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  "Versions": {

    "IEC61970CIMVersion": {

      "IEC61970CIMVersion.version": "IEC61970CIM100",

      "IEC61970CIMVersion.date": "2019-04-01",

      "Ravens.cimObjectType": "IEC61970CIMVersion"

    }

  },

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      "DesignAlgorithmProperties\_1": {

        "DesignAlgorithmProperties.energyAvailabilityLimit": 95.0,

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          "unit": "USD",

          "value": 10000.0

        },

        "DesignAlgorithmProperties.purchaseCostObjective": {

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          "value": 9000.0

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        "AlgorithmProperties.workingDirectory": "/tmp/a7880c4d-d916-48b3-b45c-85cbc956243e",

        "DesignAlgorithmProperties.analysisPeriod": "P25Y",

        "IdentifiedObject.name": "DesignAlgorithmProperties\_1",

        "IdentifiedObject.mRID": "c23252a0-cd95-4f64-88e8-4553aa9e1cf6",

        "DesignAlgorithmProperties.energyAvailabilityObjective": 100.0

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    }

  },

  "ProposedSiteLocations": {

    "proposedSite1": {

      "ProposedSiteLocation.availableArea": 1000.0,

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      "ProposedSiteLocation.Region": "SubGeographicalRegion::'lehigh\_SubRegion'",

      "Location.PositionPoints": [

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          "PositionPoint.xPosition": -89.6501,

          "Ravens.cimObjectType": "PositionPoint",

          "PositionPoint.yPosition": 39.7817,

          "PositionPoint.sequenceNumber": 1,

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      "IdentifiedObject.name": "proposedSite1",

      "IdentifiedObject.mRID": "A9C5BFEE-FFFB-4CDC-94EC-813291D042A4",

      "ProposedSiteLocation.LoadGroup": [

        "LoadGroup::'ResidentialGroup'"

      ]

    }

  },

  "ProposedAssetOption": {

    "ProposedEnergyProducerOption": {

      "proposedESS1": {

        "ProposedBatteryUnitOption.dischargeRate": 60000.0,

        "ProposedBatteryUnitOption.dischargeEfficiency": 92.0,

        "ProposedBatteryUnitOption.stateOfChargeMax": 100.0,

        "ProposedBatteryUnitOption.requiredOption": "false",

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          "value": 1000000

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        "ProposedBatteryUnitOption.chargeRate": 60000.0,

        "ProposedAssetOption.ProposedLocations": [

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        "ProposedBatteryUnitOption.powerDiscretization": 50000,

        "ProposedAssetOption.lifetime": "P25Y",

        "ProposedBatteryUnitOption.chargeEfficiency": 92.0,

        "IdentifiedObject.name": "proposedESS1",

        "ProposedEnergyProducerOption.powerCapacityMin": 0.0,

        "ProposedAssetOption.ProposedConnectivityNodes": [

          "ConnectivityNode::'670'"

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        "ProposedBatteryUnitOption.stateOfChargeMin": 20.0,

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        "ProposedEnergyProducerOption.powerCapacityMax": 150000.0,

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                "CurveData.xvalue": 2472.0

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            "Curve.xUnit": "v",

            "Curve.yUnit": "var",

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            "IdentifiedObject.mRID": "05591a7d-0767-4521-b87b-958803322835"

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          "DroopControlMode.p": 0.0,

          "ConstantPFControlMode.powerFactorSetpoint": 1.0,

          "DroopControlMode.q": 0.0

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      },

      "proposedPV1": {

        "Ravens.cimObjectType": "ProposedPhotovoltaicUnitOption",

        "IdentifiedObject.mRID": "d6910f52-7455-4074-9d94-e0851cf131db",

        "ProposedEnergyProducerOption.variablePrice": {

          "unit": "USD",

          "value": 1000.0

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        "ProposedEnergyProducerOption.operationsAndMaintenanceRateFixed": {

          "unit": "USD",

          "value": 10.0

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        "ProposedEnergyProducerOption.operationsAndMaintenanceRateVariable": {

