



R.12-03-012: Energy Division Straw Proposal – Planning Scenarios



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Remote Access

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Agenda

Time	Item
10:00 - 10:10	Introduction, Schedule
10:10 - 10:20	Background, Roadmap
10:20 - 11:00	Assumptions Recap
11:00 - 12:00	Scenarios
12:00 - 1:00	Lunch
1:00 - 2:00	Scenarios (cont)
2:00 - 2:45	Discussion of any party proposed changes
2:45 - 3:00	Break
3:00 - 3:30	Scenario Tool Walkthrough
3:30 - 4:00	Wrap-up / Next steps





Workshop Purpose

- Familiarize parties with the Energy Division proposed scenarios in order to assist with comments.

– NOTE: **Comments due 9/7**





Scenarios Purpose

- Inform policy-makers by providing information on a broad range of plausible future scenarios
- Inform bundled procurement plans and positions
- Inform the transmission planning process and analysis of operating flexibility
- Limit the range of analysis to conform with resource constraints, while meeting policy objectives for the current LTPP





Problem Statement

Scenarios should be developed to answer the following primary questions:

- What new infrastructure needs to be constructed to ensure adequate reliability?
- What mix of infrastructure minimizes cost to customers over the planning horizon?





Schedule – Track 2

- 8/2 – Staff released proposed scenarios
- 8/24 – Workshop on proposed scenarios
- 9/7 – Comments due
- 9/14 – Assigned Commissioner’s Ruling
- 10/1 – Technical comments on calculations in scenarios
- Nov/Dec – Proposed Decision on Assumptions & Scenarios
- 2013 – Modeling & Decision on Needs



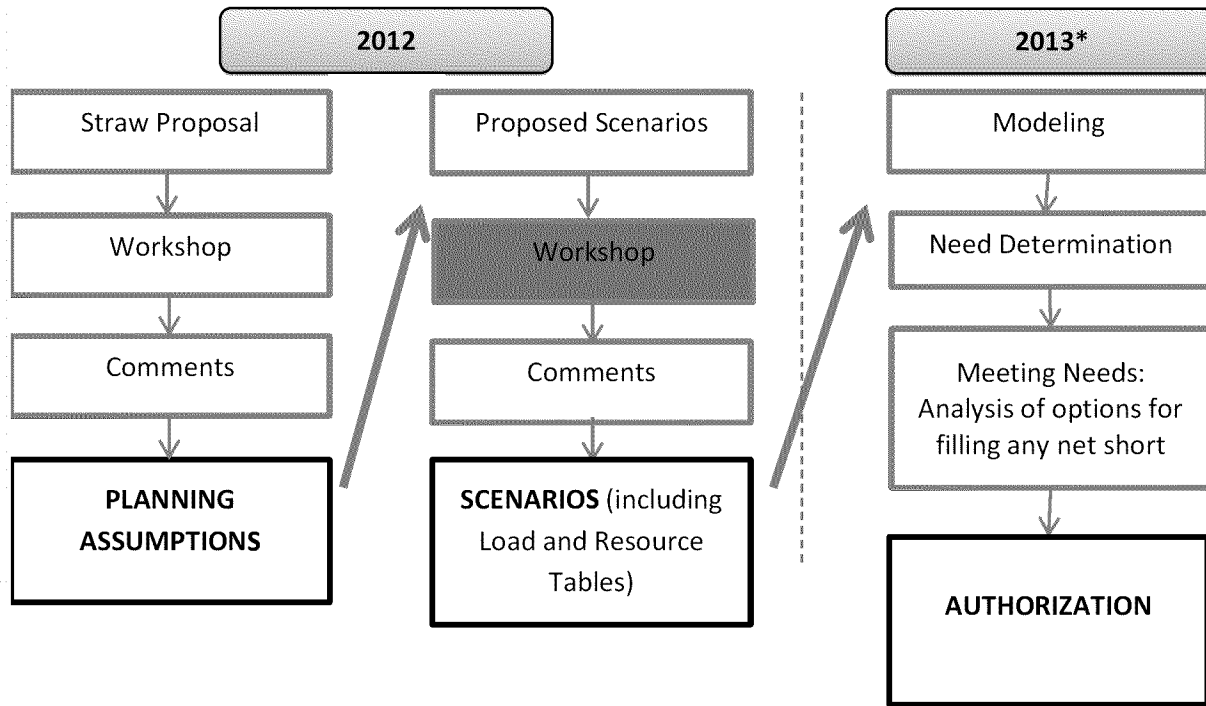


Other Anticipated Schedule

- **Track I (Local Area Reliability)**
 - 8/24: SCE provides common briefing outline for review
 - 9/24: Briefs
 - 10/12: Reply Briefs
 - Nov/Dec: Proposed Decision
- **Track III (Bundled Procurement / Rules)**
 - Q3 2012 start expected



Roadmap



*The proceeding in 2013 may include workshops, comments, or other steps.





