BEFORE THE PUBLIC SERVICE COMMISSION OF THE STATE OF MISSOURI

In the Matter of Evergy Metro, Inc. d/b/a Evergy)	
Missouri Metro's 2021 Triennial Compliance Filing)	File No. EO-2021-0035
Pursuant to 20 CSR 4240-22)	
In the Matter of Evergy Missouri West, Inc. d/b/a)	
Evergy Missouri West's 2021 Triennial Compliance)	File No. EO-2021-0036
Filing Pursuant to 20 CSR 4240-22	

EVERGY MISSOURI METRO AND EVERGY MISSOURI WEST NOTICE OF STAKEHOLDER UPDATE

COME NOW Evergy Metro, Inc. d/b/a Evergy Missouri Metro ("Evergy Missouri Metro") and Evergy Missouri West, Inc. d/b/a Evergy Missouri West ("Evergy Missouri West")(collectively the "Company" or "Evergy"), and for their *Notice of Stakeholder Update* ("Notice") state as follows:

1. On December 16, 2020, Evergy held an IRP stakeholder meeting with various stakeholders wherein the presentation attached hereto as **Exhibit A** was presented.

WHEREFORE, the Company files this Notice for the Commission's information.

Respectfully submitted,

[s] Robert J. Hack

Robert J. Hack, MBN 36496 Phone: (816) 556-2791

E-mail: rob.hack@evergy.com Roger W. Steiner, MBN 39586

Phone: (816) 556-2314

E-mail: roger.steiner@evergy.com

Evergy, Inc.

1200 Main – 16th Floor

Kansas City, Missouri 64105

Fax: (816) 556-2787

Attorney for Evergy Missouri Metro and Evergy Missouri West

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the above and foregoing document was served upon all counsel of record on this 17th day of December 2020, via e-mail.

|s| Robert J. Hack

Robert J. Hack



IRP Stakeholder Meeting

December 16th, 2020



Agenda

- Update on IRP Development Progress
- Inputs & Assumptions Update
- Alternative Resource Plans Modeled To-Date
- Uncertain Factors & Scenarios Update
- Preliminary Revenue Requirement Results
- Preferred Plan Selection Methodology
- Next Steps





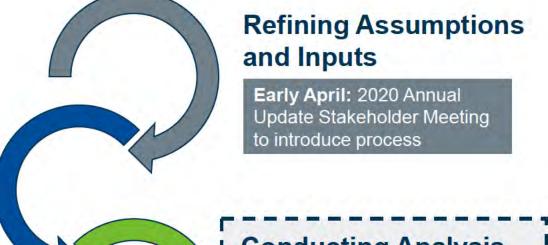
Triennial IRP Development Timeline

Gathering Input

July: Stakeholder meeting to discuss modeling assumptions / inputs

Reviewing Results

Q1 2021: Review updated results including detailed review of inputs outlined in IRP rules



Conducting Analysis

Late Q3 - Early Q1: Stakeholder meeting(s) to discuss preliminary results

> **During and following October** Stakeholder Meeting, received feedback which was considered in the process of creating today's new materials

- October 19th: Initial review of preliminary results
- Early-December: Additional stakeholder meeting to review next round of results
- January: Demand-Side (Electrification, DSM, Behindthe-Meter solar & storage) Focused Discussion
- As Needed: Topical meetings with specific stakeholders on comments received





Overall Analytical Process

Gather Inputs & Assumptions

Develop **Alternative** Resource Plans (ARPs) Test Critical Uncertain Factors & Create **Scenarios**

Model Revenue Requirement & Other Key Metrics

20-Year Net Present

Revenue Requirement

(NPVRR) calculation

of ARPs for each of the

27 scenarios

Select Preferred Plan

Load Forecasts Low, Mid, High, Electrification

> **Fuel Forecasts** Nat Gas, Coal, Fuel Oil

DSM Forecasts Maximum and Realistic Potential

New Generation Capital, O&M, Operational info

Existing Generation Capital, O&M, Operational info

ARPs include combinations of unit retirements, unit additions, DSM levels

> **Evergy Combined** 21 ARPs

> > **Evergy Metro** 9 ARPs

Evergy MO West 5 ARPs

Combinations of Critical **Uncertain Factors** analyzed - currently 27 total combinations:

> Load Low, Mid, High

> Nat Gas Low, Mid, High

> CO, Low, Mid, High

Preferred Plan Selection will not be discussed today

> ARP providing lowest NPVRR across scenarios is generally selected as the Preferred Plan.

