILIENCE MEASURES

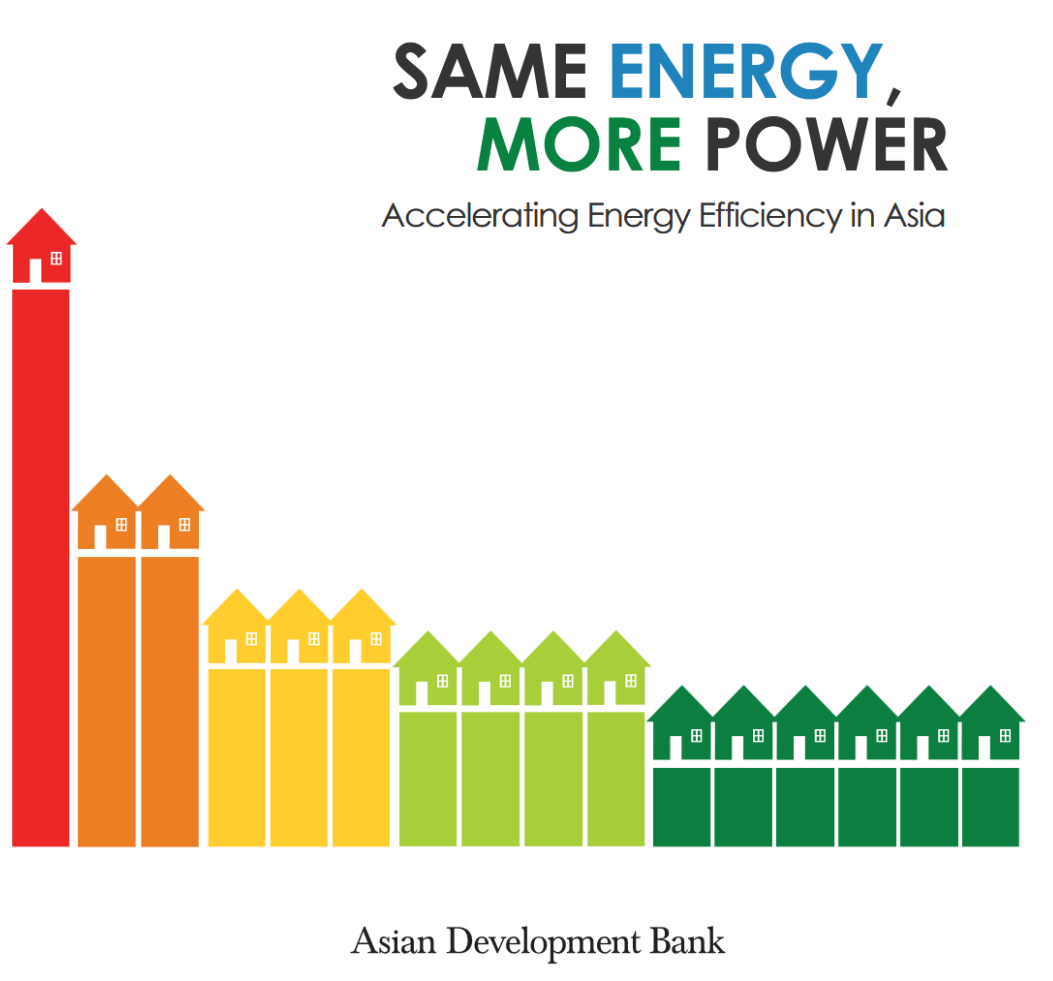
- Adopt Microgrid Technologies for Electricity Distribution in Local Areas
  - Improve the resilience of power systems to disasters and routine hazards, help to get services restored quickly

BUILD BACK BETTER

Sector Dialogues

CLIMATE AND DISASTER RESILIENCE MEASURES

- Apply Energy Efficiency and Demand Reduction
  - Reduces routine/post-disaster power needs, cheapest way to extend supply
  - Can include non-electric devices such as solar water heaters
  - Electric vehicles can provide storage as well as efficient transportation



BUILD BACK BETTER

Sector Dialogues

CLIMATE AND DISASTER RESILIENCE MEASURES

- Use Resilient Transmission and Distribution Systems
  - Storage, underground lines, more robust overhead lines, maintenance, meshed configurations
  - Smart features, controls and sensors and related software to identify, isolate trouble spots

BUILD BACK BETTER

Sector Dialogues

CLIMATE AND DISASTER RESILIENCE MEASURES

- Install Relocatable and Customizable Systems
  - Demountable or transportable equipment for use during disaster recovery, and in longer term
  - Can be moved out of harm's way prior to extreme weather events, returned post-disaster

BUILD BACK BETTER

Sector Dialogues

CLIMATE AND DISASTER RESILIENCE MEASURES

- Adopt/enforce Resilient Equipment Standards and Building Codes
  - Post-disaster requirements for resilience, safety, and efficiency of new equipment and systems
  - Ensure survivability, offer environmental, safety, benefits
  - Help vendors understand requirements and provide suitable services and products in a timely manner
- Address System Dependencies in Post-disaster Investments
  - Identify and address critical interdependencies in supply/demand
  - Emergency or redundant generation/transport, provision for isolated/isolatable supplies for key facilities, update and reinforce when replacing damaged wiring and equipment

BUILD BACK BETTER

Sector Dialogues

CLIMATE AND DISASTER RESILIENCE MEASURES

- Improve Power Sector Control, Monitoring, and Modeling Systems
  - Help to identify problems during and after disasters, speed post-disaster recovery
  - Accelerate the deployment of smart-grid technologies, control hardware and software
- Build Power Sector Capacities
  - Build technical, management, planning skills needed both routine operation and disaster recovery
  - New technologies and practices will require new training and capabilities

Thank You!

David F. von Hippel
dvonhip@igc.org