          "unit": "USD",

          "value": 100.0

        },

        "ProposedAssetOption.ProposedLocations": [

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        ],

        "ProposedAssetOption.lifetime": "P25Y",

        "IdentifiedObject.name": "proposedPV1",

        "ProposedEnergyProducerOption.powerCapacityMin": 0.0,

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          "ConnectivityNode::'670'"

        ],

        "ProposedPhotovoltaicUnitOption.GenerationProfile": {

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            {

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                "CurveData.xvalue": 1

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          ]

        },

        "ProposedEnergyProducerOption.powerCapacityMax": 1.0e6

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  "Group": {

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      "ResidentialGroup": {

        "LoadGroup.EnergyConsumers": [

          "EnergyConsumer::'670a\_residential2'"

        ],

        "Ravens.cimObjectType": "LoadGroup",

        "IdentifiedObject.name": "ResidentialGroup",

        "IdentifiedObject.mRID": "146813dc-3f62-4430-93be-860f5f584fcb"

      }

    },

    "**ProposedAssetSet**": {

      "BusinessAsUsual": {

        "Ravens.cimObjectType": "ProposedAssetSet",

        "ProposedAssetSet.ProposedAssets": [],

        "ProposedAssetSet.Application": "Application::'REopt'",

        "IdentifiedObject.name": "BusinessAsUsual",

        "IdentifiedObject.mRID": "56e75ac7-e609-4a73-afdf-a129afd13e6b",

        "ProposedAssetSet.EstimatedCosts": "EstimatedCost::'BusinessAsUsual'"

      },

      "Optimal": {

        "Ravens.cimObjectType": "ProposedAssetSet",

        "ProposedAssetSet.ProposedAssets": [

          "ProposedEnergyProducerAsset::'REopt\_PV'",

          "ProposedBatteryUnit::'REopt\_ESS'"

        ],

        "ProposedAssetSet.Application": "Application::'REopt'",

        "IdentifiedObject.name": "Optimal",

        "IdentifiedObject.mRID": "9b788e28-edd3-4556-80f9-3c8d63852d93",

        "ProposedAssetSet.EstimatedCosts": "EstimatedCost::'Optimal'"

      }

    },

    "SubGeographicalRegion": {

      "lehigh\_SubRegion": {

        "SubGeographicalRegion.Region": "GeographicalRegion::'lehigh\_Region'",

        "Ravens.cimObjectType": "SubGeographicalRegion",

        "IdentifiedObject.name": "lehigh\_SubRegion",

        "IdentifiedObject.mRID": "\_2BB7016C-8D41-4620-AD7E-A2CF1E0990DC"

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    },

    "GeographicalRegion": {

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        "IdentifiedObject.name": "lehigh\_Region",

        "IdentifiedObject.mRID": "\_8383E42C-11FF-412E-9AEE-8A22334BBDB6",

        "GeographicalRegion.Regions": [

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            "Regions.EnergyPrices": {

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              "EnergyPrices.CapacityPrices": "CapacityPrices::'capacityprices\_lehigh'",

              "IdentifiedObject.name": "energyprices\_lehigh",

              "IdentifiedObject.mRID": "\_f9921f2f-65dc-4e36-b3a8-11eb6cdf72c7",

              "EnergyPrices.LocationalMarginalPrices": "LocationalMarginalPrices::'lmps\_lehigh'"

            },

            "Regions.EconomicProperty": {

              "EconomicProperty.inflationRate": 10.2,

              "IdentifiedObject.name": "CountyEconomicProperties",

              "Ravens.cimObjectType": "EconomicProperty",

              "EconomicProperty.Regions": [

                "lehigh\_Region"

              ],

              "EconomicProperty.taxRate": 28.0,

              "IdentifiedObject.mRID": "290f8ed6-2588-4647-bef6-0a83f93d768e",

              "EconomicProperty.discountRate": 6.8

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            "Ravens.cimObjectType": "SubGeographicalRegion",

            "IdentifiedObject.name": "lehigh\_SubRegion",

            "IdentifiedObject.mRID": "\_7baa2ac0-af2e-4316-8fe3-4c9e000395b2"

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        ]

      }

    }

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  "EnergyPrices": {

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      "capacityprices\_lehigh": {

