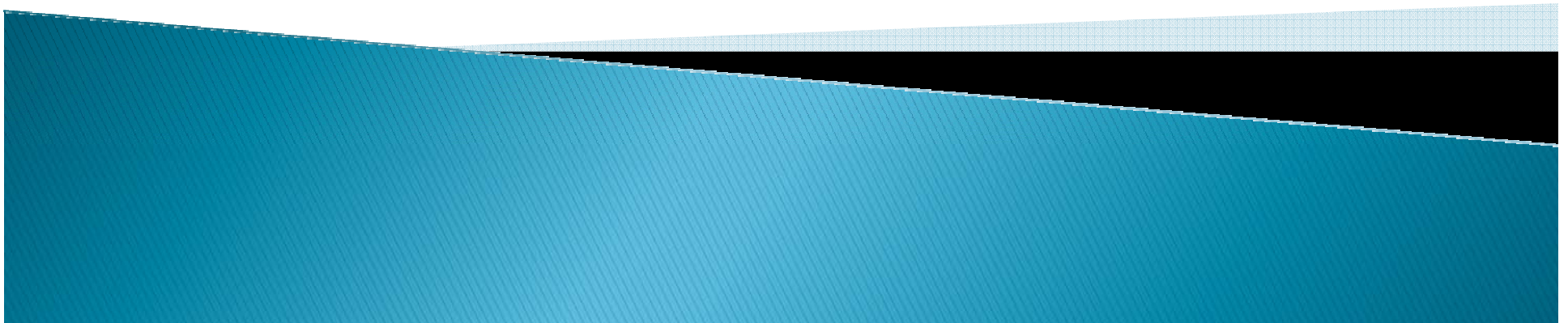


Price Review Process: Procedure and Practical Matters

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Outline

- **MAJOR STEPS**

1. Preparation
2. Historical Analysis and Performance
Evaluation
3. Revenue Requirement
4. Prices and Rate Design
5. Prices in Transition
6. Financial Modelling

- **CONCLUSIONS**


- **KEY ELEMENTS AT EACH STEP**

- Objectives
- Information Requirements
- Resources
- Tools
- Activities
- Internal Organization
- External Relationships
- Procedures and Hearings



I) Preparation

- **Activities-Regulatory Agency**
 - **Define the scope and objectives of the review**
 - **Establish a timetable with deadlines for proposals, regulatory approvals, appeals and hearings**
 - **Determine the methodology**
 - **Choice of price cap, revenue cap, etc.**
 - **Establish information requirements, format, and protocols**
 - **What data is needed?**
 - **Is it available?**
 - **How will missing data be treated?**
 - **Is the missing data essential for going forward?**

- 
- **Internal Organization-Regulator and Firm**
 - **Identify a Leader for the entire process**
 - **Establish the Rate Review process as high priority for the organization**
 - **Form teams and assign responsibilities**

 - **Scope and Objectives-Regulator**
 - **Full rate case**
 - **Look only at particular cost drivers**
 - **Determines methodology**
 - **The level of complexity will determine the staff and consultants needed for the regulator and the firm.**




- **Methodology**

- **Establish what costs are controllable and what costs are not!!!**
- **Need to keep some degrees of freedom**
- **Investment monitoring has become of crucial interest under Incentive Regulation Schemes**

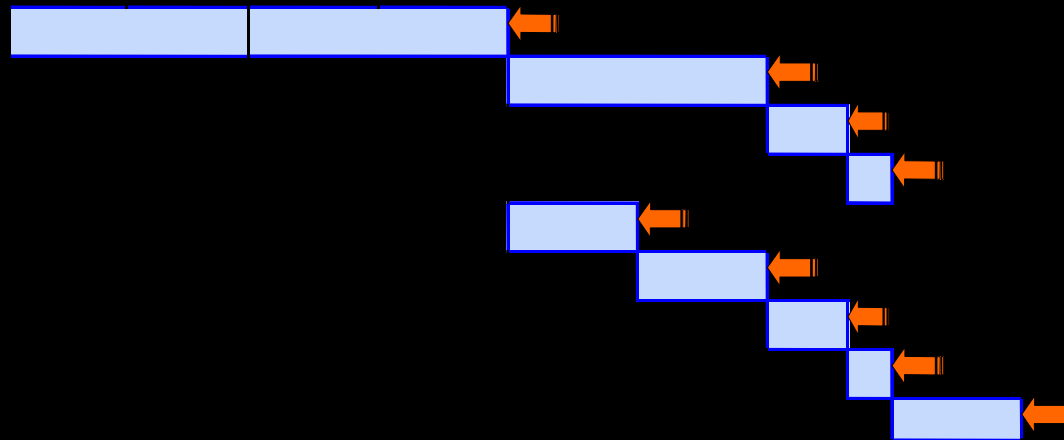
- **Establish information requirements format and protocols**