Guiding Principles

Assumptions

- Realistic view of expected policy-driven resource achievement
- Reflect real-world possibilities

Scenarios

- Informed by transparent and open process
- Inform new resource investments
- Provide policy information
- Inform bundled procurement plans
- Limited in number based on current LTPP policy objectives

Provide spreadsheets, not just snapshots





Assumptions Overview

Demand

Peak Weather Impacts

Economic and Demographic Drivers

Load Forecast

Incremental Uncommitted Energy Efficiency

Non-Event Based Demand Response

Incremental Small Photovoltaic (behind the meter)

Incremental CHP (behind the meter)

Supply

Existing Resources

Imports

Resource and Transmission Additions

Deliverability

Event-Based Demand Response

Incremental CHP (supply-side)

Resource Retirements





Planning Area

CAISO controlled transmission grid & distribution systems

- Resources in CAISO footprint
- Resources outside footprint
 - Directly connected
 - Dynamically transferred
- Includes:
 - Existing Transmission
 - New transmission approved by CAISO and CPUC expected online in the planning period
 - Minor Upgrades (does not require a new right of way)





Planning Period

- **Period 1**
 - 1 to 10 year detailed look
 - Similar to that traditionally done in LTPP
 - 2013-2022
- **Period 2**
 - 11 to 20+ year simplified look
 - Simplified demand assumptions to extend understanding of future planning horizon
 - 2023-2034





Additional Assumptions

- In order to provide complete analysis, staff has recommended several adjustments
 - For resources with no identified construction date, 1/1/1980 is assumed
 - If no COD estimate for new resources (non-RPS), 2017 is assumed
 - 19% capacity factor (nameplate to NQC) assumed for small PV (non-RPS)





Updates to RPS Calculator

- Updated RPS target from California Energy Demand Forecast 2012-2022
- Updated Projects from the August 1, 2012 PDSR for commercial and generic projects
- Subtracted recently online projects from available capacity





RPS Calculator (cont)

- Updated transmission information in consultation with the CAISO
- Combined Palm Springs and Riverside East CREZs

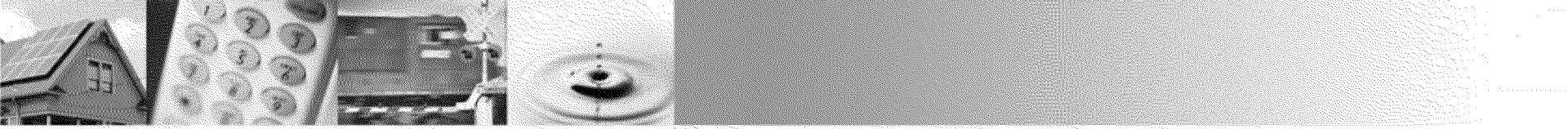


RPS Portfolio Snapshot

CREZ (MW)	Commercial Interest	Environment	High DG
Alberta	450	450	450
Arizona	550	550	550
Carrizo South	900	900	300
Distributed Solar - PG&E	1,036	1,036	1,651
Distributed Solar - SCE	477	477	1,953
Distributed Solar - SDGE	277	277	146
Imperial	860	860	860
Kramer	434	62	62
Mountain Pass	645	645	645
Nevada C	316	316	316
NonCREZ	443	443	443
Northwest	104	104	104
Riverside East	1,214	1,285	1,214
San Bernardino - Lucerne	42	42	42
Solano	200	-	-
Tehachapi	2,176	2,191	2,176
Westlands	148	775	148
Central Valley North	25	55	25
El Dorado	407	407	-
Merced	62	62	62
Total	10,766	10,937	11,146
Sum of DG	1,791	1,791	3,749

