MODELING PERFORMANCE AND ECONOMICS OF POWER GENERATION BY ENERGY RECOVERED FROM COPRODUCED GEOTHERMAL FLUIDS

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June 13, 2007

Agenda

- ü Goals
- ü Key Variables -- “Dials”
- ü Model Organization
- ü Case Studies
  - V Temperature
  - V Flow
  - V Configuration
- ü Bases, Expansion
- ü Conclusions

Goals

Functions

- ü Parametric
- ü Performance
- ü Economics
- ü Configuration
- ü COS

Parameters

- ü Temperature
- ü Flowrates
- ü System Capacities
- ü Capital Costs
- ü Financing Terms
  - V Tax Credits

Progr
Organizat

CaseData (2)

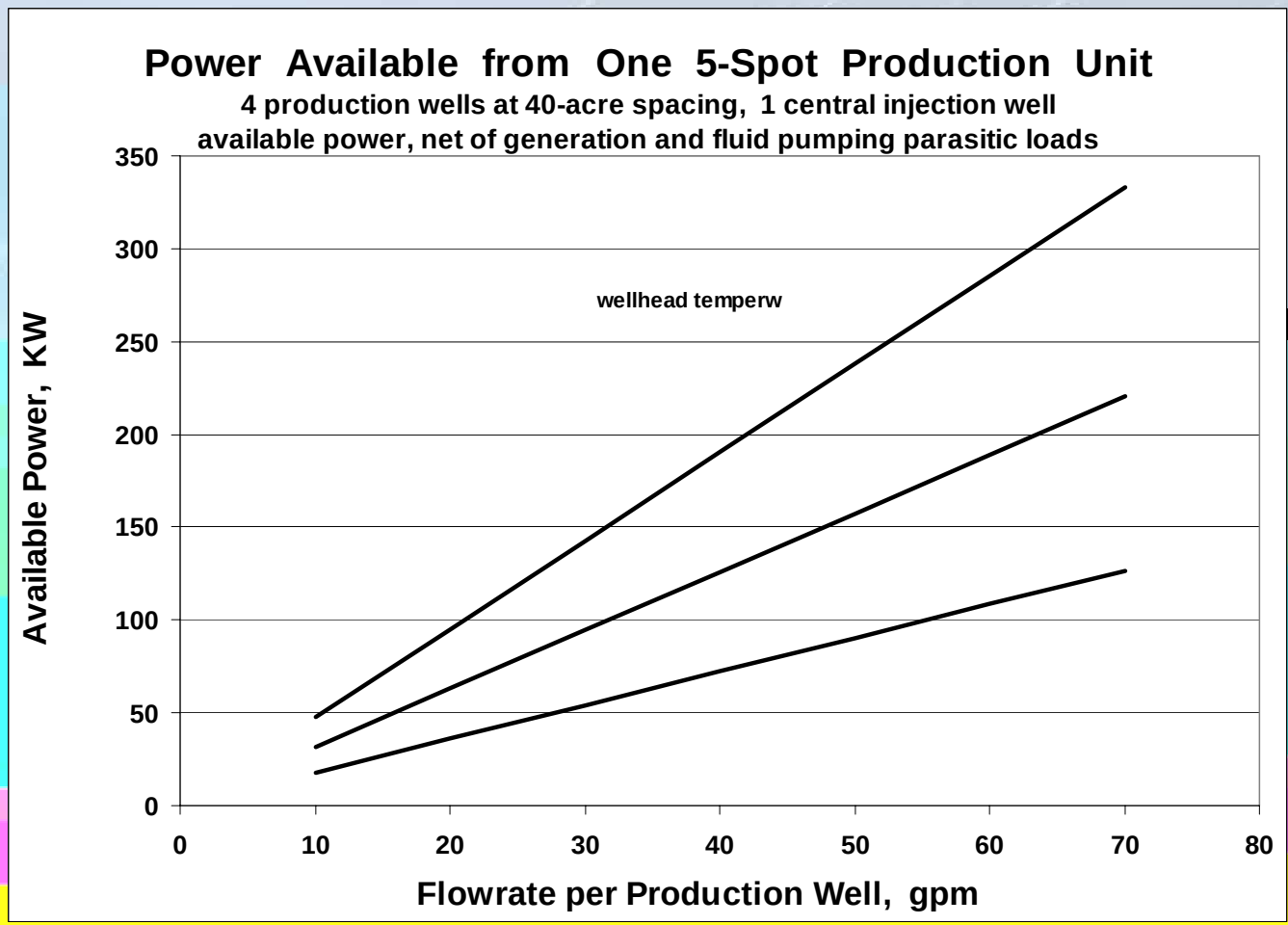
ANALYSIS SUMMARY
Recapitulates input data and r

