

Country Highlights Energy Policy and Regulation



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1. Power Development and Energy Policy Framework

Current Capacity and Energy Capacity

Different Sources of Domestic Generation in Cambodia

Power Sources	2021				2022			
	Installed Capacity		Energy		Installed Capacity		Energy	
	MW	%	GWh	%	MW	%	GWh	%
1. Domestic Generation								
- Non-renewable Energy	1,294.60	43.01%	4,009.24	41.28%	1,667.60	48.13%	4,015.81	38.94%
+ Coal	675	22.43%	3,455.60	35.58%	1,025.00	29.58%	3,664.67	35.53%
+ Fuel Oil	619.6	20.59%	553.64	5.70%	642.6	18.55%	351.14	3.40%
- Renewable Energy	1,715.07	56.99%	5,703.53	58.72%	1,797.07	51.87%	6,297.05	61.06%
+ Hydro Power	1,329.70	44.18%	5,043.94	51.93%	1,331.70	38.44%	5,557.55	53.89%
+ Solar Power	356.80	11.86%	609.96	6.28%	436.8	12.61%	687.87	6.67%
+ Biomass Power	28.57	0.95%	49.63	0.51%	28.57	0.82%	51.63	0.50%
Total Domestic Generation	3,009.67	100%	9,712.77	100%	3,464.67	100%	10,312.86	100%

Current Capacity and Energy Capacity

Import Power Sources in Cambodia

Power Sources	2021				2022			
	Installed Capacity		Energy		Installed Capacity		Energy	
	MW	%	GWh	%	MW	%	GWh	%
2. Import Power Sources								
- Thailand	277.3	28.27%	283.55	8.38%	277.3	26.90%	915.17	17.45%
- Vietnam	332.45	33.90%	829.95	24.52%	332.45	32.25%	1,284.04	25.09%
- Laos	371	37.83%	2,271.55	67.11%	421	40.84%	2,943.45	57.46%
Total Import Power Sources	980.75	100%	3385.05	100%	1030.75	100%	5142.66	100%
3. Power Sources								
- Total Domestic Generation	3,009.67	75.42%	9,712.77	74.16%	3,464.67	77.07%	10,312.86	66.73%
- Total Import Power Sources	980.75	24.58%	3385.05	25.84%	1030.75	22.93%	5142.66	33.27%
Total Power Sources	3,990.42	100%	13,097.82	100%	4,495.42	100%	15,455.52	100%