Resource (MW)	Commercial Interest	Environment	High DG
Discounted Core	10,318	10,094	11,146
Commercial Non-Core	0	0	0
Generic	448	843	0
Total	10,766	10,937	11,146
Biogas	136	133	133
Biomass	57	57	57
Geothermal	245	211	211
Hydro	-	0	0
Large Scale Solar PV	4,616	5,063	3,816
Small Solar PV	2,101	2,078	4,021
Solar Thermal	1,564	1,464	1,057
Wind	2,047	1,931	1,850





Scenarios



Scenario Matrix

		Demand				Supply									
Scenario		Load	Inc EE	Inc PV	Inc CHP	Existing	Additions	Retirements	Solar + Wind & Hydro Retirements	Nuclear Retirement	RPS	Imports	Inc CHP	Inc DR	
1	Base	Mid	Mid	Mid	Low	Base	Base	Mid	Low	Low	Commercial	Base	Low	Mid	
1A	Environmental	Same as Base				Same as Base					Enviro	Same as base			
1B	Early SONGS Retirement	Same as Base				Same as Base					Modified High (2015)	Same as base	Same as base		
1C	Early Nuclear Retirement	Same as Base				Same as Base					High (2015)	Same as base	Same as base		
1D	Low Load	Low	Low	Low	Low	Same as Base								High	
1E	High Load	High	High	High	Low	Same as Base								Low	
2	No New DSM	Mid	None	None	None	Same as Base						None	None		
2A	Replicating TPP	Mid (1-in-5 Peak weather)	Same as No New DSM			Same as Base						None	Low		
3	High Distributed Generation	Same as Base		High	High	Same as Base					High DG	Base	High	High	

- All values are from 6/27/12 ACR, except as noted.
- See Scenario Tool for full values.



Scenarios Snapshot

- Red indicates supply exceeds demand by less than 15%

SCENARIO / SENSITIVITY		2012	2022	2032	
1	Base	Load	49,589	52,885	56,400
		Supply	67,229	63,189	59,058
		Net Position	17,640	10,304	2,658
1A	Environmental	Load	49,589	52,885	56,400
		Supply	67,242	63,289	59,158
		Net Position	17,640	10,404	2,758
1B	Early SONGS Retirement	Load	49,589	52,885	56,400
		Supply	67,229	60,943	54,572
		Net Position	17,640	8,058	-1,828
1C	Early Nuclear Retirement	Load	49,589	52,885	56,400
		Supply	67,229	58,703	54,572
		Net Position	17,640	5,818	-1,828
1D	Low Load	Load	48,574	52,059	55,795
		Supply	67,440	63,449	59,318
		Net Position	17,640	11,390	3,523
1E	High Load	Load	49,470	52,602	55,932
		Supply	67,019	62,930	58,799
		Net Position	17,640	10,328	2,866
2	No New DSM	Load	49,740	57,288	65,981
		Supply	65,126	60,594	56,463
		Net Position	17,640	3,306	-9,518
2A	Replicating TPP	Load	52,116	60,029	69,143
		Supply	67,019	62,930	58,799
		Net Position	17,640	2,901	-10,345
3	High DG	Load	49,263	49,746	50,233
		Supply	67,527	63,530	60,098
		Net Position	17,640	13,785	9,865



Scenario 1 - Base

- Reflect expectations of the future with little change from existing policies
- Key Assumptions:
 - Mid load, mid inc. EE, mid small PV, low CHP
 - Mid DR, high probability additions, commercial RPS
 - Retirements: Low nuclear, low hydro/wind/solar, mid other

How to get there: No change to business as usual and programs achieve results consistent with forecast expectations





Sensitivity 1a – Environmental Portfolio

- Key Assumptions:
 - Same as Scenario 1
 - For RPS, replaces the commercial portfolio with the environmental portfolio

How to get there: Make significant changes in current renewable procurement practices in the immediate future. Place a strong emphasis on DRECP and other preferred locations.