INPUT AND PRE-PROCESS
User enters data on resource and surf
conditions, we

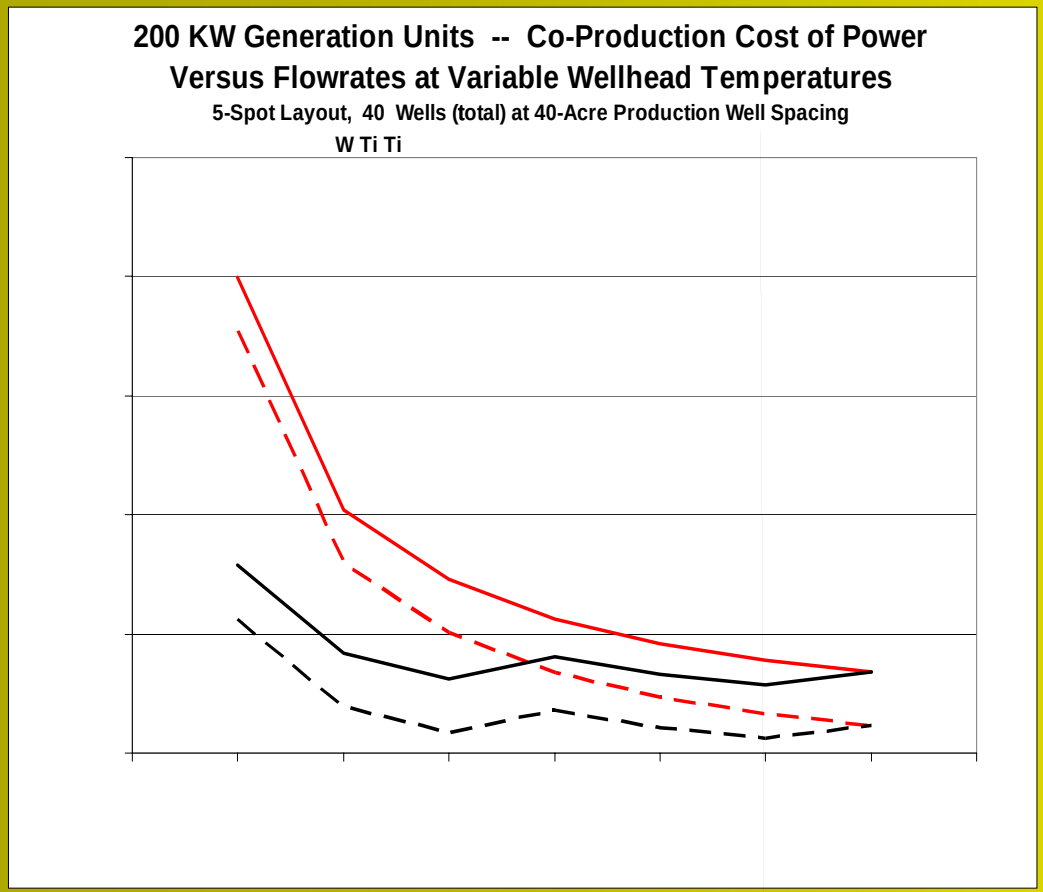
Information exchan

Computation Excha

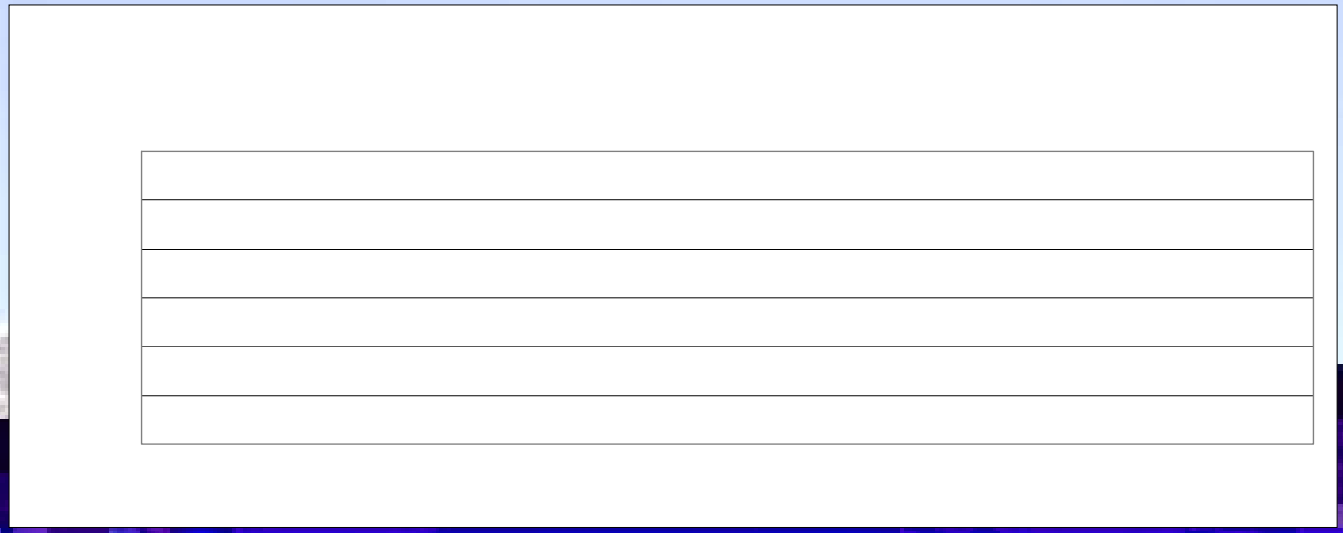
Temperature Effects



COS


200 KW Generation Units -- Co-Production Cost of Power
Versus Flowrates at Variable Wellhead Temperatures
5-Spot Layout, 40 Wells (total) at 40-Acre Production Well Spacing
W Ti Ti