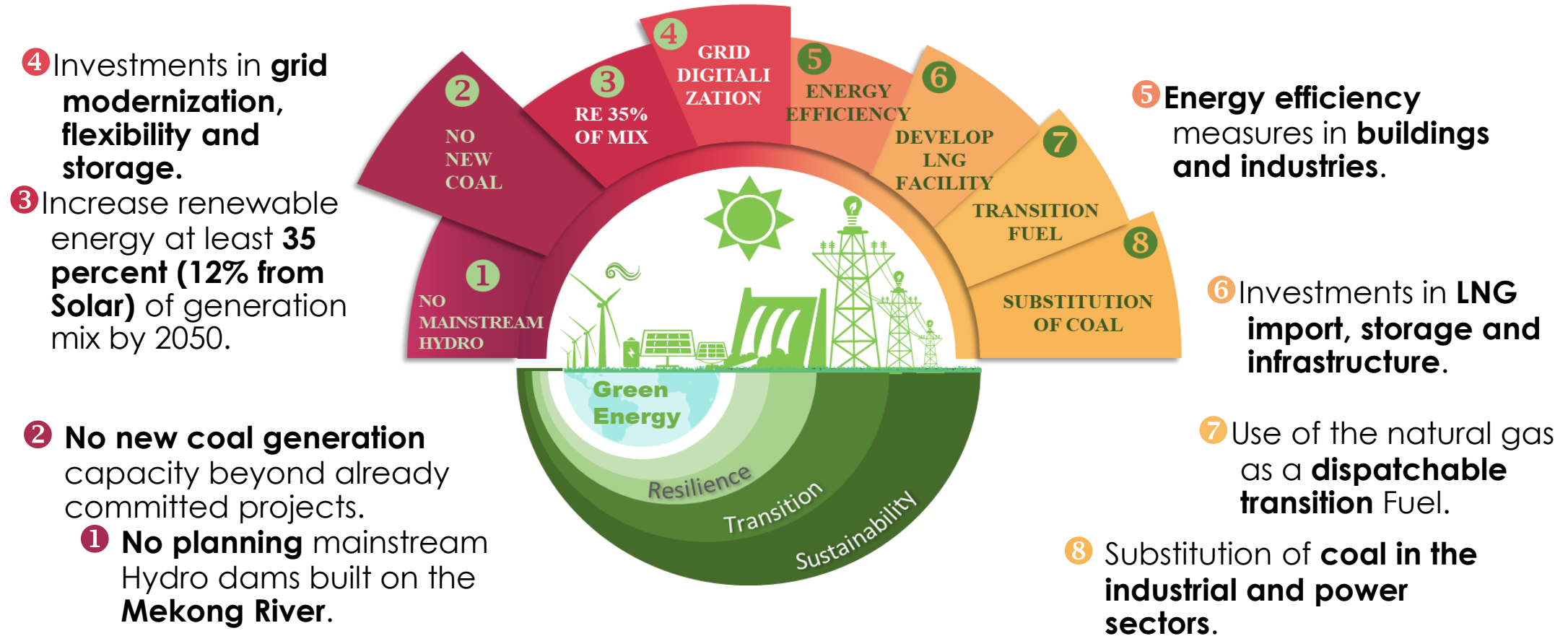
Towards Resilience & Sustainability



- In 2020, Cambodia's **updated Nationally Determined Contribution (NDC)** had the commitment to reduce up to **40% emission from the Energy sector by 2030**.
- In December 2021, Cambodia was among the very first members of the Least Development Country group to establish **Cambodia's Long-Term Strategy for Carbon Neutrality by 2050 (LTS4CN)**.

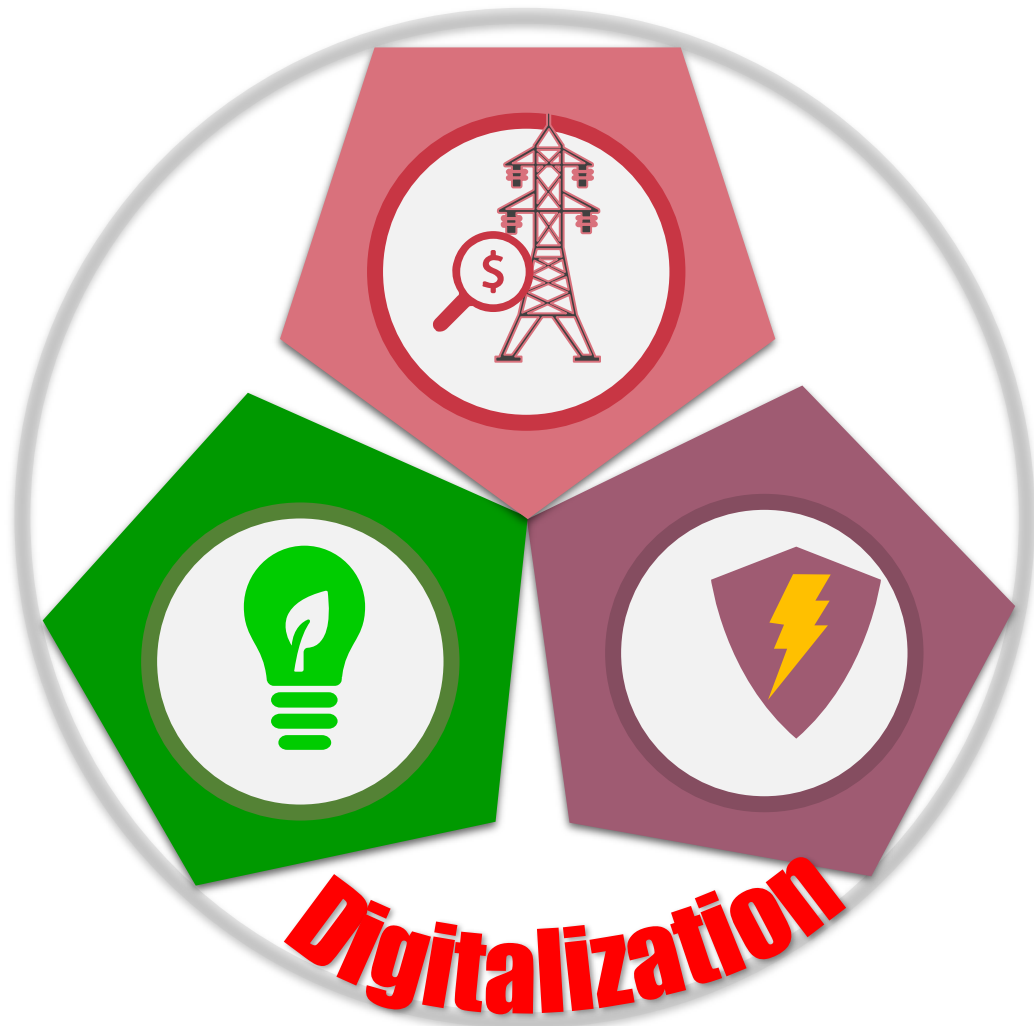
Cambodia's National Strategies for Climate Change

Cambodia's Vision for Carbon Neutrality and Resilient Society by 2050 – Net Zero Emission



Source: Long-Term Strategy for Carbon Neutrality (LTS4CN), 2021

Power Development Plan 2022-2040



01

Energy Reliability and Affordability

To fulfil the **future demand** for power adequacy with the **supply of reliable and affordable** electricity across all sectors in Cambodia.

