Canadian Electricity Association | Association canadienne de l'électricité

Private Virtual Network Operator (PVNO)

CEA is seeking regulatory improvements to Canada's wireless telecommunication market by proposing the creation of a new designation for Canadian Electrical Utilities (CEUs) and similar entities called PVNO. The PVNO (Private Virtual Network Operator) designation would enable CEUs to **increase the flexibility, reliability, security and coverage of the grid.** A PVNO would also unlock cost efficiencies for electricity consumers and facilitate the deployment of connected devices by CEUs, allowing for the further modernization of the Canadian electric grid. A modern electrical grid is necessary to expand Canada's clean energy advantage of over 80% non-emitting electricity generation, and in aiding the deployment of clean technologies such as electric vehicles. Moreover, **a modern grid is indispensable for mitigating and avoiding power outages from climate change induced extreme weather**, which have significant detrimental impacts to public safety and the economy.

CEUs have already deployed the first generation of connected devices (e.g. smart meters) to great customer and utility benefit. **Connected devices will play a larger role in the electricity grid** as new technologies and sensors are developed and utilized. This is particularly true of smart grid functions like:

- grid connected virtual power plants (e.g. rooftop solar paired with batteries)
- electric vehicle charging networks that respond in real time to customer needs
- automatic reclosers to keep the public safe if lines go down in a storm
- intelligent line fault indicators to help utilities rapidly localize electrical faults to reduce or avoid outages
- power quality improvements to better serve emerging high-tech industries

To continue the advancement of the electrical grid and clean technologies of the future, CEUs will need to vastly increase the number of connected devices deployed in the field (aka field devices). Flexibility, reliability, security, coverage and cost-effectiveness of the wireless communication that connect those devices is essential for this growth. **A PVNO, enabling utilities to obtain a not-for-retail Mobile Network Code (MNC)** unlocks the needed improvements in wireless telecommunications in two ways:

1. Where commercial cellular coverage exists, a PVNO would enable CEU field devices to reliability and securely connect to existing commercial cellular networks. The use of commercial cellular coverage, where available, avoids unnecessary buildout of new single purpose Field Area Networks (FANs) by utilities. This will save electricity customers, including rural and industrial users, money. A PVNO would correct current market inefficiencies by granting CEUs the ability to own and operate their own network cores and attendant systems (**increasing security**), and to connect to multiple commercial cellular networks (**increasing coverage and creating redundancy that increases reliability and flexibility).**
2. In areas where commercial cellular networks are not present and FANs are needed, the current regulations restrict CEUs from being able to use the most secure, and affordable technology, namely LTE and forthcoming 5G (the same technology used for cell phones), because both require an MNC. FAN improvements in these areas are important because this is where clean energy capacity and future electricity consumers will increasingly reside, and the areas are underserved by telecommunications despite significant grid infrastructure such as hydroelectric dams and transmission lines.

These activities combine to make **PVNO the most cost-effective solution to utility telecommunications** challenges, including coverage, reliability, flexibility, and security, with connected devices.

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