- **Define the accounts for each activity**
 - **This helps determine what activities can be made more efficient**
- **Define communication protocols**
 - **Between regulator and the firm**
 - **Within the regulatory staff**
- **All information should be provided in digital format**
 - **Avoid hard copies**
- **Define software licenses treatment for more complex reviews**

- 
- **Information very Important for Regulators**
 - **Information from operator is problematic**
 - **Operator has incentive to hide true ability**
 - **Both good and bad ability**
 - **Information on what the operator can really do**
 - **Information from others as a proxy is problematic**
 - **But can be used as a check.**

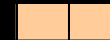
Timeline example:

Determined in the License or by Legislation



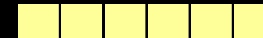
Timeline Example: From L.A. Experience

MODULE I - Historical Analysis



2

MODULE II - Revenue Requirements



6

MODULE III - Prices



1

MODULE IV - Transition



1

MODULE V - Financial Model



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Latin America Experience in an African Context

- More complex methodologies may not be possible without a large, well-trained staff or deep pockets for consultants
 - Even in L.A., many agencies started simply in their methodologies until staff capabilities were built-up and more time was available.
 - May be simpler methodologies that capture “most” of the operations are better to start.



2) **Historical Analysis and Performance Evaluation**

- **Establishes the base and is retrospective.**
- **Objectives**
 - **Establish a starting point**
 - **Compare the relative efficiency of the firms**
 - **Identify trends that will help forecasting the next period**
 - **Separate Regulated from unregulated business (ring fencing)**
 - **Identify one-time expenses e.g.:**
 - **Power imports through SAPP during a drought**
 - **Repair expenses due to an act of nature.**
 - **Verify existing assets and operational status (maintenance)**



Historical Analysis and Performance Evaluation (cont.)

- **Information Requirements**
 - **Demand**
 - **Operating expenses**
 - **Capital expenditure**
 - **Assets**
 - **Avoid duplicate data collecting minimizing information burden**
- **Resources**
 - **Economists**
 - **Accountants**
 - **Engineers**
 - **Lawyers**
 - **Data collection and consolidation resources**



Historical Analysis and Performance Evaluation (cont.)

- **Tools**

- **Benchmarking tools (OLS, COLS, DEA, SFA, TFP)**
- **Accounting methods and books**

- **Activities**

- **Benchmarking objectives and methodology definition**
- **Define data formats**
- **Accounting audit**
- **Physical plant visits**



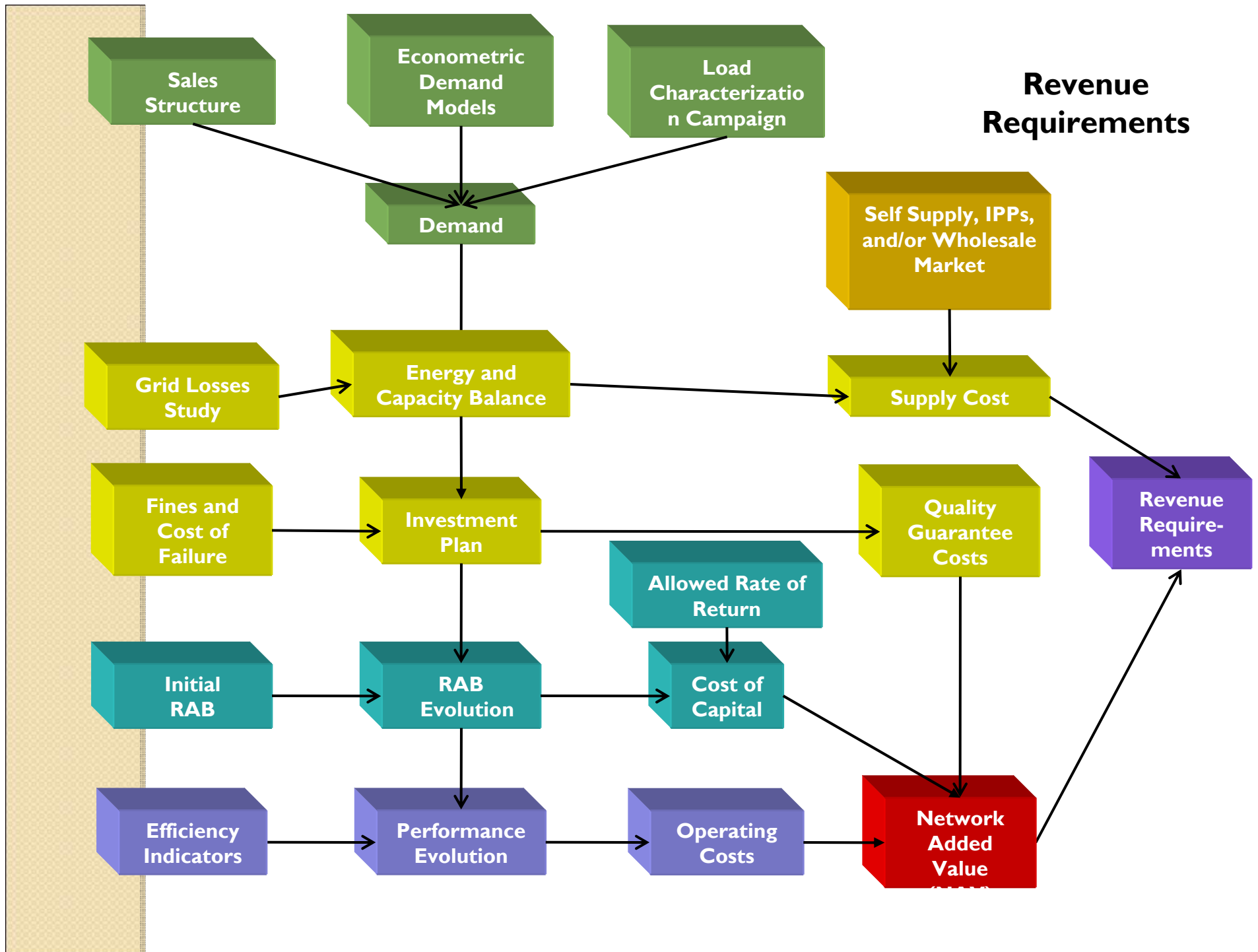
Historical Analysis and Performance Evaluation (cont.)

