



Myanmar: Towards Universal Access to Electricity by 2030



WORLD BANK GROUP



*Xiaoping Wang,
Senior Energy Specialist*

*Nay Pyi Taw,
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Outline

- **Objectives and major elements of national electrification plan for universal access**
- **Policy options to accelerate electrification and improve electric services**

Great Moment to Grid Expansion

2011-2012 220,000 new HH connections

.....

2014-2015 351,000

2015-2016 441,000

Myanmar National Electrification Plan toward universal access by 2030

- Key Messages

Objectives of Myanmar National Electrification Plan (NEP) 2015-30

- To serve as **comprehensive action plan** for developing, financing, and implementing electricity access scale-up program nationwide, with the target of achieving universal access by 2030.
- **To align support from different stakeholders** to implement national access targets, leverage concessional financing and mobilize other sources of financing on a timely, ongoing and programmatic basis.

NEP Adopts a Programmatic, Sector-wide Approach...

Countries that have achieved rapid electrification have relied on **Programmatic, Sector-wide approach**

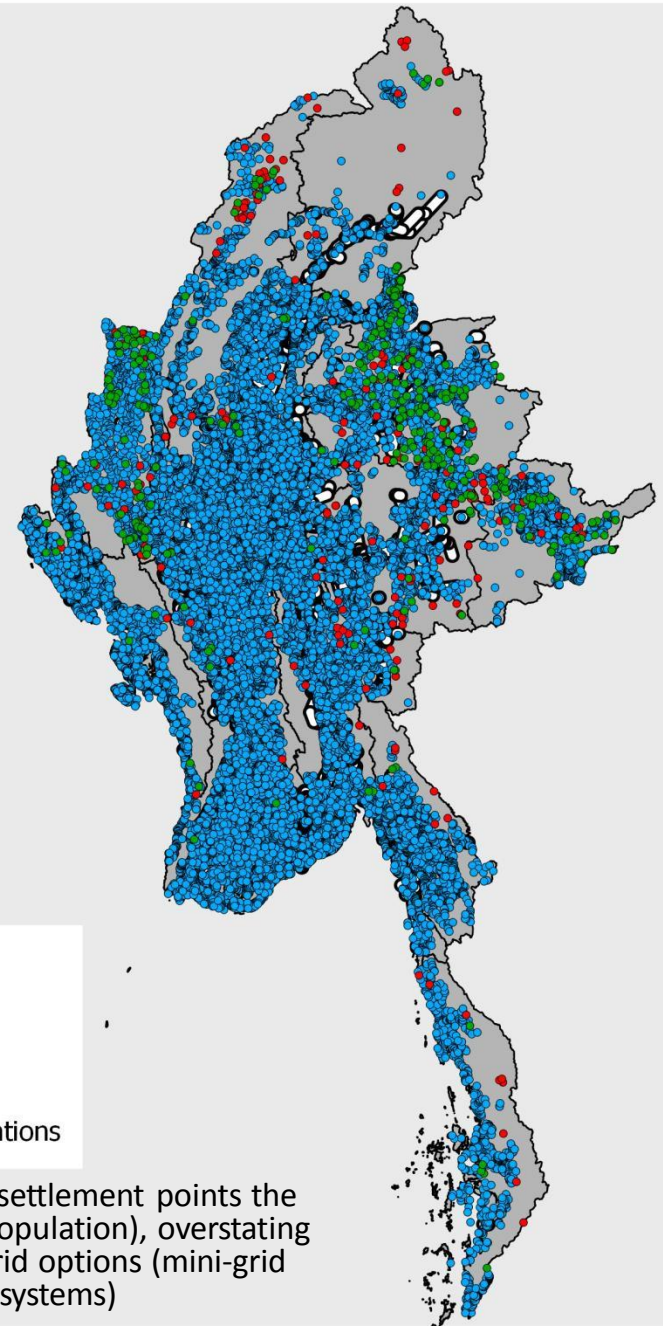
Key Features:

- ▶ Coordinated least-cost technical and investment planning
- ▶ Sustainable financing policy
- ▶ Stable flow of funds
- ▶ Results focused