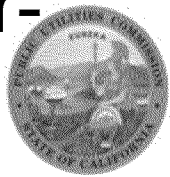




Sensitivities 1b & 1c – Nuclear Retirement

- Key Assumptions:
 - Same as Scenario 1
 - 1b changes nuclear retirement to modified high: 2015 retirement of SONGS; Diablo Canyon in 2024
 - 1c changes nuclear retirement to high: both SONGS and Diablo Canyon in 2015

How to get there: Change policy to focus on near-term nuclear retirement





Sensitivity 1d – Low Load

- **Key Assumptions:**

- Same as Scenario 1 for supply side excepting high levels of demand response
- Changes demand side assumptions to reflect poor economic conditions, such as little incremental EE achievement due to poor economic uptake

How to get there: Enact policies driving low load growth, low demand side reductions, high demand response, and/or low load growth due to economic conditions





Sensitivity 1e – High Load

- Key Assumptions:
 - Same as Scenario 1 for supply side excepting low levels of demand response
 - Changes demand side assumptions to reflect strong economic conditions, such as high incremental EE achievement due to strong economic uptake

How to get there: Enact policies driving high load growth, high demand side reductions, low demand response, and/or high load growth due to economic conditions



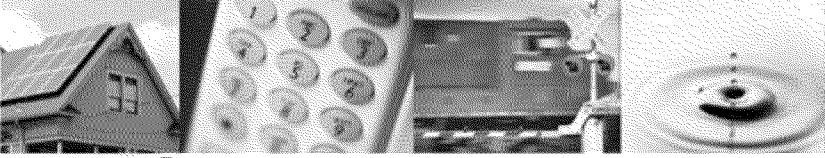


Scenario 2 – No New DSM

- Project what happens if state stops pursuing Loading Order resources
- Key Assumptions:
 - Same assumptions as Scenario 1 except:
 - No DSM, no DR

How to get there: Continue RPS policy while terminating other preferred resource policies





Sensitivity 2a – Replicate TPP

- Create a reference to CAISO's TPP, solely as a point of reference
- Key Assumptions:
 - Same assumptions as Scenario 1 except:
 - 1-in-5 rather than 1-in-2 peak load
 - Replaces mid DR with low DR

How to get there: Continue RPS policy while terminating preferred resource policies, excepting limited uptake of DR



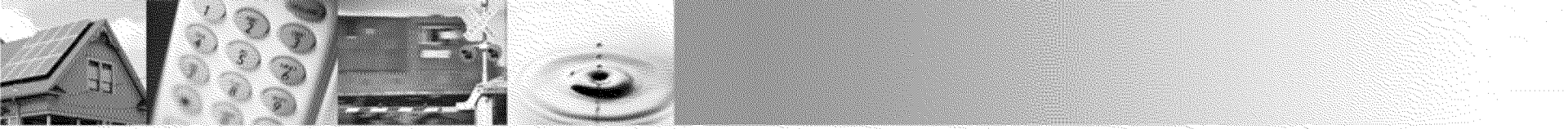


Scenario 3 – High DG

- Understand implications of attaining high amounts of DG and preferred resources
- Key Assumptions:
 - Same assumptions as Scenario 1 except:
 - High quantities of small PV, CHP, and DR
 - For RPS, replaces the commercial portfolio with the high DG portfolio

How to get there: Aggressive pursuit of Loading Order resources, while also changing RPS procurement to distributed resources





Scenario Tool

Patrick Young

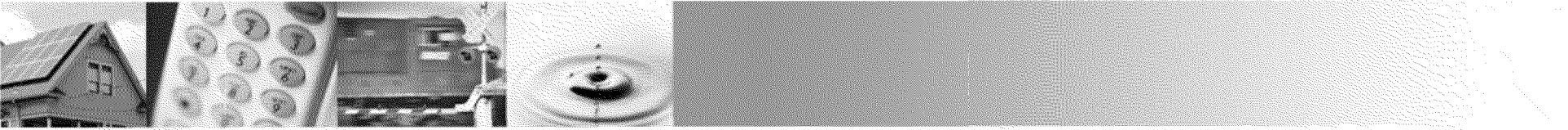




What is the Scenario Tool?

- The tool contains the planning assumptions from the June 27, 2012 Assigned Commissioner's Ruling on Standardized Planning Assumptions
- Embeds many spreadsheets from other sources, such as the NQC list