02

Energy Security

To strengthen **energy security** by reducing the dependency on energy imports and maximizing the development of **domestic energy resources**.

03

Energy Sustainability

To increase the **share of clean energy**, including **renewable and variable renewable energy**, and **energy efficiency**, by ensuring reliability and affordability of supply.

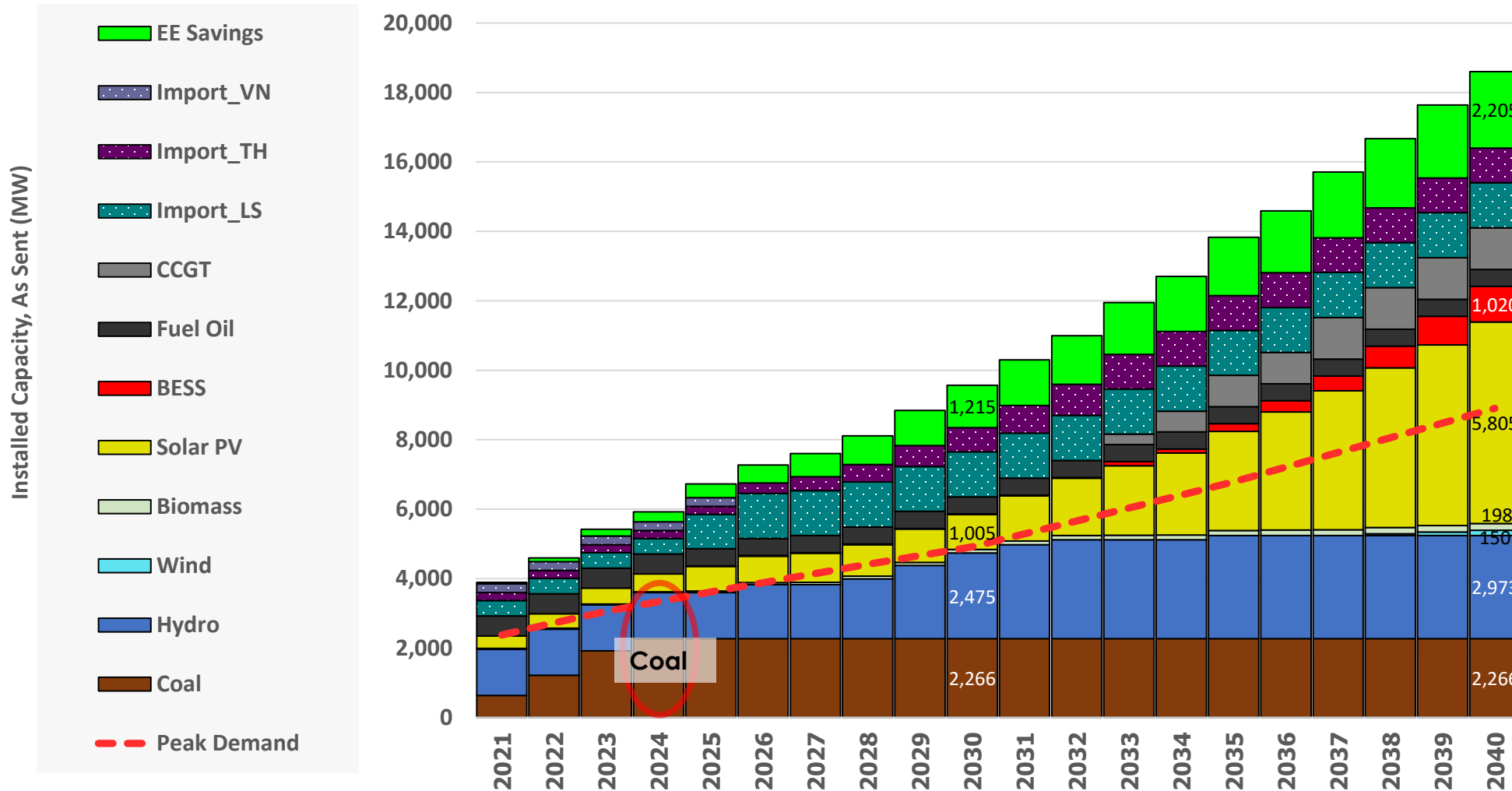
To contribute to the achievement of **Cambodia's national environmental goals** and global commitments to reduce **greenhouse gas emissions**.