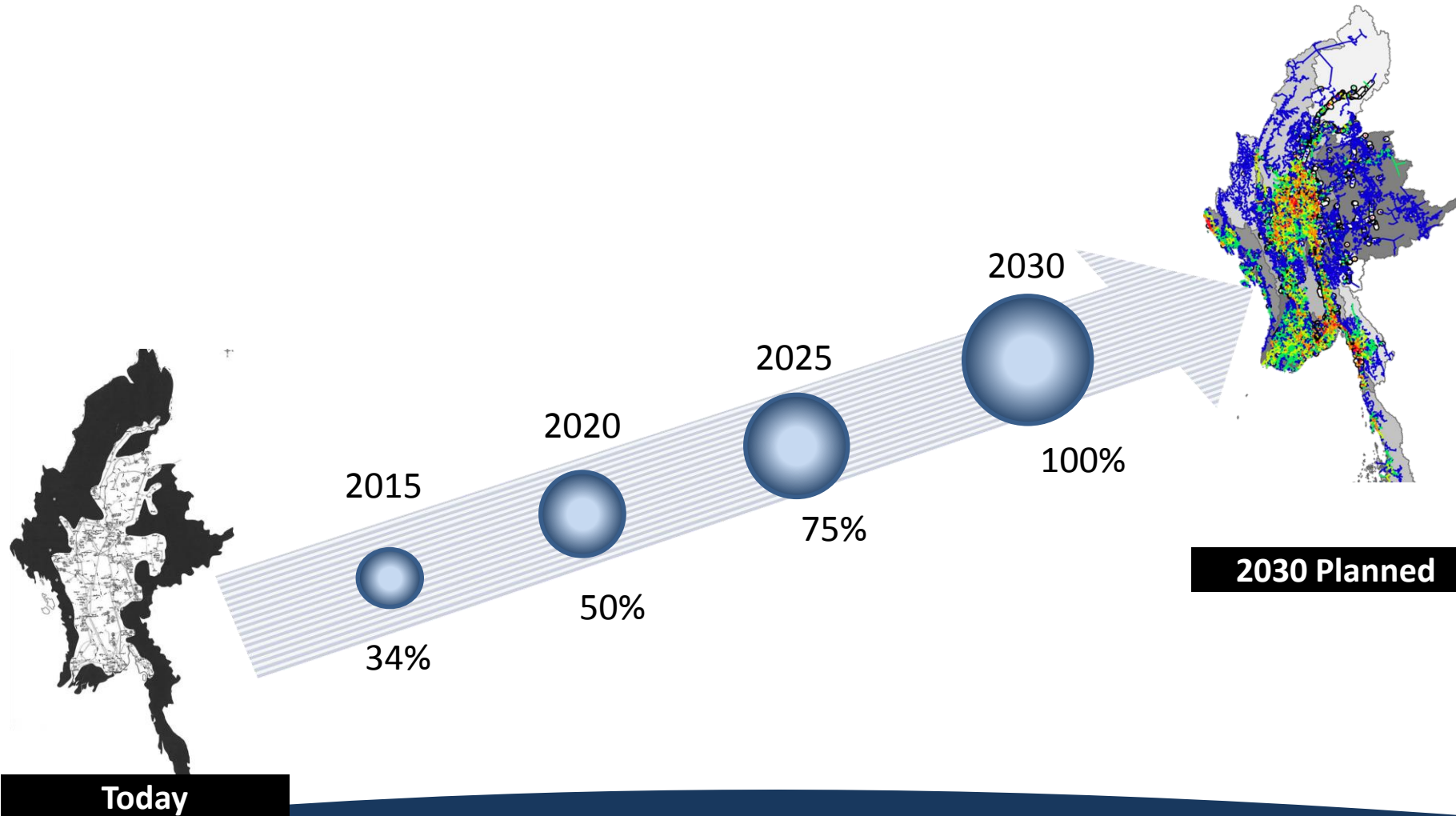


Least-cost recommendation for 2030

- By 2030, the majority are **grid connections**
- This represents **7.2 million households**
- Total cost is estimated at **US \$5.8 billion** (US\$800 per connection, average)
- This is additional cost to investments needed for generation & transmission

