USAID
FROM THE AMERICAN PEOPLE

DPPA's for Vietnam: DPPA Participation Charge

Vietnam Low Emissions Energy Program

June 12, 2019

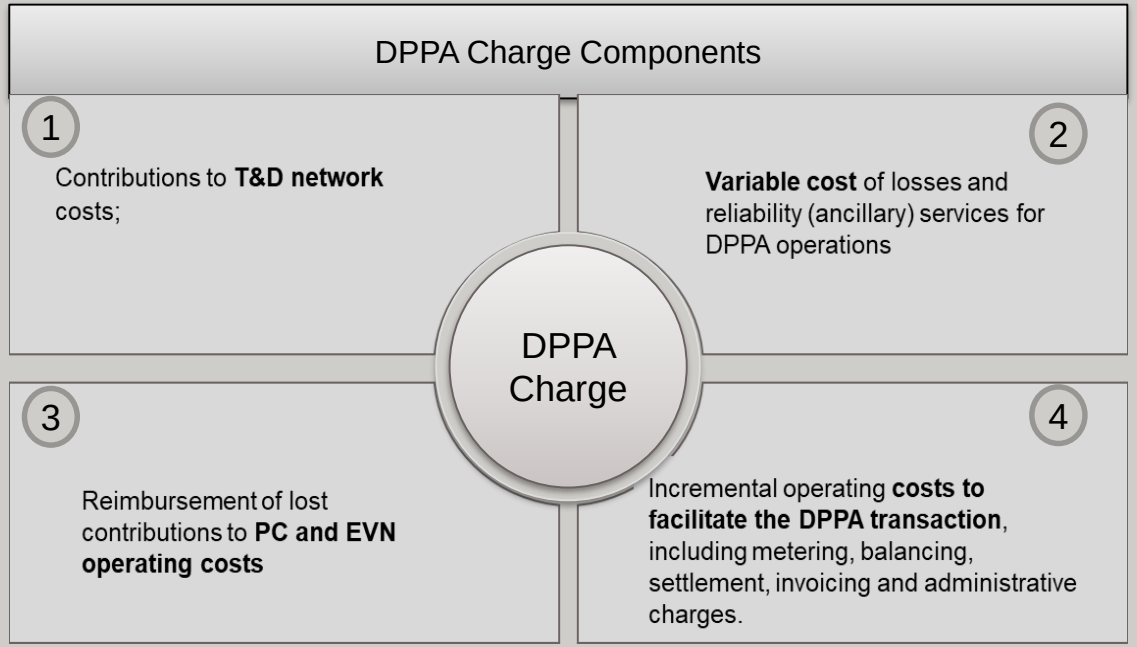
Topics

- Why a DPPA charge?
- How is the DPPA charge calculated?
- Improving the basis for DPPA charge calculations through Cost of Service Study (COSS)

Why a DPPA charge?

- Ensure that Consumers participating in the DPPA pilot pay their fair share of system-wide costs
- Compensate power sector agencies for the additional costs associated with implementing the DPPA pilot program
- Build the basis for a more-robust DPPA charge to be used in future

Calculating the DPPA Charge



Calculating the DPPA Charge (VND/kWh)

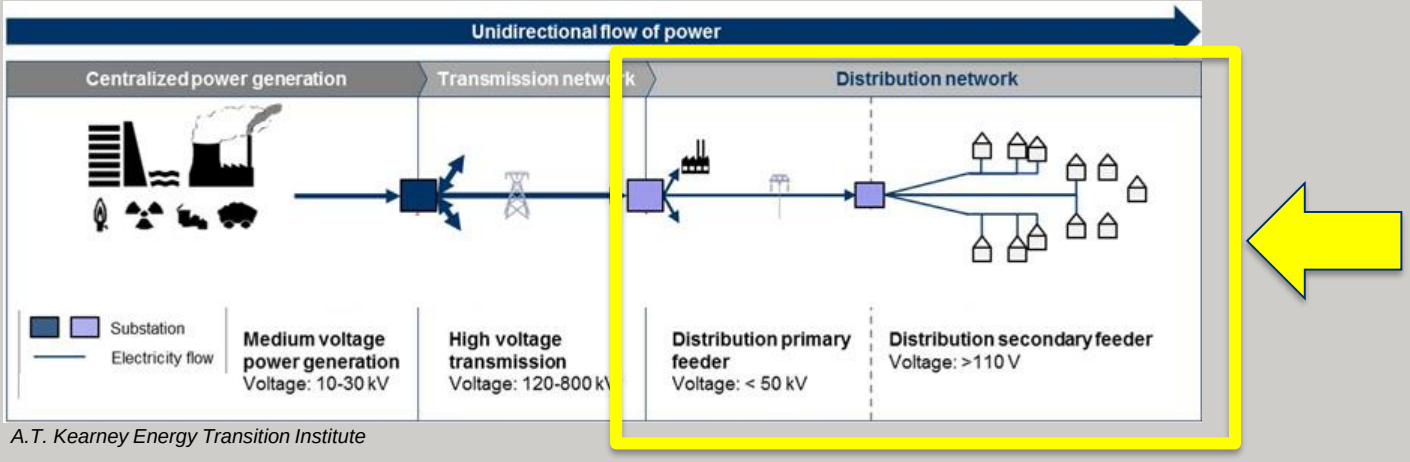
		Cost Assumptions
1	**Transmission Costs**	110
1	**Primary & Secondary Distribution costs**	140
4	**Incremental operating costs**	25
4	**SMO Operating Costs**	5
2	**Reliability services placeholder**	25
3	**Reimbursement of EVN and PC lost operating costs**	**TBD**
	Total (2019 estimate)	**305**