Power Development Plan 2022-2040



Installed Power Capacity (2022-2040)



2030
 RE : 56.3%
 VRE : 15.8%

2040
 RE : 63.7%
 VRE : 41.2%

VRE = Solar + Wind,
 RE = VRE + Hydro + Biomass
 *Imports and EE Savings are not considered in this calculation

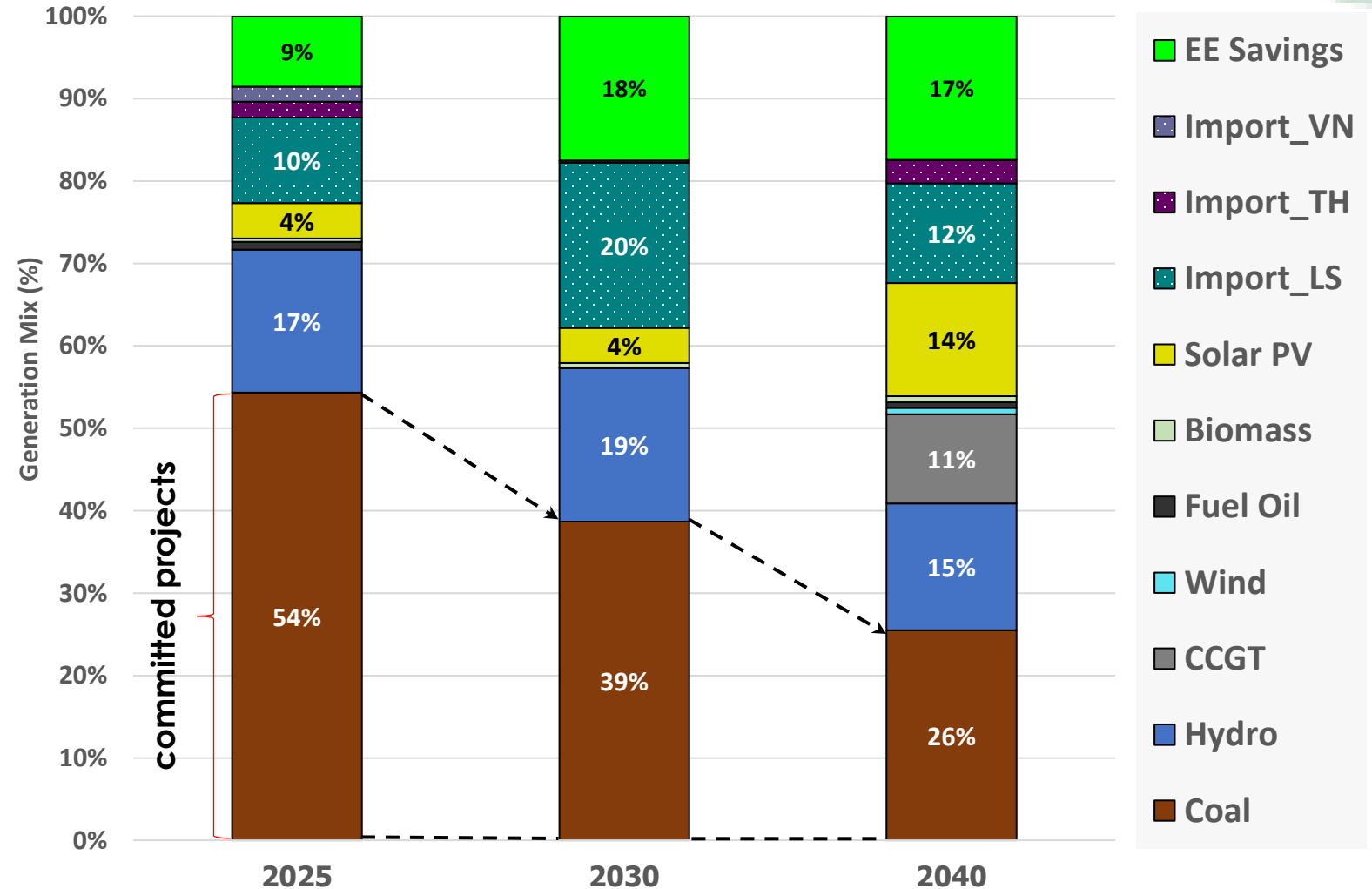


Power Development Plan 2022-2040



