A New Way to Finance High Capital Cost Projects Using an Energy Annuity

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Definitions:
An annuity is a financial instrument designed to provide a more secure financial future.
An energy annuity allows electric customers and the electric utilities to work together to provide a more secure and diverse electric system than would otherwise be possible.

Energy Annuity Mechanics:
A generation developer announces interest in building a new power plant such as a centralized solar plant (CSP) or nuclear plant. An interested electric utility customer sees the offer and wants to purchase "x" kW of the new plant capacity. The customer signs an agreement with his local provider. The local provider handles the billings to the customer, which will now include the fact that x kW has been purchased. The customer makes real time cash flow payments to the plant builder as they occur during plant construction. When the plant is finished and begins running, power agreements between the customer, service provider, and generator handle all the accounting and generation scheduling. The customer sees the energy on their monthly billing that was received from the x kW investment. The x kW energy cost will be low because the customer had already paid the capital cost in advance. The bill includes other charges to cover all the operating costs of both the service provider and the new generator. This arrangement continues for the life of the plant the customer had purchased an interest in. It could extend up to 30 years for a solar plant and 60 years for a nuclear plant. The energy annuity should have a provision for transferring the investment to a new address within the electrical service area where the plant is operating. I.e. the customer must maintain an electrical path to the new address if the address changes at some point in the future. To protect the interests of the service provider, the energy annuity should be limited to actual electrical customers on the system, i.e. it should not be used as a purely financial instrument. The service provider also should be allowed to add fees to cover other expenses, such as local taxes, in addition to all the electrical costs and administrative costs for providing the energy annuity service.

Advantages For The Utility:
This instrument frees the utility service provider from making investments in expensive renewables, which avoids rate increases caused by these investments. The customer's service provider need only worry about keeping its costs to a minimum while maintaining reliability. This means making minimum gas plant additions to keep the system running reliably and encouraging conservation and demand side management. The utility need not worry about investing in solar and nuclear plants if the utility cannot afford them. In this way rates stay as low as possible in the near term. What about planning for the distant future? The amount of renewables and nuclear power to be added to the system will be determined by the utility's customer's energy annuity investments. Government incentive programs are unnecessary. The customers themselves determine their future. They would have the power to transform the world rather quickly if they so desired.

Advantages For The Investing Energy Annuity Electric Customer:
To put up money now in order to gain an advantage in the future means the customer is worried about something bad that might happen in the future and wants to have an influence on that future energy supply. Investing in renewables is like investing in a Prius. It's the right thing to do. It may not be the lowest cost thing to do in the near term. So a customer chooses to purchase x kW for whatever reasons they believe to be true. It doesn't matter what they believe. The only thing that matters is that they are willing to put up their money now in order to have a certain plant supply them with energy in the future. Their interest in the plant could be a hedge against the effects of highly inverted rates, or it might be a hedge against future rate increases that the utility has been proposing, or it might be a hedge against oil shortages and the customer wants to invest in more electric energy for their electric vehicles, or it might be a company needing a stable source of power for their new manufacturing plant, and they believe that the local regional entities are not building the kinds of power plants they are going to need in the future. There are probably a thousand reasons someone would want to invest in their own system. It might be that the customer cannot put up their own solar panels or the smartest customers realize that they can get twice the energy from a CSP than from a rooftop installation. It might be a customer worried about green house gases and just wants to make their contribution to solving what they believe is a climate problem.

Affordability Of The Energy Annuity:
Both solar and nuclear plants currently cost about $5 per Watt. If a customer "invested" in 2 kW of solar and 2 kW of nuclear power, the total up front cost to the customer would be $20,000. This investment would provide about 20,000 kWh annually. If the customer drives an EV 16,000 miles per year, the electric energy is 8000 kWh, leaving 12,000 kWh for the home use. The $20,000 investment to transition off fossil fuels is considerably less expensive than the EV and the homeowner's home costs. Once the energy annuity investment is made, and the very low cost energy is being received, the homeowner need no longer have a guilt complex about their consumption of energy. This example shows that a non-fossil fuel energy future is very affordable.

Advantage For The Power Plant Builder:
The solar and nuclear power plant builder will love this way of financing a project because there will be no interest during construction and no need to justify the project to regulators and no need to slow down the project construction because of limited funds because there will be no limited funds. There is no risk to the builder. The only reason a project might not be constructed is because there would not be enough interest by investing customers to purchase all the available power of the plant, and therefore the project would have never been started in the first place.

Advantage For Low Income Electric Customers:
The energy annuity participants pick up all up front costs of the renewables and nuclear power plants. The non-participating customers are not charged those costs. There is no need to raise rates to cover these costs. This is a win-win concept for the transmission and generation utilities, the new plant builders, and all the electric system customers.