Improving the basis of the DPPA charge calculation

- Network costs vary by voltage level of the DPPA Customer
- Network costs vary according to the physical layout and financial situation of a Power Corporation
- More accurate determination of the DPPA charge will require in-depth cost of service study

Distribution Network Costs Vary by Service Voltage

- **The primary distribution network consists of feeders that deliver power from distribution substations to distribution transformers.** Primary distribution lines are “medium-voltage” circuits, normally thought of as 600 V to 35 kV.
- **The secondary network carries electric energy from distribution transformers to the electricity meters of end customers.** Secondary networks are typically operated at 100–120 or 230–240 volts, at the frequency of 50 or 60 hertz.
- **The distinction between primary/secondary distribution is critical** as some customers (i.e., large consumers) may receive electricity service through the primary network, and thus should not be required to pay a charge that reflects the cost of using both the primary and secondary distribution networks.



A.T. Kearney Energy Transition Institute

Distribution Network Costs vary by Power Corporation

Even when calculated through a COSS, distribution demand charges vary widely between different utilities. This is because the physical, regulatory, and financial factors that affect each utility's revenue requirements can differ greatly. These factors include:

PHYSICAL

ASSET VINTAGE / DEPRECIATION

- Old or poorly maintained infrastructure requires more frequent maintenance and / or replacement.

WEATHER / CLIMATE / GEOGRAPHY

- **Climate conditions** influence the rate at which infrastructure declines in performance and requires repair / replacement.
- **Extreme weather** events (storms, earthquakes, etc.) necessitate replacement of network assets.
- Maintenance / installation of **underground distribution lines** that may be needed due to climate or geography is very expensive.
- **Densely populated** areas require less distribution lines to build and maintain.

PEAK LOAD / LOAD CURVE

- **High peak loads or long periods of peak load** will increase the rate at which network infrastructure wears and depreciates in value.

FINANCIAL

UTILITY FINANCIAL HEALTH

- A utility in poor financial health will have greater revenue requirements, which will be spread across the components of the cost of electricity, including the distribution network charge.

GENERATION MIX / FUEL COSTS

- A utility with high-cost generation options will have **greater revenue requirements**, which will in turn be reflected by a higher distribution demand charge.

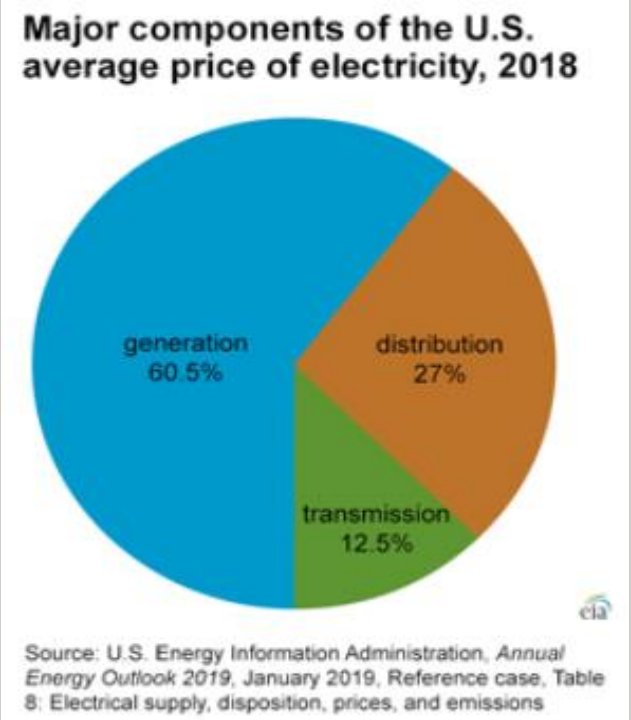
PLANNED NETWORK EXPANSION

- If a utility is required to expanding its T&D network, this will **increase its revenue requirements,** which will in turn be reflected by a higher distribution demand charge.

Cost of Service Study (COSS) to determine Distribution Network Costs

The fixed costs of electricity delivery, including use of the primary and secondary distribution networks, is precisely calculated through a **Cost of Service Study (COSS).**

- **Breaks down the full cost incurred by a utility at each stage of the electricity provision process -** Generation, Transmission, and Distribution (Primary and Secondary).
- **Analyzes these costs in comparison the financial position of the utility**, its historical expenses and projected future cash flow.
- **Determines the revenue required** for the utility to continue uninterrupted provision of electricity to end-consumers.
- **The components of this revenue requirement are** then functionalized, classified, and **allocated to the various components of the electricity supply chain.**



A COSS can thus help determine the value of a demand charge for use of the primary and secondary distribution networks **that will allow the utility to recover the costs for constructing and maintaining these networks.**

Improving the DPPA Charge – Next Steps

Leading practice estimates and available data from Vietnam has provided a DPPA charge estimate for the DPPA pilot. V-LEEP will support ERAV and PCs to **conduct more-detailed Cost of Service Study** to ensure that DPPA customers served at different primary and secondary distribution networks and different power companies are charged according to the actual cost of service