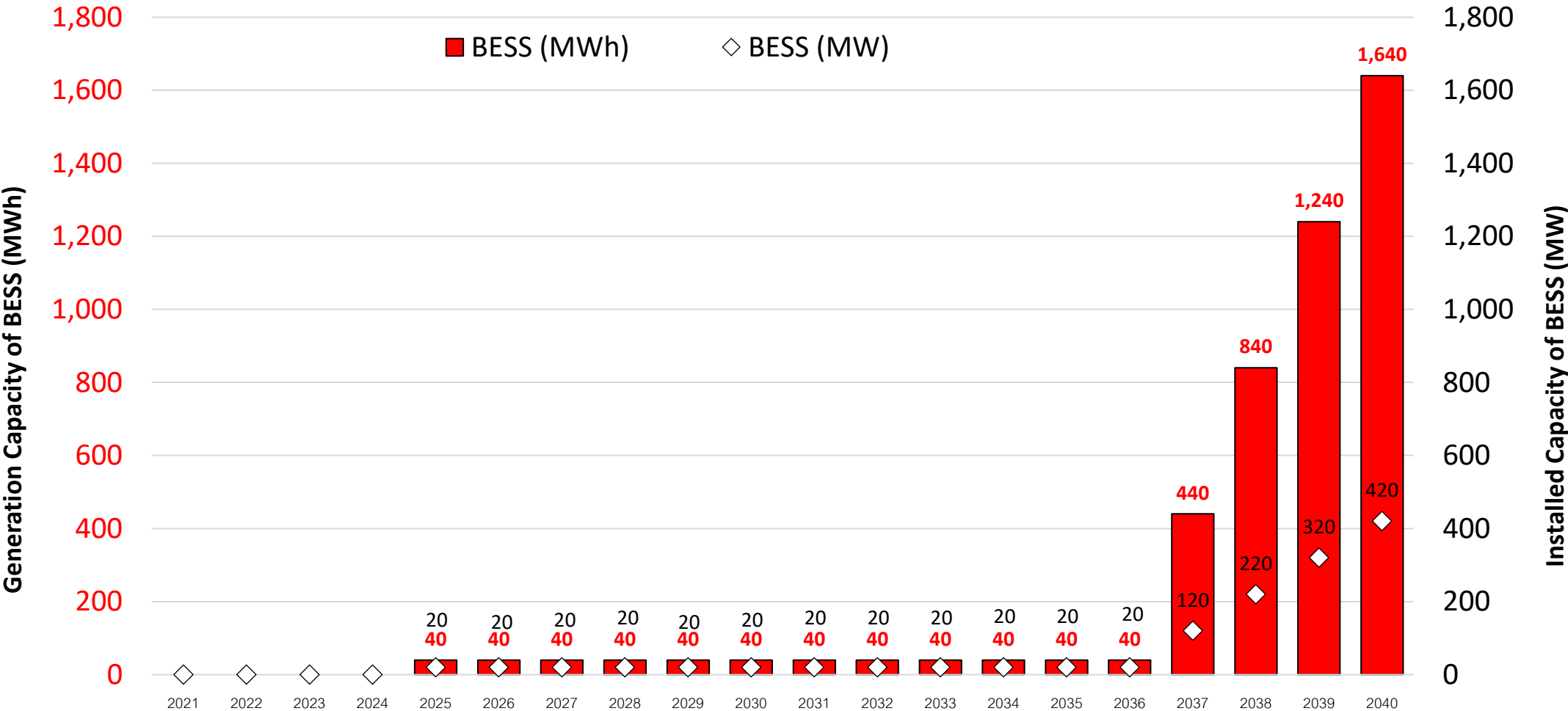
Generation Mix

- Before 2030, coal would be dominant in the energy generation mix. However, this would **reduce dramatically in 2040**.
- The **solar PV** would increase from **4% to 14% in 2030 and 2040**, respectively.
- **EE** would also play crucial roles in minimizing **consumption per cap.**