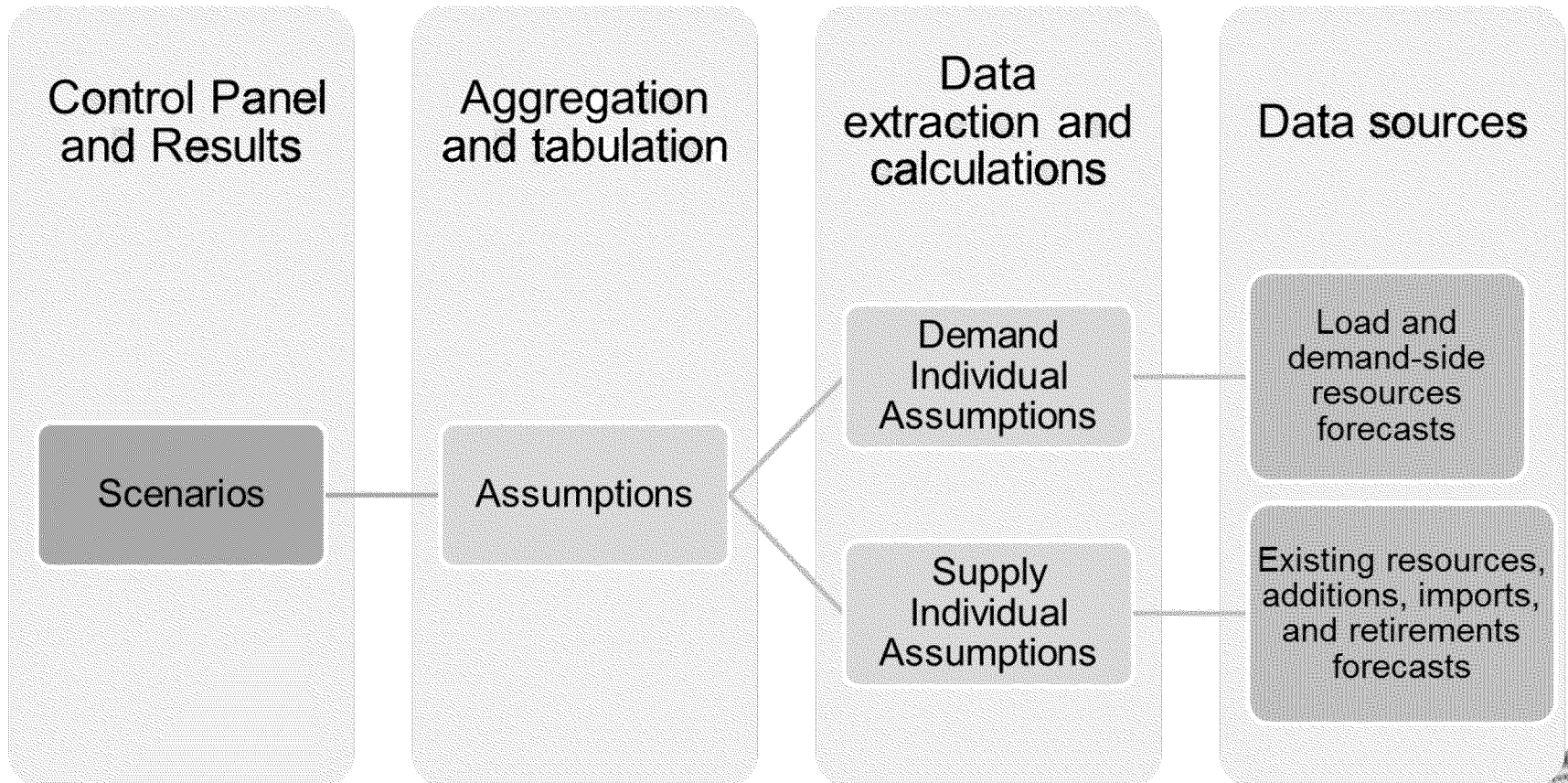


Scenario Tool (cont)