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          "PriceCurve.CurveDatas": [

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              "CurveData.xvalue": 0

            },

            {

              "CurveData.y1value": 20,

              "CurveData.xvalue": 1

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          "IdentifiedObject.name": "capacityprices\_lehigh\_Curve",

          "IdentifiedObject.mRID": "4f8bbd63-0cd0-40c3-b7ac-3156b666f938"

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        "EnergyPrices.Regions": [

          "lehigh\_Region"

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        "Ravens.cimObjectType": "CapacityPrices",

        "IdentifiedObject.name": "capacityprices\_lehigh",

        "IdentifiedObject.mRID": "5407c621-70bb-4ff2-85ca-8cee8a84d10a"

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    },

    "LocationalMarginalPrices": {

      "lmps\_lehigh": {

        "EnergyPrices.Regions": [

          "lehigh\_Region"

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        "Ravens.cimObjectType": "LocationalMarginalPrices",

        "LocationalMarginalPrices.LMPCurve": {

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          "y1Unit": "USD",

          "IdentifiedObject.name": "lmps\_lehigh\_Curve",

          "IdentifiedObject.mRID": "4919302c-135b-429e-afe2-ad3cbd0479a3",

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  },

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    "outagescenario3": {

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      "OutageScenario.loadFractionTotal": 20.0,

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      "OutageScenario.anticipatedDuration": "P48H",

      "OutageScenario.anticipatedStartHour": 14,

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      "IdentifiedObject.name": "outagescenario2"

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    "outagescenario1": {

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      "OutageScenario.loadFractionTotal": 30.0,

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      "OutageScenario.anticipatedDuration": "P48H",

      "OutageScenario.anticipatedStartHour": 9,

      "IdentifiedObject.mRID": "34e98fc7-4034-466e-b858-8e8d9535f1f1",

      "IdentifiedObject.name": "outagescenario1"

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    "outagescenario4": {

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      "OutageScenario.loadFractionTotal": 20.0,

      "OutageScenario.anticipatedStartDay": "--09-13",

      "OutageScenario.anticipatedDuration": "P48H",

      "OutageScenario.anticipatedStartHour": 14,

      "IdentifiedObject.mRID": "ad01aace-311e-4254-b798-e6c16ee4a613",

      "IdentifiedObject.name": "outagescenario2"

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      "OutageScenario.anticipatedDuration": "P48H",

      "OutageScenario.anticipatedStartHour": 14,

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      "IdentifiedObject.name": "outagescenario2"

    }

  },

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    "670a\_residential2\_shape": {

      "EnergyConsumerSchedule.startDay": "Monday",

      "BasicIntervalSchedule.value2Multiplier": "k",

      "BasicIntervalSchedule.value1Multiplier": "k",

      "Ravens.cimObjectType": "EnergyConsumerSchedule",

      "BasicIntervalSchedule.value2Unit": "VAr",

      "BasicIntervalSchedule.value1Unit": "W",

      "EnergyConsumerSchedule.RegularTimePoints": [

        {

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          "RegularTimePoint.value2": 0.0,

          "RegularTimePoint.value1": 76.6992804

        },

        {

          "RegularTimePoint.sequenceNumber": 2,

          "RegularTimePoint.value2": 0.0,

          "RegularTimePoint.value1": 79.62543428

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      ],

      "IdentifiedObject.mRID": "926ea047-a4ae-4a28-9271-4d9d36274b86",

      "EnergyConsumerSchedule.timeStep": 3600

    },

    "675c\_residential1\_shape": {

      "EnergyConsumerSchedule.startDay": "Monday",

      "BasicIntervalSchedule.value2Multiplier": "k",

      "BasicIntervalSchedule.value1Multiplier": "k",

      "Ravens.cimObjectType": "EnergyConsumerSchedule",

      "BasicIntervalSchedule.value2Unit": "VAr",

      "BasicIntervalSchedule.value1Unit": "W",

      "EnergyConsumerSchedule.RegularTimePoints": [],

      "IdentifiedObject.mRID": "053106cf-4f0e-4e9a-bb01-0b15934cb81e",

      "EnergyConsumerSchedule.timeStep": 3600

    }

  },

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    "REopt\_PV": {

      "ProposedEnergyProducerAsset.capacity": {

        "unit": "W",

        "value": 503.7824,

        "multiplier": "k"