Higher NPVRR ARP can be selected but decision must be supported



Gather Inputs & Assumptions

Laura Becker



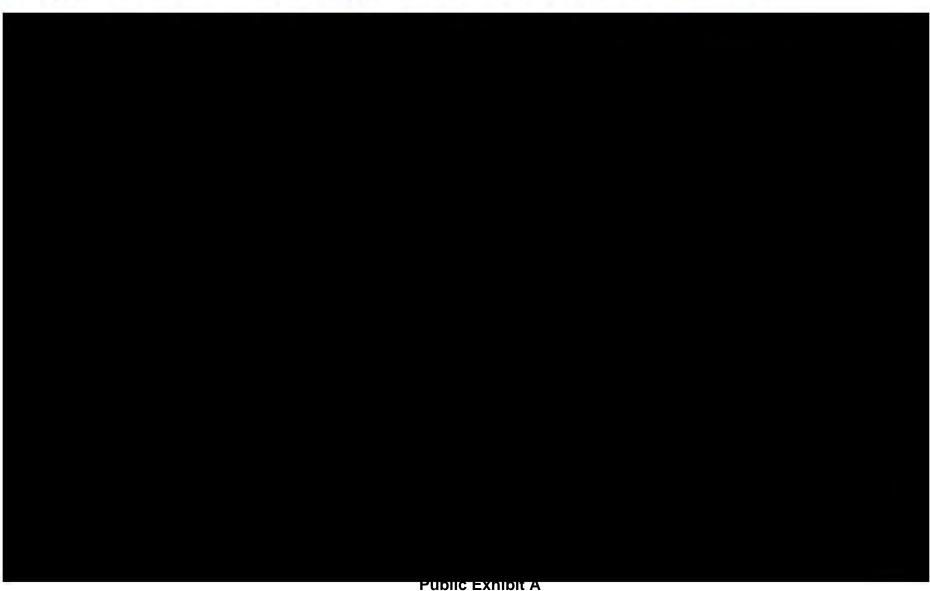


Evergy Metro - Peak Load Forecasts Less DSM



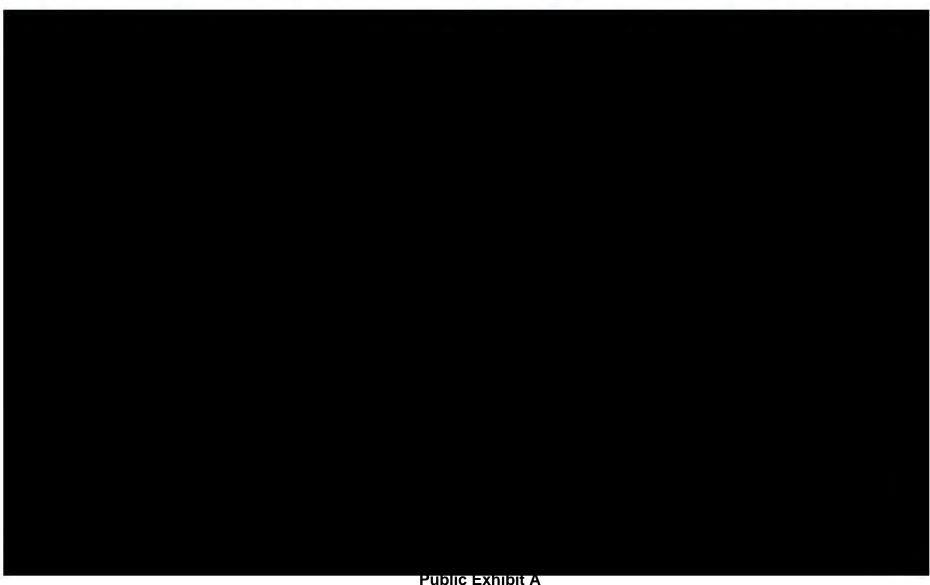


Evergy Metro - Energy Forecasts Less DSM





Evergy Missouri West - Peak Load Forecasts Less DSM





Evergy Missouri West - Energy Forecasts Less DSM





Annual Average SPP Energy Market Prices

Gas and CO Scenarios



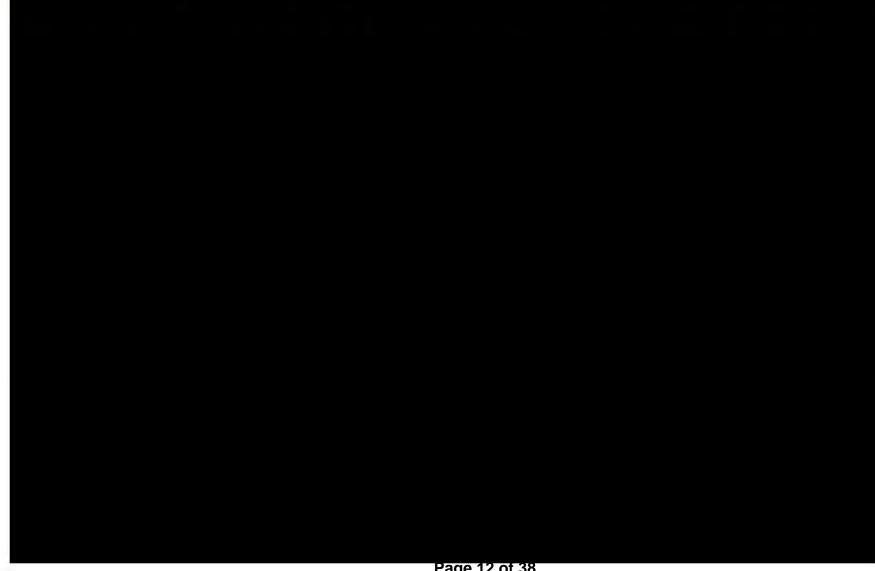


Annual Average SPP Energy Market Prices – Gas and CO₂ Scenarios with High Renewable Penetration





Annual Average SPP Energy Market Prices – Gas and CO₂ Scenarios with 50-Year Coal Plant Retirements





Develop Alternative Resource Plans

Laura Becker







Evergy-Level, Assumes Retirement Dates Currently in Rates, MW



Alternative Resource Plan Selection Methodology

