**Loosely Coupled Ren-Nuc Power System**

**Input Parameter**

***Annual Cost***

***Variable Cost***

***Technical Data***

***Capacity Limit***

**Input Sets**

**Intermediate Calculation Sets:**

**Output Sets:**

Try Red as decision variables

**Abstract Model**

**Decision Variables:**

**Objective Function:**

1. **Revenue from Committed Supply**
2. **Revenue from Electricity Sale to Market**
3. **Revenue from Non-Electric Production**
4. **Expenditure on Import from Electricity Market**
5. **SMR CAPEX & Fixed O&M**
6. **SMR Fuel and Variable O&M**
7. **Wind CAPEX & Fixed O&M**
8. **Wind Variable O&M**
9. **Solar CAPEX & Fixed O&M**
10. **Solar Variable O&M**
11. **Non-Electric CAPEX & Fixed O&M**
12. **Non-Electric Variable O&M**

**Subject to:**

1. **Non-electric Production**
2. **SMR Ramping Down Limit**

When t>1:

* *if*

*Else*

When t=1:

* *if*

*Else*

1. **SMR Minimum Stable Level or Shutdown**
2. **Generation & Consumption Balancing**
3. **Export/Import Coupling Point Limit**
4. **SMR Min and Max Capacity Limit**
5. **Wind Min and Max Capacity Limit**
6. **Solar Min and Max Capacity Limit**
7. **Solar Generation**
8. **Wind Generation**
9. **Market Must Supply**

In case if must supply:

1. **External Market Sale and Import Limit**
2. **SMR Capacity to Activity Relation**