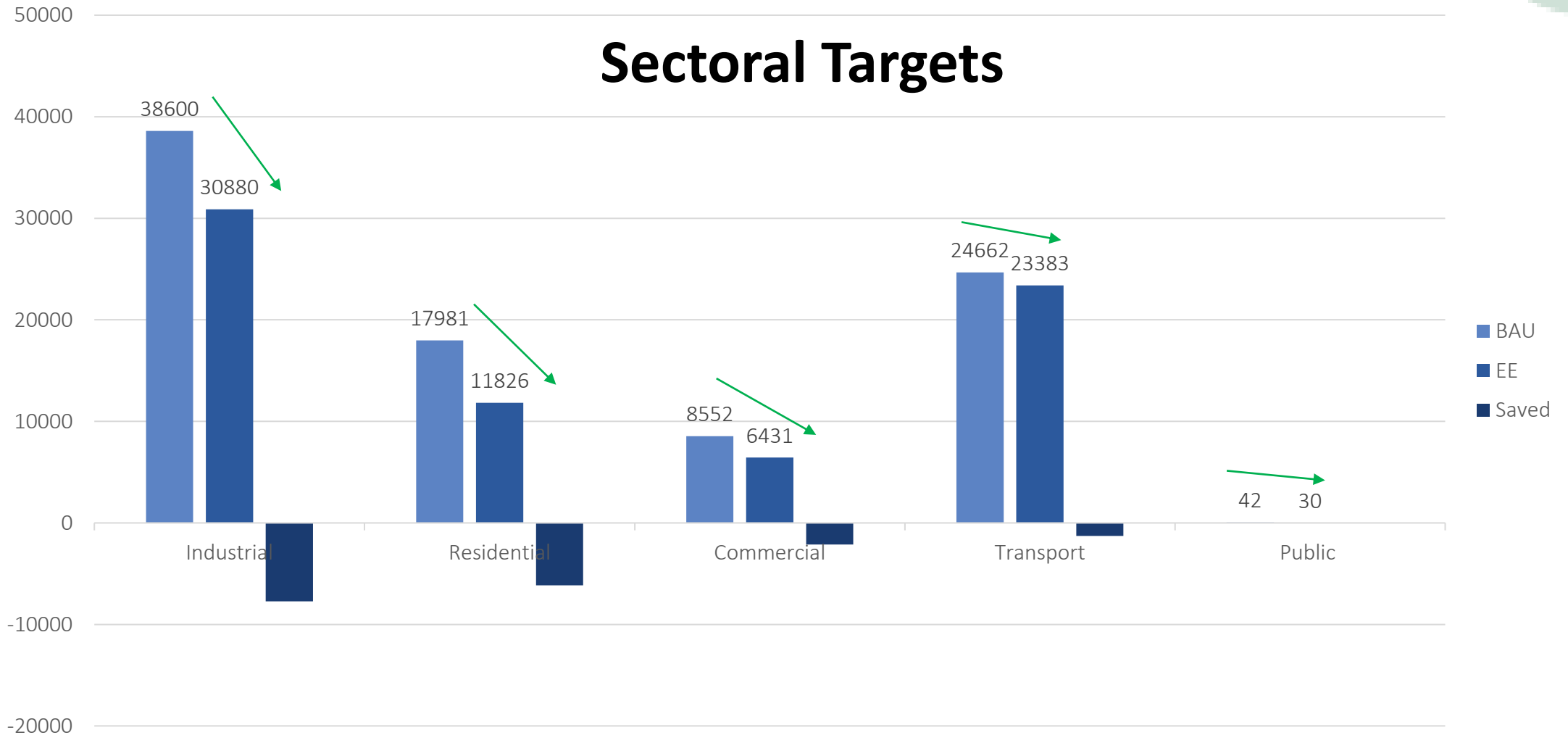


Power Development Plan 2022-2040

Capacity and Energy Generation of BESS



National Energy Efficiency Policy 2022-2030

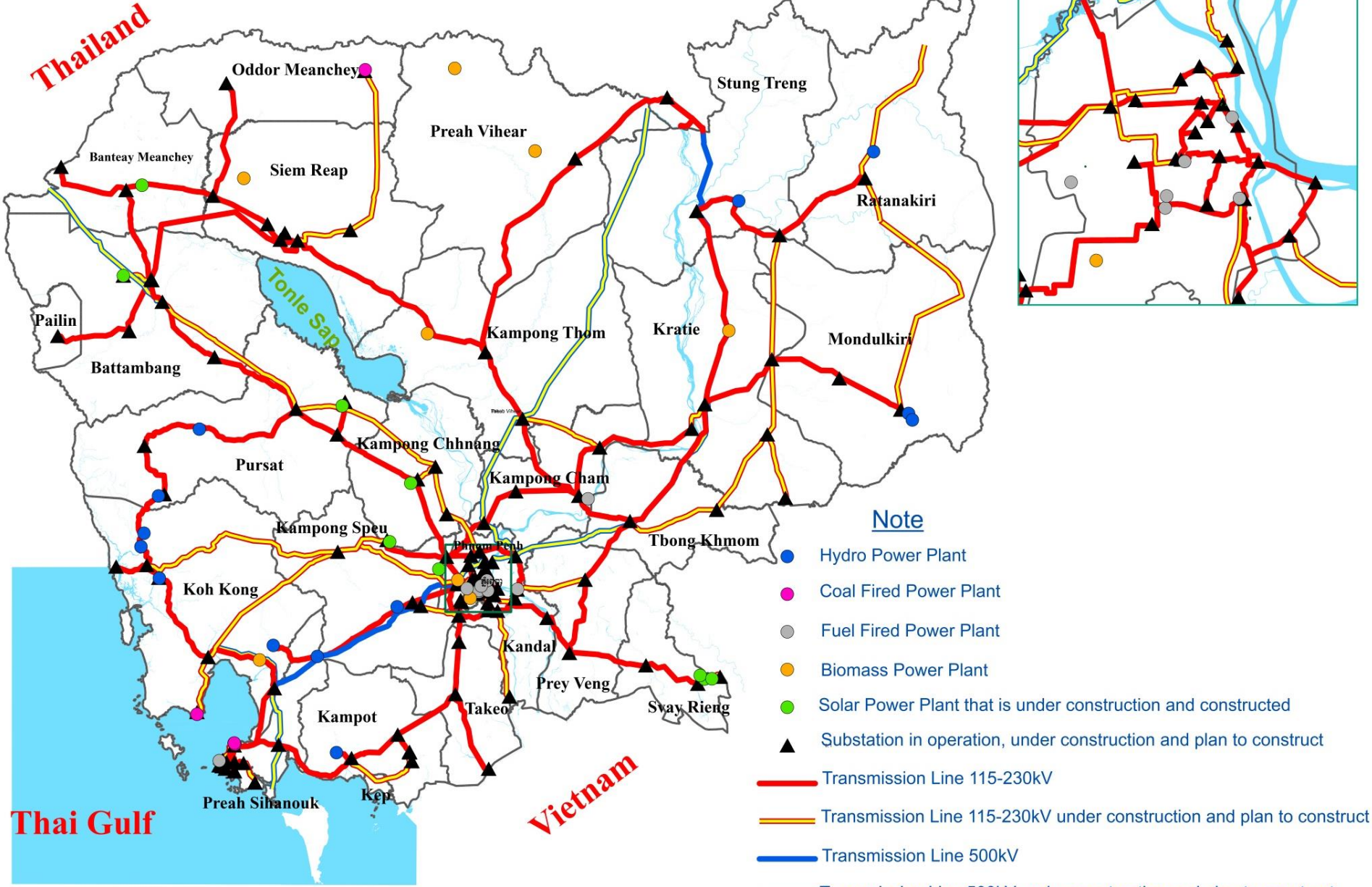




2. Cross-border Power Trade

Development Plan for National Grid by 2030

Laos



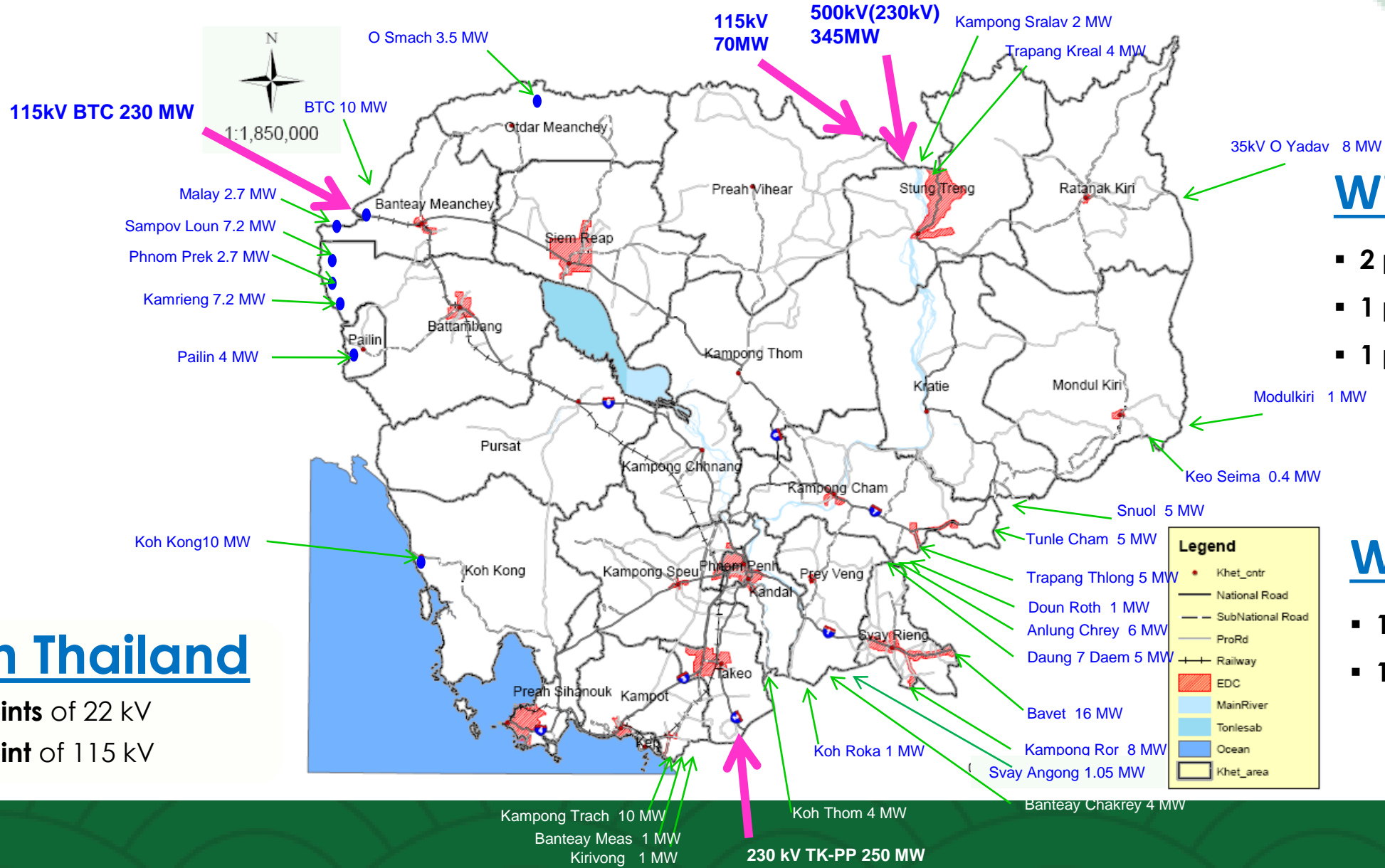
Note

- Hydro Power Plant
- Coal Fired Power Plant
- Fuel Fired Power Plant
- Biomass Power Plant
- Solar Power Plant that is under construction and constructed
- ▲ Substation in operation, under construction and plan to construct
- Transmission Line 115-230kV
- Transmission Line 115-230kV under construction and plan to construct
- Transmission Line 500kV
- Transmission Line 500kV under construction and plan to construct

Infrastructure of National Grid at the end of 2022

Name of system	Transmission Lines	Substations