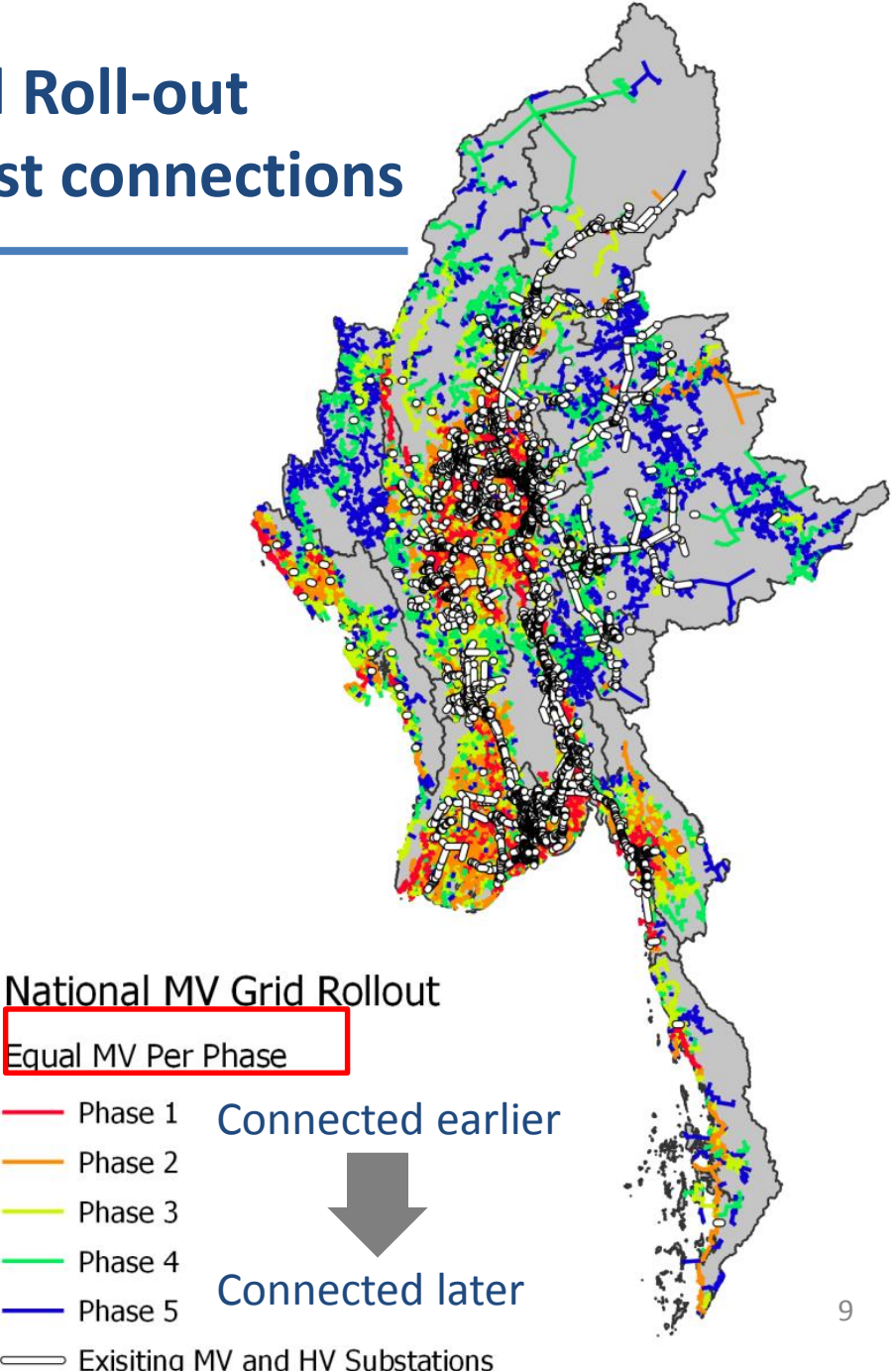


Roadmap to Achieve Universal Access by 2030



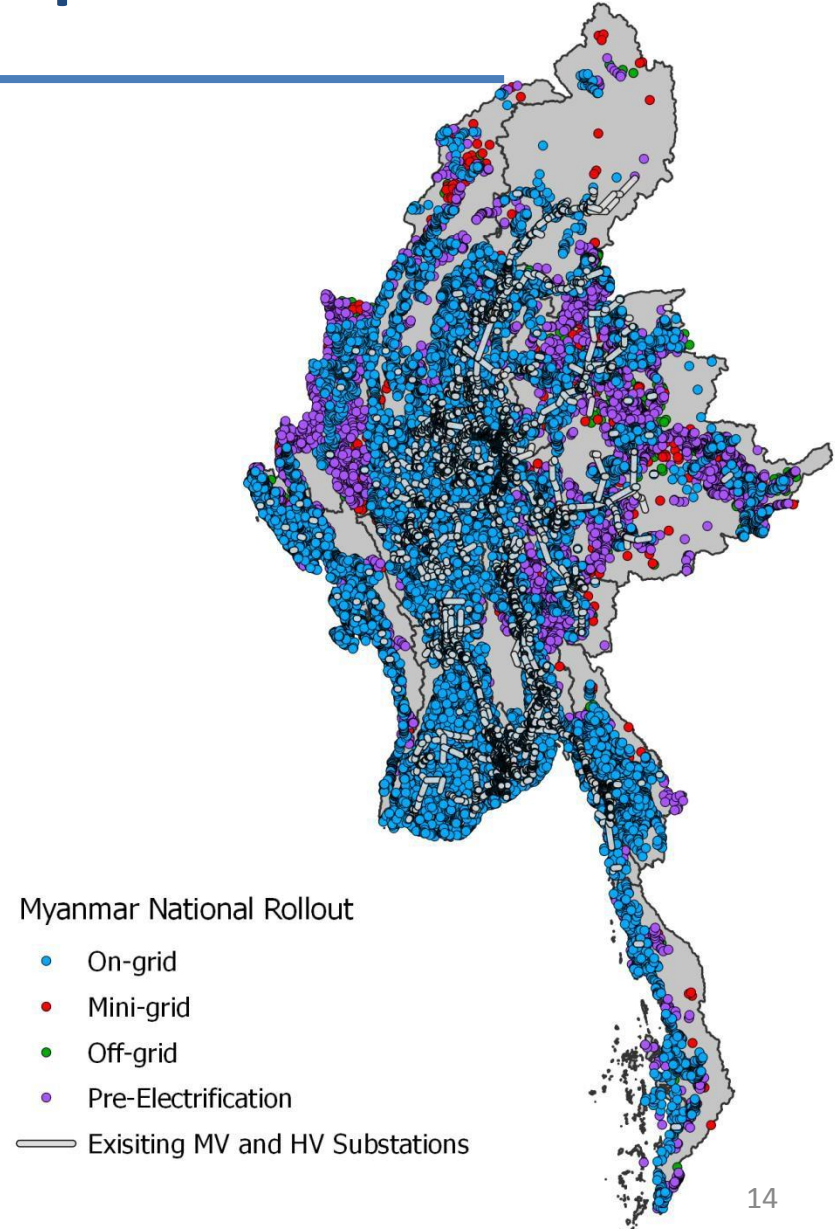
Recommended Sequencing of Grid Roll-out proceeds from low-cost to high-cost connections