- Additional Alternative Resource Plans developed since the October Stakeholder Meeting
 - 9 additional Evergy level plans
 - DSM Realistic Achievable Potential (RAP) level

- Future combined cycle addition
- Future battery storage addition
- Additional solar 2031 and 2035
- 27 Stand-Alone Utility plans (Evergy Metro, Mo West and Ks Central)
 - "Book Life" plans with and without early period retirement of various coal plants
 - DSM Realistic Achievable Potential (RAP) and RAP- level
 - With and without 2022-23 solar additions



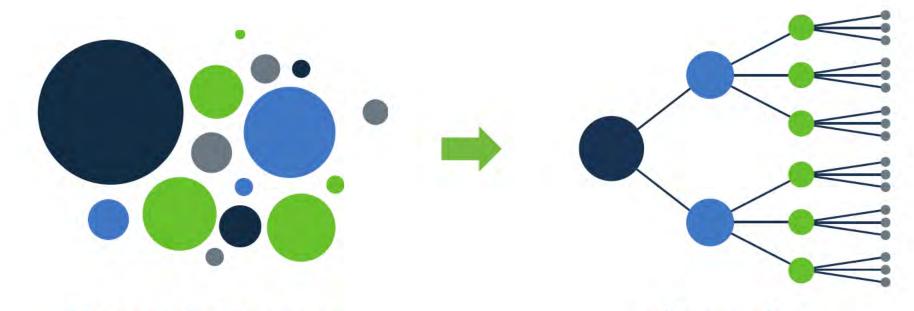
Test Critical Uncertain Factors & Create Scenarios

Laura Becker





Critical Uncertain Factor Approach



Uncertain Factors

Analyzed individually to determine criticality (i.e., impact on Alternative Resource Plan ranking)

Scenarios

Constructed based on combinations of Critical Uncertain Factors (gas price, CO₂ pricing, load forecast, etc.)





