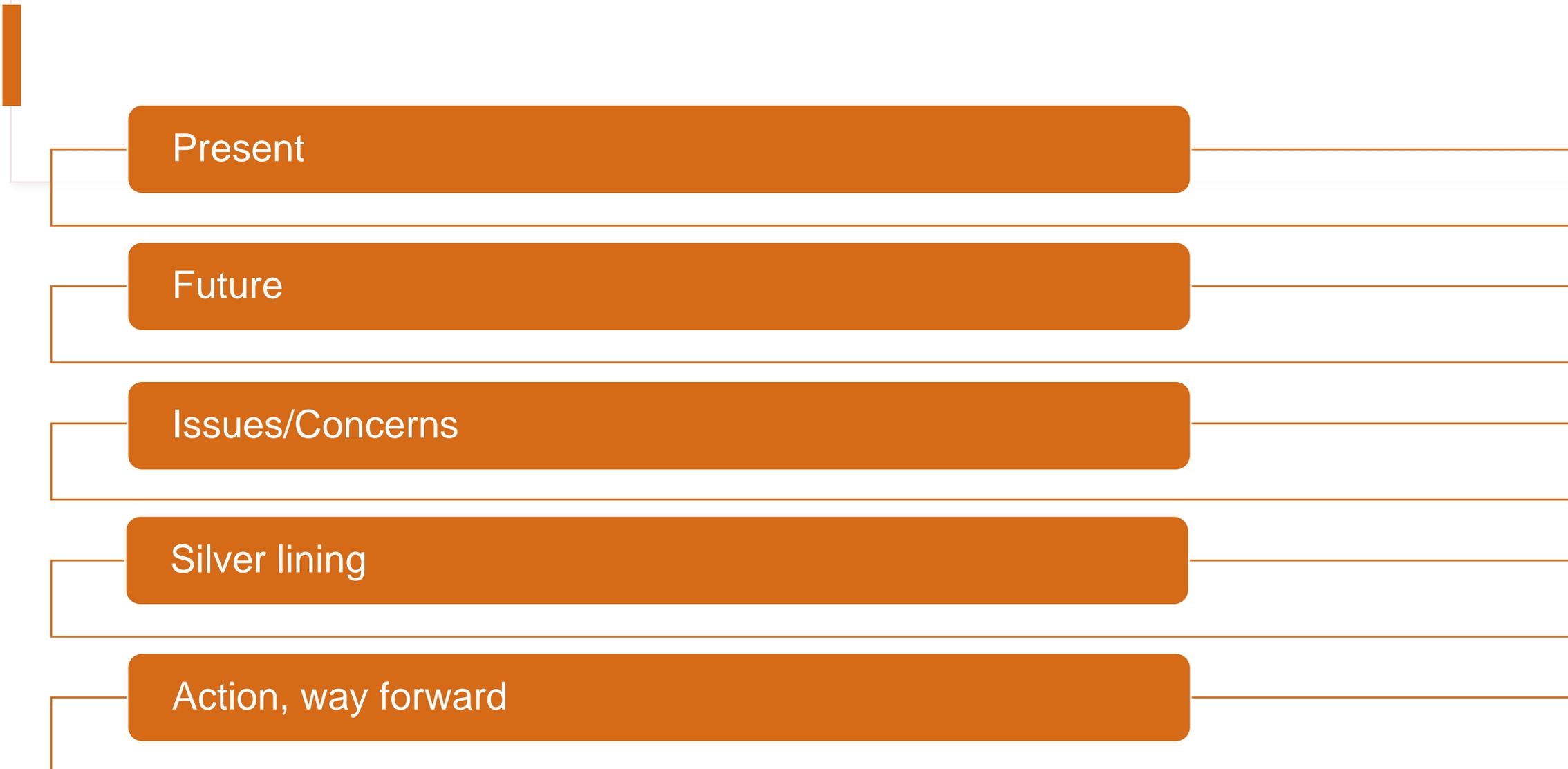




# Prospects of Mini-Grid Development in Nepal

31<sup>st</sup> May , 2020



Present

Future

Issues/Concerns

Silver lining

Action, way forward

# Electricity access

Province	Electrified %	Un-electrified (NP)	Un-electrified (GP)
1	86.3	0	24
2	87.25	0	0
Bagmati	95.83	0	8
Gandaki	87.48	0	6
5	89.67	0	7
Karnali	27.74	3	38
Sudur Pakchhim	67.33	6	25
Total	90.00	9	108

Source: NEA (2076) quoted in MoF (2077), Economic Survey

RE  
10%

MMHP – 764 kW  
Solar/wind – 50 kW  
SHS – 9858  
(By Falgun 2076)

Total – 68MW

Drinking water – 90%

Irrigation – 56% (year round only of 33%)

Source: MoF (2077), Economic Survey

# Concern/Issues

- Data consistency (Is 100% electrified?)
- Karnali (<30%) and Sudurpakchhim (<70%)
- Irrigation may be the game changer!