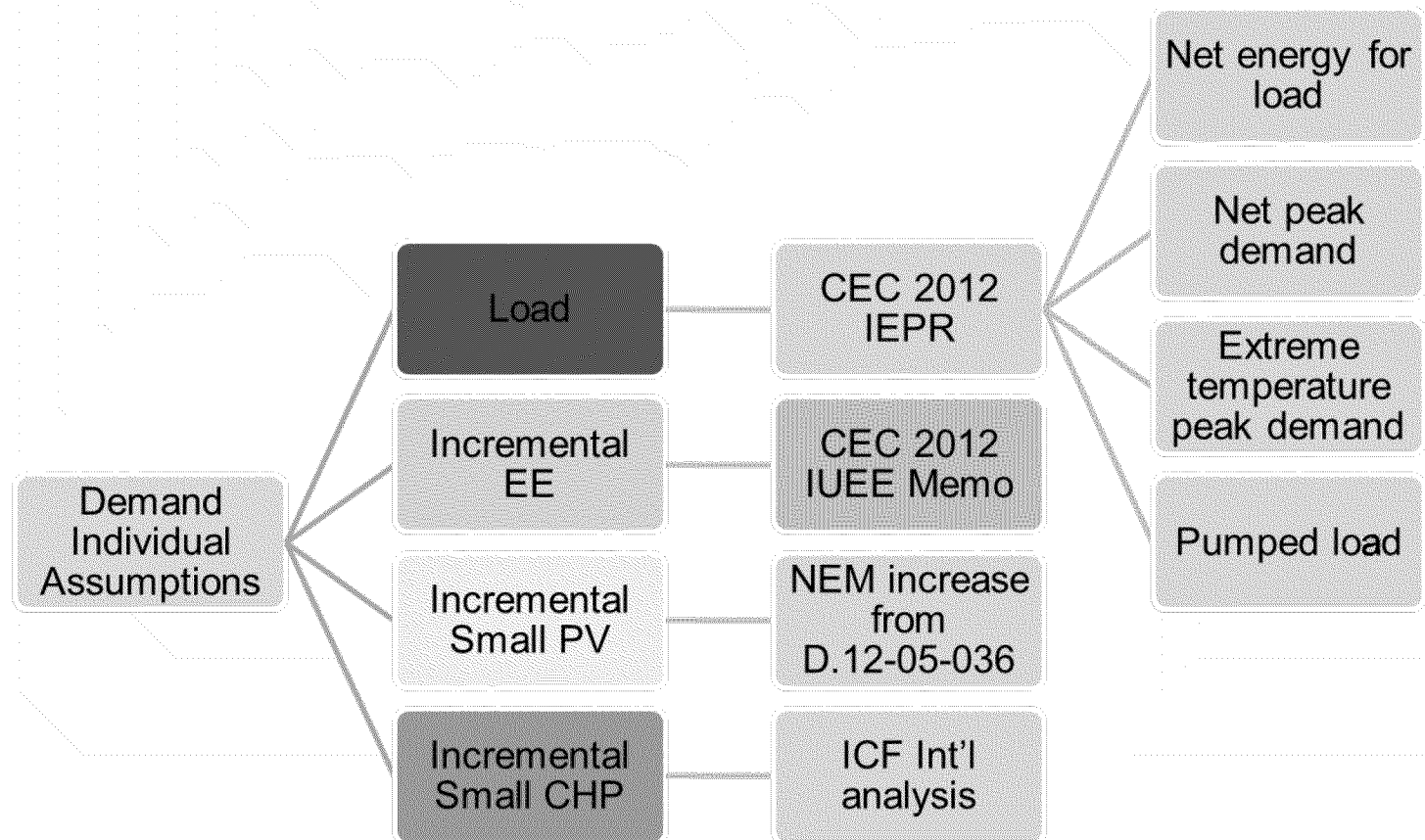
- Tool allows creation of each of the proposed scenarios by selecting a particular combination of the Planning Assumptions
- Allows parties to create alternative scenarios based on the Planning Assumptions