Preliminary Uncertain Factors Evaluation

Uncertain Factor	Evaluated?	Critical?	Comments		
Load Growth	V	1	Updated to model "Electrification" as high scenario		
Interest Rate	√	*			
Legal Mandates	✓	×			
Fuel Prices	√	√	Only Nat. Gas prices critical		
New Gen Construction / Permitting	√	×			
Purchase Power	√	×			
Emission Allowance Pricing	✓	√	Only CO ₂ Prices Critical		
Gen O&M costs	√	×			
Force Outage Rates	✓	×			
DSM / DSR Load Impacts	√	×			
DSM / DSR Costs	√	×			
SPP Renewable Penetration	√	×			
SPP Coal Retirements	√	×			
BtM Solar / Storage Adoption	0	TBD			
Other potential uncertain factors	TBD	TBD			





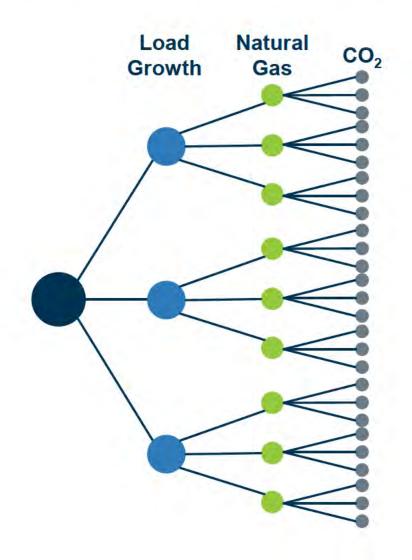








Scenarios & Probabilities Modeled To-Date



Endpoint	Load Growth	Natural Gas	CO ₂	Endpoint Probability
1	High	High	High	1.6%
2	High	High	Mid	3.1%(
3	High	High	Low	1.6%
4	High	Mid	High	3.1%
5	High	Mid	Mid	6.3%
6	High	Mid	Low	3.1%
7	High	Low	High	1.6%
8	High	Low	Mid	3.1%
9	High	Low	Low	1.6%
10	Mid	High	High	3.1%
11	Mid	High	Mid	6.3%
12	Mid	High	Low	3.1%
13	Mid	Mid	High	6.3%
14	Mid	Mid	Mid	12.5%
15	Mid	Mid	Low	6.3%
16	Mid	Low	High	3.1%
17	Mid	Low	Mid	6.3%
18	Mid	Low	Low	3.1%
19	Low	High	High	1.6%
20	Low	High	Mid	3.1%
21	Low	High	Low	1.6%
22	Low	Mid	High	3.1%
23	Low	Mid	Mid	6.3%
24	Low	Mid	Low	3.1%
25	Low	Low	High	1.6%
26	Low	Low	Mid	3.1%
Exhipit A	Low	Low	Low	1.6%

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For each factor:

High - 25% Mid - 50%

Low - 25%



Model Revenue Requirement & Other Key Metrics

Laura Becker





Revenue Requirement Calculations



Net Present Value of Revenue Requirement (NPVRR) results for **Individual Scenarios**

Expected Value of NPVRR across all Scenarios

ARP #n

Combinations of Resource Retirements / New Generation / DSM over 20 years

Made up of Critical Uncertain Factors (e.g., may consist of different wholesale market prices)

> **Public Exhibit A** Page 21 of 38





Preliminary Evergy Results – No CO₂ Restrictions





Preliminary Evergy Results – Mid-CO₂ Costs





Preliminary Evergy Results - High CO₂ Costs





Preliminary Evergy Results – Expected Value





Preliminary Metro Results – No CO₂ Restrictions





Preliminary Metro Results – Mid-CO₂ Costs





Preliminary Metro Results - High CO₂ Costs





Preliminary Metro Results – Expected Value





Preliminary Mo West Results – No CO₂ Restrictions





Preliminary Mo West Results – Mid-CO₂ Costs





Preliminary Mo West Results - High CO₂ Costs





Preliminary Mo West Results – Expected Value





Findings from NPVRR Results to Date



Next Steps





- Additional Alternative Resource Plans
 - Additional future renewable resources, including wind
 - Energy storage resource additions
 - Additional coal plant retirement timing
 - DSM Maximum Achievable Potential (MAP) plans
 - Grain Belt Express plans
- Other
 - Behind-the-meter solar and energy storage sensitivity testing
 - Re-evaluate SPP renewable penetration scenario impacts





Triennial IRP Development Timeline

Gathering Input

July: Stakeholder meeting to discuss modeling assumptions / inputs

Reviewing Results

Q1 2021: Review updated results including detailed review of inputs outlined in IRP rules

Refining Assumptions and Inputs

Early April: 2020 Annual **Update Stakeholder Meeting** to introduce process

Conducting Analysis

Late Q3 - Early Q1: Stakeholder meeting(s) to discuss preliminary results

- October 19th: Initial review of preliminary results
- Early-December: Additional stakeholder meeting to review next round of results
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Follow up via email with any specific comments to



before December 31st