- **Dense areas** require shorter distribution lines and lower cost per connection and will be connected first
- **Remote communities** require longer lines and higher cost and will be connected later
- **Chin, Shan, Kachin and Kayah** have highest cost per connection, thus to be connected in the final phases



Recommendations for off-grid pre-electrification

- 3-4% of the villages in the last phases of grid rollout are recommended for pre-electrification
- Shan, Chin, Kayah, Kachin and Tanintharyi represent major areas for pre-electrification



Processes and Milestones

**May
2013**

**September
2014**

**September
2015**

**May
2016**

Activities

**Open Dialogue
with Gov & other
stakeholders and
start NEP prep**

**Present Draft
Final NEP**

**WB Approve
\$400m IDA
Project**

**- Implementation
under way
- NEP policy
workshop**

Outputs

**- Start planning and
public consultation
process for NEP**

**- Gov Adopt NEP and
establish NEEC
- Initiation of IDA
project preparation**

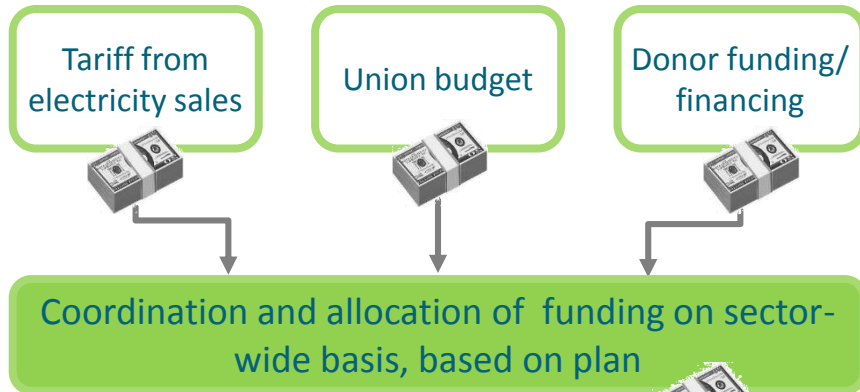
**- First project to
support NEP
implementation
- Additional \$200m
mobilized**

**-First NEP Results
Expected in October
2016
- Present NEP policy
options**

Policy Options:

Institutional Sustainability and Reforms

Institutional strengthening is necessary

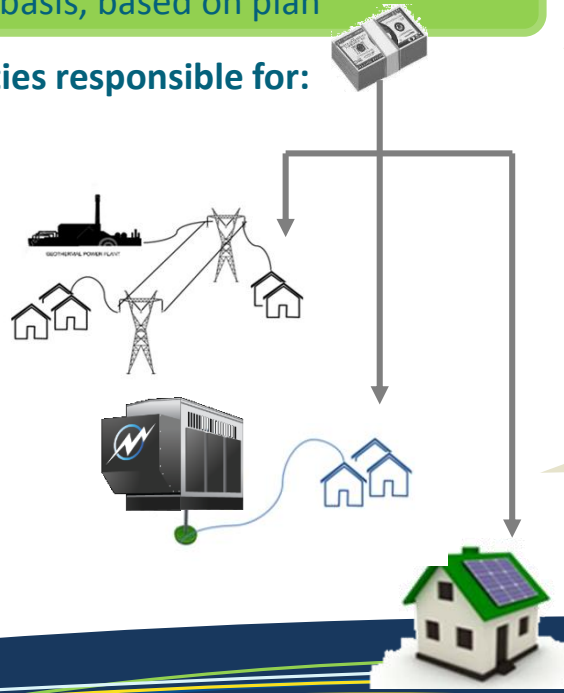


Funds flow to entities responsible for:

National grid expansion

Temporary and Permanent mini grid expansion

Household-level expansion (SHS)



Strong Institutions would ensure...

There are sufficient funds and predictable financing flowing through the entire electrification program

Project are being planned and prioritized in a least cost manner

Projects are being built efficiently and achieving social objectives

Institutional Reforms

Independent Regulator

- Advise on tariffs, standards and subsidies needed for grids
- Advise on mini-grid permits+interconnection

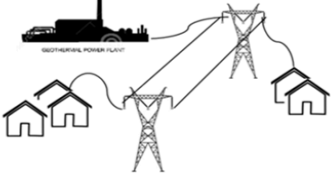
National Electrification Executive Secretariat reporting to VP Office

- Overall management and coordination of NEP planning
- Performance reporting
- Point source for donors

Donors

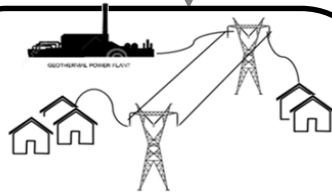
- TA to establish and train new entities
- Concessional finance
- Establish loan program with banks