1. Southern System	230kV : 627.92km (x2) 115kV : 427.71km (x1) 115kV : 251.70km (x2) 500kV : 130.00km (x2)	37 substations: 13 in Phnom Penh, 4 in Kandal, 1 in Takeo, 3 in Kampong Speu, 3 in Kampot, 6 in Preah Sihanouk, 4 in Koh Kong, 2 in Prey Veng, and 1 in Svay Rieng
2. Western System	230kV : 671.43km (x2) 115kV : 256.55km (x1) 115kV : 161.28km (x2)	15 substations: 4 in Battambang, 4 in Pursat, 1 in Kampong Chhnang, 2 in Banteay Meanchey, 2 in Siem Reap, 1 in Oddar Meanchey and 1 in Pailin
3. North-East System	230kV : 712.46km (x2) 115kV : 94.90km (x1) 500kV : 49.00km (x2)	9 substations: 2 in Kampong Cham, 2 in Kratie, 1 in Stung Treng, 1 in Ratanakiri, 1 in Tbong Khmum and 2 in Mondulkiri
4. Northern System	115kV : 189.50km (x1) 230kV : 381.20km (x2)	2 substations: 1 in Preah Vihear and 1 in Kampong Thom
Total	115kV-230kV-500kV= 3,953.65km	63 substations supply directly to 25 cities/provinces throughout Cambodia

Connection Points from Neighboring Countries



With Thailand

- 8 points of 22 kV
- 1 point of 115 kV

With Laos

- 2 points of 22 kV
- 1 point of 115 kV
- 1 point of 500(230) kV

With Vietnam

- 18 points of 35 & 22 kV
- 1 point of 230 kV



3. Challenges



Challenges



- **Policy and Institutional:** NEEP has just recently adopted, ET Roadmap is at the beginning stage;
- **Planning:** Capability and capacity of planning institution is still limited;
- **Energy Efficiency:** Undefined governance framework, institutional mandates, roles, and mechanisms; technical regulations and guidelines to encourage investments,
- **EVs:** Roadmap is still being developed, existing private sector ecosystem, insufficient infrastructure;
- **Financing:** High upfront costs and risks, lack of mitigation instruments, access to affordable finance, public and private financial mechanism;
- **Awareness:** Lack of awareness among energy users, lack of educational and technical training program for building capacities.



Thank you for your attention