      },

      "ProposedAsset.EstimatedCosts": "EstimatedCost::'Optimal'",

      "ProposedAsset.ProposedAssetOption": "ProposedPhotovoltaicUnitOption::'proposedPV1'",

      "ProposedEnergyProducerAsset.PowerDispatchCurve": {

        "Curve.CurveDatas": [

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            },

            {

              "CurveData.y1value": 0.0,

              "CurveData.xvalue": 1

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          ]

        },

      "Ravens.cimObjectType": "ProposedEnergyProducerAsset",

      "IdentifiedObject.name": "REopt\_PV",

      "IdentifiedObject.mRID": "878b594a-0a01-4c08-9b6b-3e48f07bc6bf"

    },

    "REopt\_ESS": {

      "ProposedEnergyProducerAsset.capacity": {

        "unit": "W",

        "value": 139.79,

        "multiplier": "k"

      },

      "ProposedAsset.EstimatedCosts": "EstimatedCost::::'Optimal'",

      "ProposedAsset.ProposedAssetOption": "ProposedBatteryUnitOption::'proposedESS1'",

      "Ravens.cimObjectType": "ProposedBatteryUnit",

      "ProposedBatteryUnit.energyCapacity": {

        "unit": "Wh",

        "value": 2210.68,

        "multiplier": "k"

      },

      "IdentifiedObject.name": "REopt\_ESS",

      "IdentifiedObject.mRID": "19d0961e-8c25-4365-b6c0-c30158c31001"

    }

  },

  "**EstimatedCost**": {

    "BusinessAsUsual": {

      "EstimatedCost.netPresentValue": 0.0,

      "EstimatedCost.lifecycleEnergyCost": 864866.1,

      "Ravens.cimObjectType": "EstimatedCost",

      "EstimatedCost.lifecycleCapacityCost": 439482.49,

      "EstimatedCost.lifecycleCapitalCost": 0.0,

      "IdentifiedObject.name": "BusinessAsUsual",

      "IdentifiedObject.mRID": "e8c003ea-7319-4b29-ab90-fe1c8dc41a5c",

      "EstimatedCost.lifecycleCost": 1.3507587368e6

    },

    "Optimal": {

      "EstimatedCost.netPresentValue": -760393.51,

      "EstimatedCost.lifecycleEnergyCost": 280234.11,

      "Ravens.cimObjectType": "EstimatedCost",

      "EstimatedCost.lifecycleCapacityCost": 146301.65,

      "EstimatedCost.lifecycleCapitalCost": 1.5448240826e6,

      "IdentifiedObject.name": "Optimal",

      "IdentifiedObject.mRID": "c7444e06-e1b2-401d-a9a1-fae37df92e15",

      "EstimatedCost.lifecycleCost": 2.1111522474e6

    }

  },

  "**Message**": [

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      "Message.Application": {

        "Application.applicationName": "REopt"

      },

      "Ravens.cimObjectType": "Warning",

      "Message.message": "Any[(\"core\_reopt.jl\_668\", Any[\"Adding binary variable to model outages. Some solvers are very slow with integer variables\", \"Adding binary variable to model outages. Some solvers are very slow with integer variables\"]), (\"core\_electric\_utility.jl\_321\", Any[\"When using stochastic outage modeling (i.e. outage\_start\_time\_steps, outage\_durations, outage\_probabilities), \\n                    emissions and renewable energy percentage calculations and constraints do not consider outages.\"])]",

      "IdentifiedObject.mRID": "1a0764c3-98f6-42b6-9a8e-4e6f369b33b4"

    },

    {

      "Message.Application": {

        "Application.applicationName": "REopt"

      },

      "Ravens.cimObjectType": "Error",

      "Message.message": "",

      "IdentifiedObject.mRID": "7c48ed1d-cc71-4c24-82c3-38727dca7417"

    }

  ]

}