# Future

## 100 % electrification at the end of 15<sup>th</sup> Five Year Period (2076/77 – 2080/81)

Source: NPC, 15<sup>th</sup> Five Year Plan

- Lift and solar irrigation – Budget Rs. 1 Arab 31 Kror
- RE access (Ujyalo Nepal)- all households in 2 years – Budget Rs. 4 Arab
- 200 solar mini-grid in 97 local level in mountains and hills – Budget Rs. 4 Arab 31 kror including other alternate energies

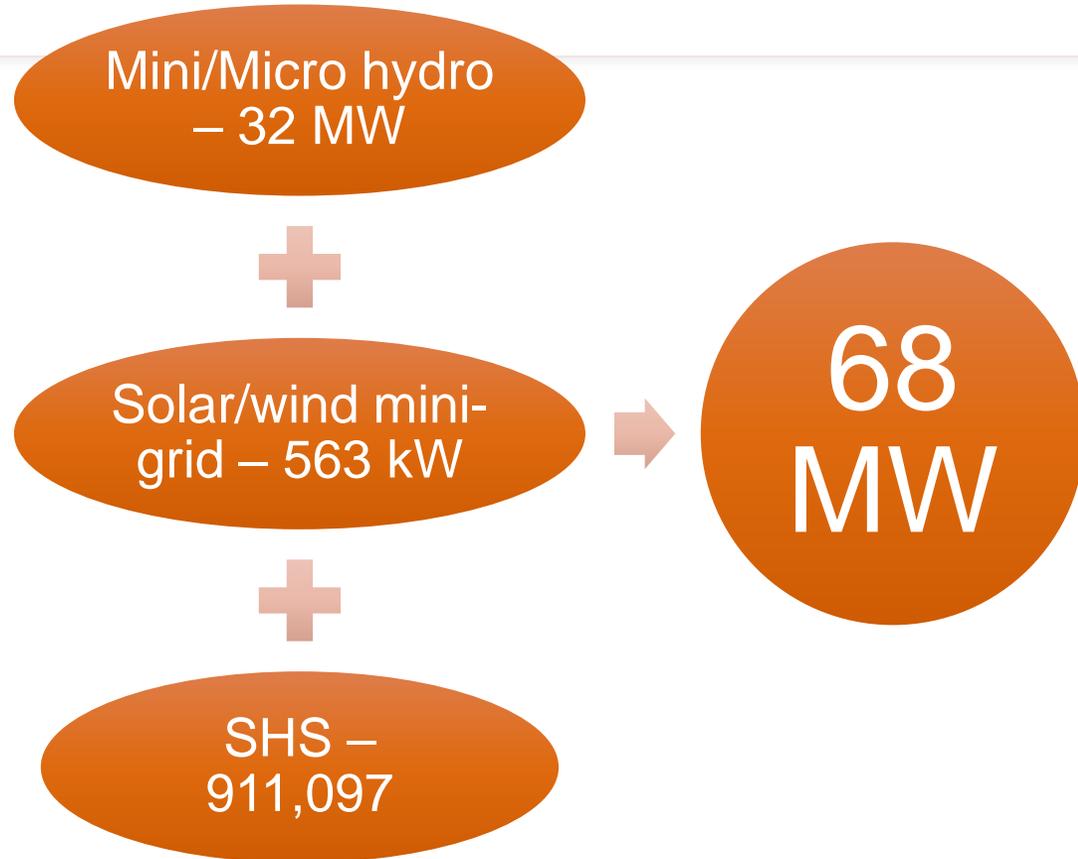
Source: Budget Speech (2077)

## Issue/concern

- 95% grid and 5% off-grid
- 5% can translate to around 300,000 households
- 500 to 600 systems (if one system serves 300 to 500 households) – maximum number of mini-grid

# AEPC by now (FY 2018/19)

Source: AEPC latest annual report



## Issue/concern

- If all these are functional, prospect for future mini-grid development may be insignificantly low.....
- 5 years is the maximum.....

# Silver Lining.....

## Mini-grid

- Off-grid (stand-alone)
- Grid compatible (future possibilities)
- Grid compatible/connected

## Technologies

- Hydropower (micro/mini/small)
- Solar PV
- Others (wind/biomass)
- Hybrid

## Usages

- Lighting only
- Lighting plus (other end usages)
- Anchor load (irrigation, telecom tower, etc.)

## Business models

- Utility model
- Private
- Community
- Mixed

# Action Way Forward

**Delineate mini-grid areas (5% not served by NEA)**

Role: NEA, Ministry, ERC, AEPC



**Develop Mini-Grid Master Plan(or Plans) - accommodating anchor loads such as irrigation, health, school, etc.**

Role: AEPC assisting Province and Local Governments (with support from NEA and Ministry)



**Consideration of technological choices (as determined by usages and economic criteria)**

Possibility of upgrading existing MMHPs, or new MHPs, solar



**Adapt Funding Mechanism (which is efficient and promotes cost-effective solutions)**

Moving away from conventional subsidy regime (some form of financial assistance is required)



**Adapt a truly business model**

# Game changer...

- Grid connected mini-grids (regulation should be in place)
- Maximum possible bigger size (going away from the limit....)
- A complete solution (not only for lighting needs.....)
- SMART technologies (automation, standardization, online)
- Link to climate funds
- Local and Provincial government backed by central level AEPC
  
- Do not unnecessarily complicate the matter , for example, by inter-connecting ill function small micro-hydro plants into a so-called mini-grid



# Thank you

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