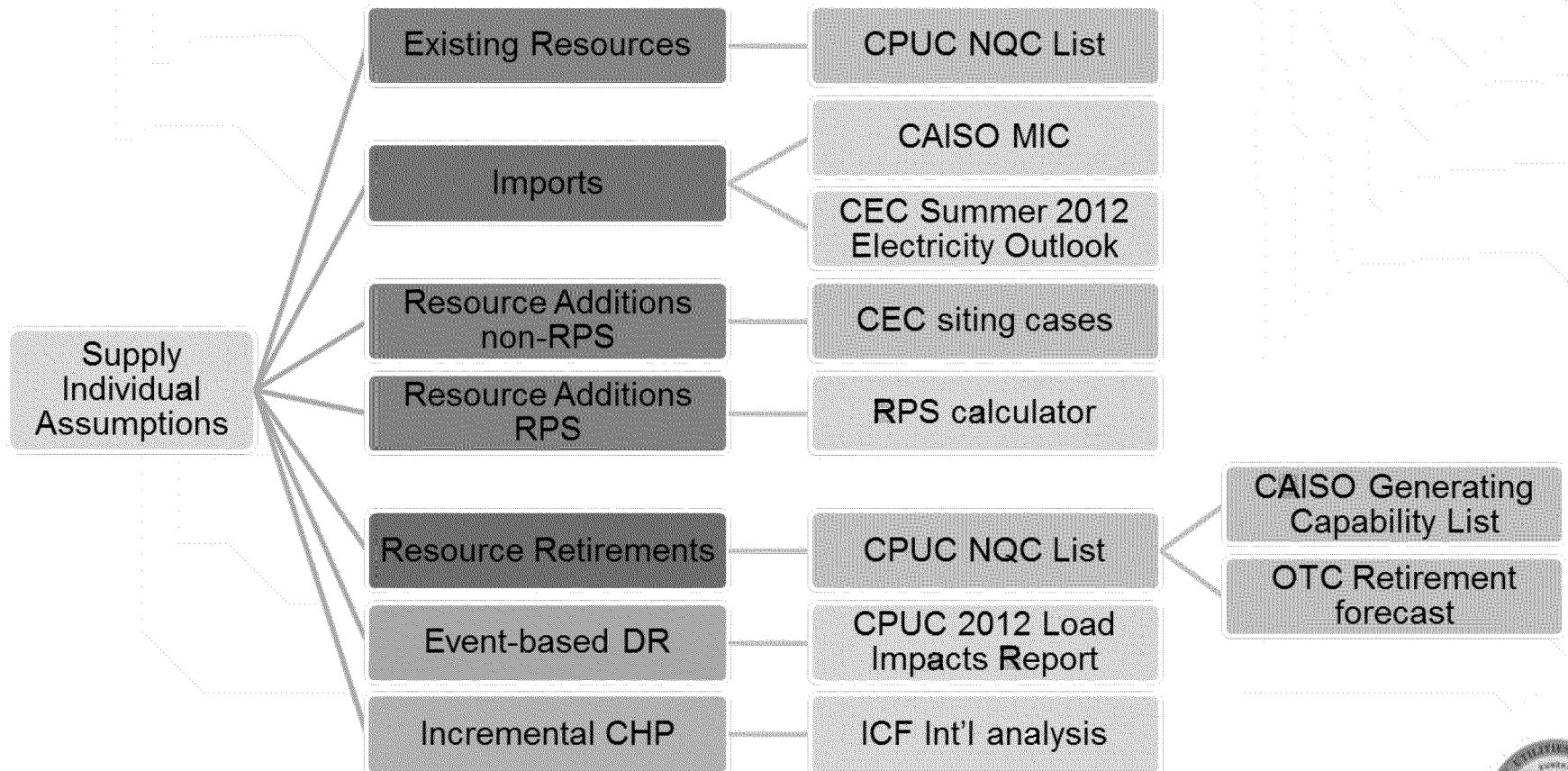
Tool Structure

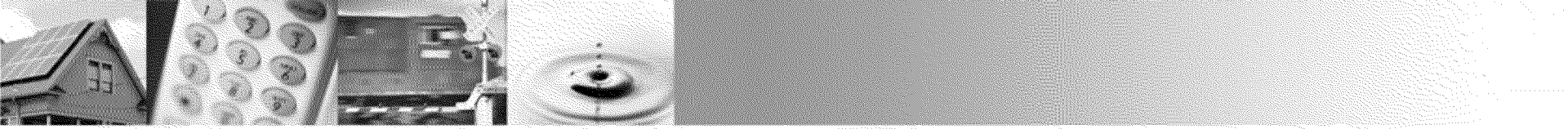


Demand-side data sources



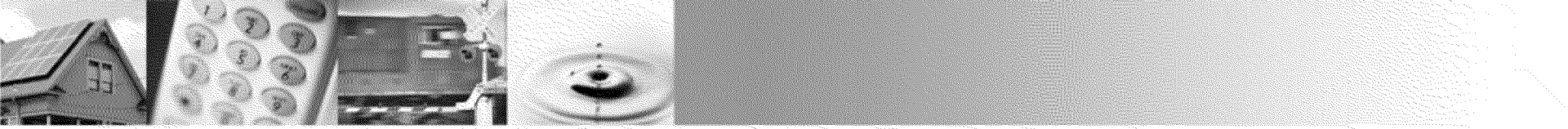
Supply-side data sources





Scenario Tool Demonstration





Wrap Up / Next Steps





Schedule – Track 2 recap

- 9/7 – Comments due
- 9/14 – Assigned Commissioner’s Ruling
- 10/1 – Technical comments on scenarios
- Nov/Dec – Proposed Decision
- 2013 - Modeling and other Track 2 activities for end of 2013 decision on system and operating flexibility needs





Thank you!
For Additional Information:
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