

- *Dennis Phillips, Engineer, worked in Resource Planning in operations research at BPA, & in PP&L coal, @BPA, designed and used computer models to model the system far into the future.*
- *Lead role in modeling WNP-3 & Trojan shutdowns*
- *Very familiar with regional capacity and firm energy planning techniques.*
- *Every engineer knows Firm Energy and Peak Load cannot be met by wind, solar and hydro alone. Need thermal base-load.*
- *Which do we build? CCTs or SMRs as they are our only choices.*
- *The total cost of removing all the CO<sub>2</sub> from all thermal plant emissions, can be estimated by making two runs of an optimizing model. One that simulates the capital additions and hourly operation of all system resources, across 20 years or more. Run1 is an “all” CCT run. Run2 is an all SMR run.*
- *The Total Cost of Run2 minus the Total Cost Run1 equals the cost of completely eliminating CO<sub>2</sub> emissions from all the new resources built and replacements of vintage thermal plants.*
- *Question: how will “we” decide what levels to assign to our CO<sub>2</sub> and Nuclear waste constraints?*
- *Not necessarily an “all or nothing” solution.*
- *Question comes down to how ‘binding’ are the CO<sub>2</sub> and CCT constraints?*
- *As the CO<sub>2</sub> constraint is relaxed (raised), more CCTs may come on line.*
- *And as the Nuclear waste constraint is relaxed, more SMRs may come online.*