Wellfield Configuration



Wellfield Configuration

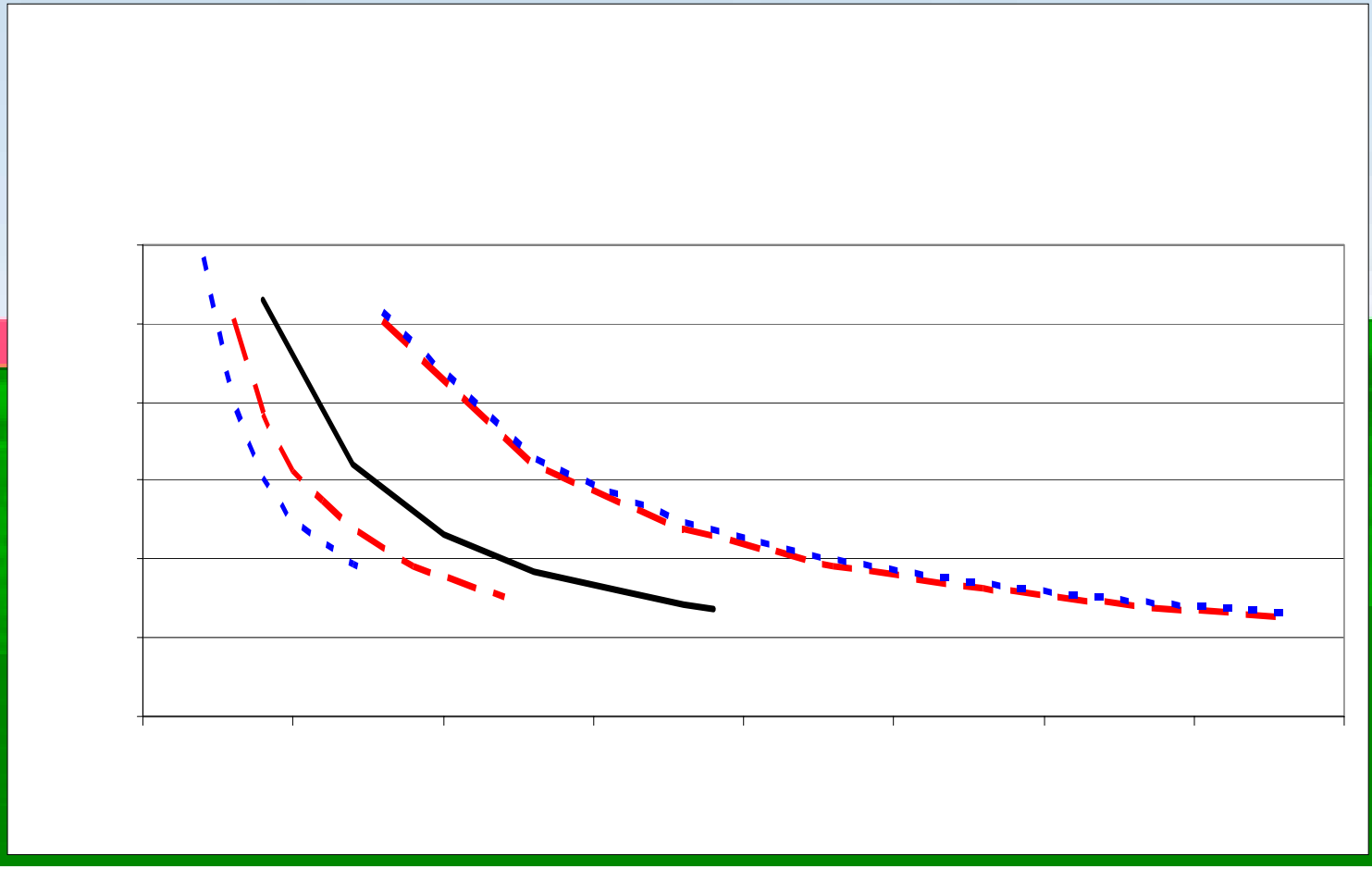
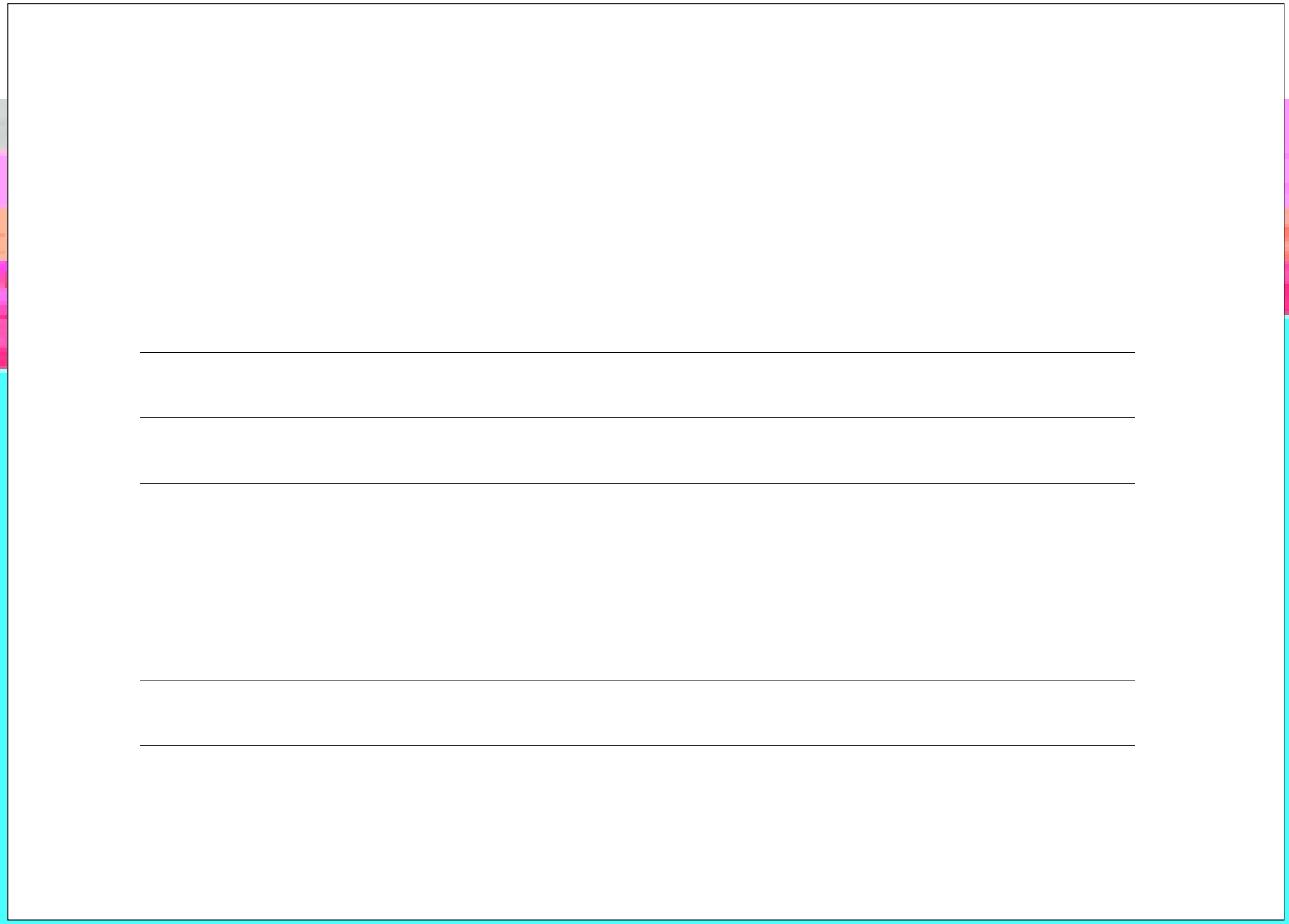


Figure 9
Comparison of Configuration and Generation Capacity Effects



Input Variables

Flow

Bases

- **Engineering**
  - **Perry**
  - **McCabe and Smith**
  - **Smith and VanNess**
- **Costs**
  - **Means**
  - **Contact**
- **“Open Architecture”**
  - **parametric “spread”**
  - **cut ‘n paste new features**
    - **well losses**
    - **conversion system**
    - **user-defined configurations**

Conclusions

- **Model covers a profile of project variables:**
  - **physical (process engineering),**
  - **configurational,**
  - **E&C,**

who makes it happen?

BACKUPS

- **ALTERNATE AMBIENT TEMPERATURE**
- **POWER VERSUS RESOURCE TEMPERATURE**

Temperature Effects