**THE NORTHWEST POWER AND CONSERVATION COUNCIL'S METHODOLOGY FOR DETERMINING ACHIEVABLE CONSERVATION POTENTIAL**
**OUTLINE OF MAJOR ELEMENTS**
**DOCKET UE-100176,**
**STAFF MEMO ATTACHMENT 1**

1) Resource Definitions

    i) Technical Potential

    ii) Economic Potential

    iii) Achievable Potential

        (1) Non-lost opportunity resources ("schedulable")

        (2) Lost opportunity resources

2) Technical Resource Potential Assessment

    a) Review wide array of energy efficiency technologies and practices across all sectors and major end uses

    b) Methodology

        i) Technically feasibility savings = Number of applicable units * incremental savings/applicable unit

        ii) "Applicable" Units accounts for

            (a) Fuel saturations (e.g. electric vs. gas DHW)

            (b) Building characteristics (single family vs. mobile homes, basement/non-basement, etc.)

            (c) System saturations, (e.g., heat pump vs. zonal, central AC vs. window AC)

            (d) Current measure saturations

            (e) New and existing units

            (f) Measure life (stock turnover cycle)

            (g) Measure substitutions (e.g., duct sealing of homes with forced-air resistance furnaces vs. conversion of homes to heat pumps with sealed ducts)

        iii) "Incremental" Savings/applicable unit accounts for

(a) Expected kW and kWh savings shaped by time-of-day, day of week and month of year

(b) Savings over baseline efficiency

(i) Baseline set by codes/standards or current practices

(ii) Not always equivalent to savings over "current use" (e.g., new refrigerator savings are measured as "increment above current federal standards, not the refrigerator being replaced)

(c) Climate - heating, cooling degree days and solar availability

(d) Measure interactions (e.g. lighting and HVAC, duct sealing and heat pump performance, heat pump conversion and weatherization savings)

3) Economic Potential - Ranking Based on Resource Valuation

a) Total Resource Cost (TRC) is the criterion for economic screening - TRC includes all cost and benefits of measure, regardless of who pays for or receives them.

i) TRC B/C Ratio $\geq$ = 1.0

ii) Levelized cost of conserved energy (CCE) $\leq$ levelized avoided cost for the load shape of the savings may substitute for TRC if "CCE" is adjusted to account for "non-kWh" benefits, including deferred T&D, non-energy benefits, environmental benefits and Act's 10% conservation credit

b) Methodology

i) Energy and capacity value (i.e., benefit) of savings based on avoided cost of future wholesale market purchases (forward price curves)

ii) Energy and capacity value accounts for shape of savings (i.e., uses time and seasonally differentiated avoided costs and measure savings)

iii) Uncertainties in future market prices are accounted for by performing valuation under wide range of future market price scenario during Integrated Resource Planning process (See 4.1)

c) Costs Inputs (Resource Cost Elements)

i) Full incremental measure costs (material and labor)

ii) Applicable on-going O&M expenses (plus or minus)

iii) Applicable periodic O&M expenses (plus or minus)

iv) Utility administrative costs (program planning, marketing, delivery, on-going

administration, evaluation)

d) Benefit Inputs (Resource Value Elements)

i) Direct energy savings

ii) Direct capacity savings

iii) Avoided T&D losses

iv) Deferral value of transmission and distribution system expansion (if applicable)

v) Non-energy benefits (e.g. water savings)

vi) Environmental externalities

e) Discounted Presented Value Inputs

i) Rate = After-tax average cost of capital weighted for project participants (real or nominal)

ii) Term = Project life, generally equivalent to life of resources added during planning period

iii) Money is discounted, not energy savings

4) Achievable Potential

a) Annual acquisition targets established through Integrated Resource Acquisition Planning (IRP) process (i.e., portfolio modeling)

b) Conservation competes against all other resource options in portfolio analysis

i) Conservation resource supply curves separated into

(1) Discretionary (non-lost opportunity)

(2) Lost-opportunity

(3) Annual achievable potential constrained by historic "ramp rates" for discretionary and lost-opportunity resources

(a) Maximum ramp up/ramp down rate for discretionary is 3x prior year for discretionary, with upper limit of 85% over 20 year planning period

(b) Ramp rate for lost-opportunity is 15% in first year, growing to 85% in twelfth year

(c) Achievable potentials may vary by type of measure, customer sector, and

program design (e.g., measures subject to federal standards can have 100% "achievable" potential)

c) Revise Technical, Economic and Achievable Potential based on changes in market conditions (e.g., revised codes or standards), program accomplishments, evaluations and experience

   i) All programs should incorporate Measurement and Verification (M&V) plans that at a minimum track administrative and measure costs and savings.

   ii) Use International Performance Measurement and Verification Protocols (IPMVP) as a guide

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