- **Internal Organization**
 - **Interdisciplinary groups**
 - **Technical, Commercial, Finance, Regulatory**
- **External Relationships**
 - **Not much Press activity or Consumer Advocacy participation**
 - **Shareholders interested in defining the Methodology and schedule**



Historical Analysis and Performance Evaluation (cont.)

- **Procedures and hearings**
 - **Scheduled Plant and Accounting visits**
 - **Workshops to discuss benchmarking techniques**
- **Prepare for Forward Looking Revenue Requirements**
 - **Trends and Baseline for**
 - **Revenue Patterns**
 - **Operating Costs**
 - **Regulatory Asset Base**





3) Revenue Requirements

- **Objectives**
 - **Determine the revenue requirements**
 - **No different from rate-of-return except forward looking**
- **Information Requirements**
 - **Historical Analysis from previous steps**
 - **Demand forecast**
 - **Sales structure (percentage industrial, commercial residential)**
 - **Demographic variables**
 - **Load characterization**



Revenue Requirements (cont.)

- **Definition of controllable and non-controllable costs**
- **Supply Costs**
 - **Grid losses study results**
 - **Energy and capacity prices forecast**
 - **In the case of a vertically integrated utility fuel costs by contract**
 - **Probability of poor hydrological conditions?**
- **Quality Guarantee Costs**
 - **Non supplied energy penalties**
 - **Investment Plan**
- **Cost of Capital**
- **Operation and Maintenance Costs**



Revenue Requirements (cont.)

- **Resources**

- **Econometricians for demand studies**
- **Engineers for expansion projects and grids losses studies**
- **Procurement Specialists for Energy and Capacity forecast**
- **Quality Experts for quality guarantee costs**
- **Accountants for rolling forward the RAB**
- **Finance Experts for Allowed Rate of Return, and**
- **Operational (Commercial and Technical) for O&M forecast.**



Revenue Requirements (cont.)

- **Tools**

- **Econometric demand forecasting models (E-Views, STATA)**
- **Database processing**
- **Econometric analysis of load characterization**
- **Engineering flow simulation programs for losses and investment plan studies (ILOG, Neplan, SynerGEE Gas)**
- **Spreadsheet models (Excel, Analytica, SAP, Access) to consolidate the data and determine revenue requirements**



Revenue Requirements (cont.)

- **Activities**

- **Develop the previously listed studies**
- **Load Characterization campaigns need to be launched far in advance**
- **Allowed rate of return should be defined first**
- **Some flexibility should be considered.**
 - **Service expansion requires large network investment**
 - **Investment plans depend on the allowed rate of return**
 - **If expanding to rural areas, expansion might cause price increases**
- ➡ **Iteration between Regulator and the Firm is sometimes an interesting solution**



Revenue Requirements (cont.)