Under MOEE leadership



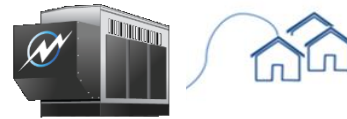
YESC

- Develop investment program
- Corporatize YESC



ESE/MESC

- Follow YESC path
- Set up sub-franchise concessions



Mini-grid connections

- DRD manage & monitor
- Decentralized, private sector-led approach
- Develop regulatory framework



Off grid connections

- DRD manage & monitor
- Re-focus financial incentives
- Support private sector provision

Private Sector

Invest in utility corporations + Participate in sub franchise concessions + Provide solar home systems

Policy Options: Financial Sustainability

Policy Options: Financial Sustainability:

$$\begin{array}{c} \text{Revenue + Loan Amount Received} \\ \parallel \\ \text{Capex + Opex + Loan Repayment} \end{array}$$

Strong development rationale to meet financing need from concessional sources

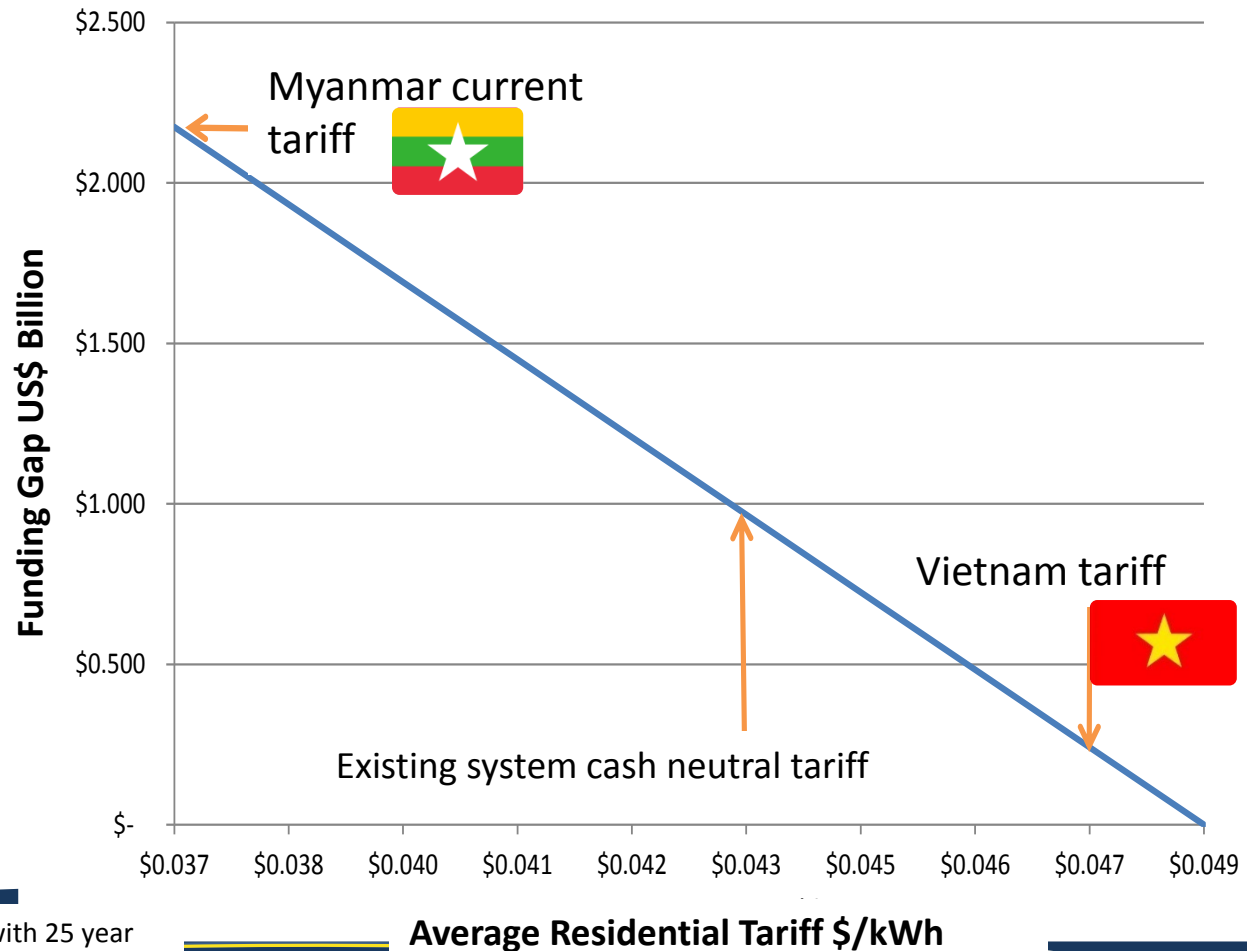
Low interest, long tenor donor-backed loans will:

- Enable Myanmar to achieve the targeted 1.7 million connections in next 5 years. This will:
 - Contribute to Myanmar's economic development by giving those households access to electricity
 - Support the ramp-up in both technical and institutional capability required to achieve full electrification by 2030
- Over time, as the economy becomes integrated with the global financial system and as local banking system matures, commercial finance will become available on tenors and other terms that can replace concessional finance without a material shock to tariffs.

Size of Funding Gap Depends on Decisions about Tariffs

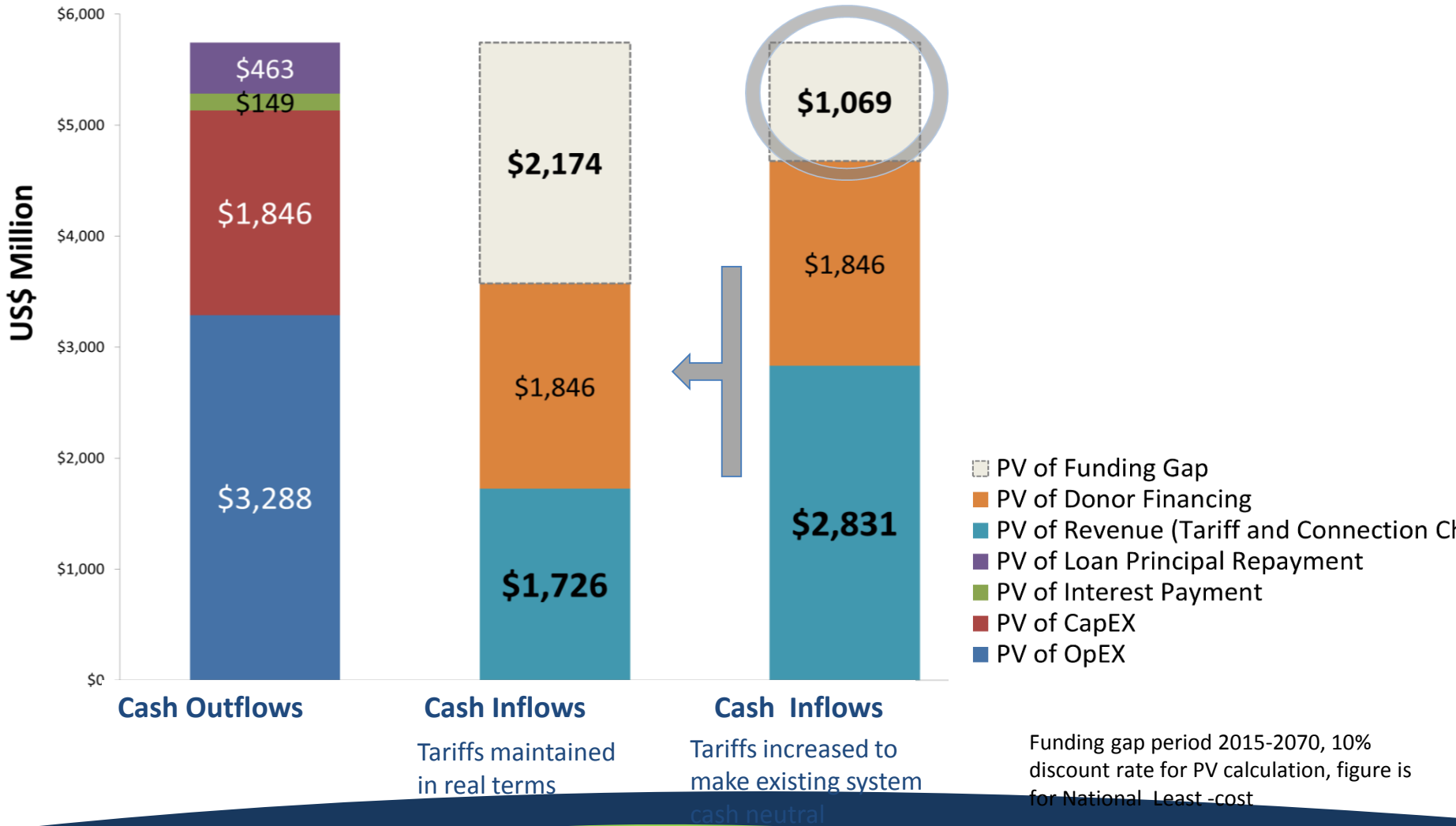
$$\text{Funding gap} = (\text{Revenue} + \text{Loan Amount Received}) - (\text{Capex} + \text{Opex} + \text{Loan Repayment})$$

- ▶ Funding gap is **\$2.2 billion** over a 40-yr period at the current tariff
- ▶ Reduced to **\$1.1 billion** with an existing system cash neutral tariff
- ▶ Reduced to **\$0.25 billion** with maintaining a residential tariff equivalent to Vietnam



Note: Assumes all loans are concessional, at 1.25% with 25 year repayment and 5 year grace period

Funding Gap is Affected by Choice of Tariffs



Funding gap period 2015-2070, 10% discount rate for PV calculation, figure is for National Least-cost

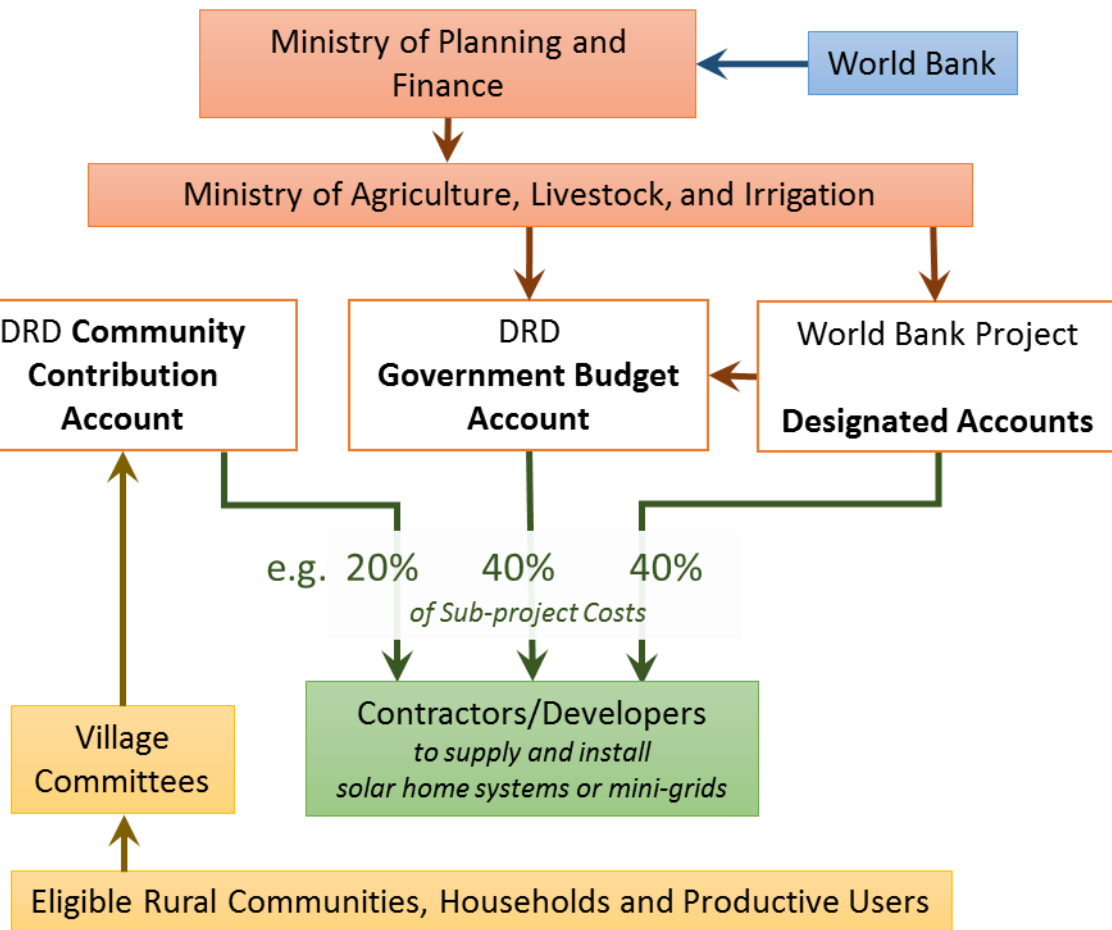
Policy Options:

Affordability and Subsidies for the Poor

Affordability is Critical to the Success of National Electrification Rollout

- Universal electricity access means close to **100% coverage for villages and households**
- NEP will not succeed if tariffs and connection charges are **unaffordable** to the population
- Universal access has to address the divides linked to income/affordability:
 - **Urban-rural divide**: 77% of urban vs 10% rural households have grid access
 - **Divides *within* villages**: 60% of grid-connected villages have <100% household access

Shared Responsibilities between Union and Local Governments, Communities/Households, and Private Sector



Goods and materials for MV networks	MOEE, local gov
MV Installation	MOEE, local gov
LV networks	VECs/HHs, MOEE (?), local gov (?)
Connection charges	HHs

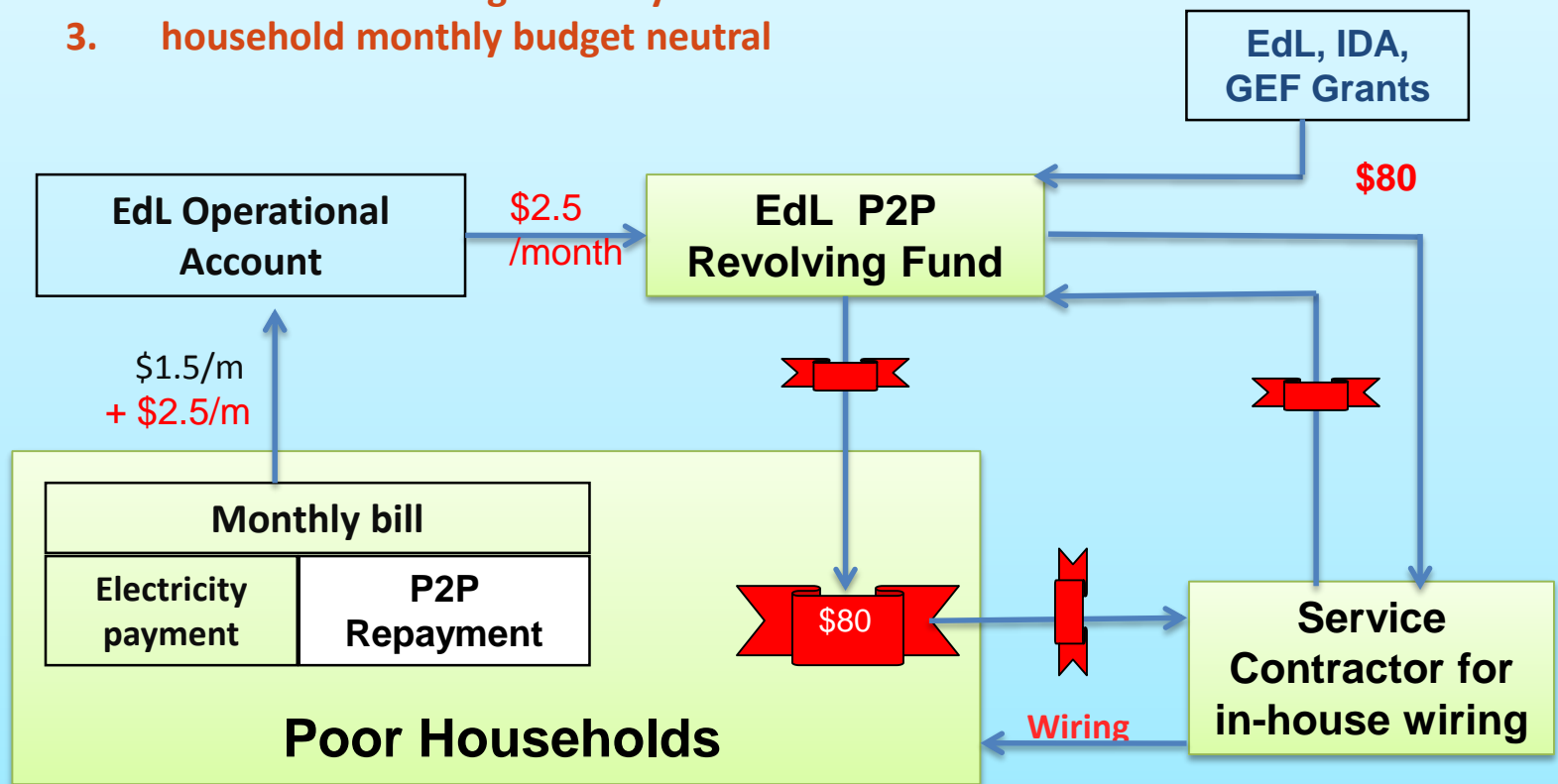
1) NEP offgrid model

2) NEP grid extension model

Innovative Financing Mechanisms for the Rural Poor




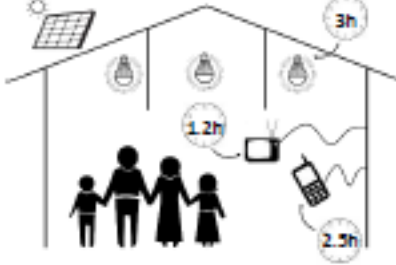
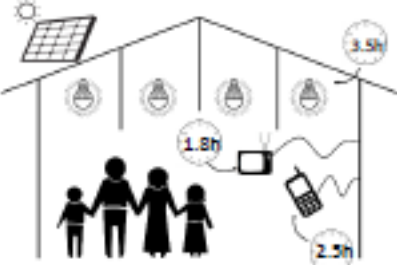
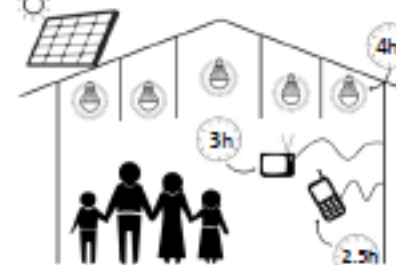
Laos Power to the Poor (P2P) – Revolving Fund

1. interest-free credit
2. households in village already electrified
3. household monthly budget neutral



Targeted Subsidies for the Poorer of the Poor

- Phase I villages with higher % contribution to CAPEX and higher % of HH coverage can be prioritized for grid roll-out.
- Off-grid component offers SHS of three different sizes, **the smallest with highest % of subsidies**, targeting the poor, to meet the basic needs for lighting and ICT.

	Small	Medium	Large
 = LED light ≥ 240 lumens  = 4 hours per day  = TV or other 15 watt appliance			
Service level	3 h lights, 1.2 hr TV, 2.5 h phone charging	3.5 h lights, 1.8 hr TV, 2.5 h phone charging	4 h lights, 3 hr TV, 2.5 h phone charging
System cost (kyat)	300,000	380,000	420,000
Subsidy (kyat)	270,000	330,000	340,000
Cost to user (kyat)	30,000	50,000	80,000