- **Internal Organization**
 - Price review leader coordinates and keeps timeline control
 - Form Expert teams for each activity
- **External Relationships**
 - Shareholders approve investment plan.
 - Regulators can share experiences, and data (if legal) with colleagues from other countries and sectors
 - Utilities often form Utilities Associations: share experience, find common issues of interest and unify positions e.g. RERA, AFUR.



Revenue Requirements (cont.)

- **Procedures and hearings**
 - **Very technical part of the review**
 - **Consumer advocate participation at this stage could help forming positive public opinion and more importantly learn consumer preferences regarding: price, quality, and service expansion**
 - **Need to be careful with confidential information**



4) Prices and Rate Design

- **Objectives**

- **Determine charges based on cost causation criteria?**
- **Adjust any markups over marginal cost to maximize welfare?**
- **Determine charges based on ability to pay?**
- **The above objectives do usually overlap very much!**



Prices and Rate Design (cont.)

- **Information Requirements**
 - **Revenue requirement**
 - **Cost of service**
 - **Estimates of the willingness to pay among consumer types and within customer types (ex: the rich and the poor in Residential customer type)**
 - **Could come from survey data?**



Prices and Rate Design (cont.)

- **Resources**
 - Economists (Regulatory affairs experts)
- **Tools**
 - Spreadsheet modeling (Analytica, Excel)
- **Activities**
 - Calculate prices (= average cost) for each service
 - Calculate marginal cost for the variable unit
 - Estimate customers willingness to pay if possible
 - Identify Alternative options (alternative fuels, self-generation)
 - Make any adjustments



Prices and Rate Design (cont.)

- **Internal Organization**

- **Commercial and Regulatory depts** mainly affected
- **Regulator** play a crucial role interpreting how consumers value the service
- **There are many valid (but contradicting) arguments in favor of each tariff structure, therefore, a solid and homogenous position should be chosen and defended**

- **External Relationships**

- **Selling the chosen tariff structure to the press is crucial providing reasonable arguments**
- **Lobbing plays important role given that there will be winners and losers from any rate design change. Mainly Regulators need to carefully prepare the message to send in advance**



Prices and Rate Design (cont.)

- **Procedures and hearings**
 - **Holding a Public Hearing to announce the results is usually held.**
 - **All interested parties express their point of view**
 - **Regulator makes a final decision considering all elements**
 - **However, if legal, it is advisable to hold meetings with interested parties (consumer advocates and industry representatives) at the beginning of this stage to receive their concerns, needs and interpret the quality level that they require.**
 - **Consumer education of the whole process is useful to have “common level” discussions**



5) Prices in Transition

- **Objectives**

- It is wise and in some cases absolutely necessary to design a transition path in order to arrive to the desired tariff structure in the mid to long run
- Smooths the political problems and gives people a chance to adjust to the new pricing system
- Provide the revenue requirements to the firm while going through the transition path

- **Information Requirements**

- Revenue requirements
- Prices



Prices in Transition (Cont.)

- **Activities**

- Design a model that will allow a smooth transit from existing (but adjusted) tariff structure to the desirable one in a certain period of time

- **External Relationships**

- Important to decide the speed of transition and communicate with sound arguments the reasons for the decision
- The usual message states, “those that have been subsidized for so many years should pay for those costs that they cause, however it is reasonable that this transition is made smoothly to minimize the impact on those whose prices will increase”



Prices in Transition (cont.)

- **Procedures and hearings**
 - **It is important to formalize in a regulatory document the parameters for the transition to avoid lobbying action**



6) Financial Model

- **Closes the “loop” between prices and revenue requirements**
- **Objectives**
 - **Analyze how the approved prices will impact the “real” business**
 - **Modeling examines the relationship between the operator’s Weighted Average Cost of Capital (WACC) and rate of return received from the market (RoR)**
 - **Identify possible corrective modifications to revenue requirements due to returns that are too high or too low**
 - **Ensure long run service sustainability**



Financial Model (cont.)

- **Internal Organization**
 - Sometimes this stage is confidential for internal use only. Need to carefully monitor access and release of results and models
- **External Relationships**
 - Careful management of messages sent to press, third parties (customers and financial community) and shareholders. Usually high level executives are in charge of contacting external agencies.
- **Procedures and hearings**
 - Usually no formal actions occur at this stage
 - It is advisable to finish this stage before the Public hearings occur



Financial Modeling Possible Outcomes

- If $RoR = WACC$
 - NPV of enterprise is 0
 - NPV = net present value
 - Operator receives no excess profit
 - Comparable to competitive market
 - Operator is financially viable
- If $RoR > WACC$
 - NPV of enterprise > 0
 - Operator receives excess profit
 - May be necessary for increased efficiency incentives
- If $RoR < WACC$
 - NPV of enterprise is < 0
 - Operator is NOT financially viable at present service quality
 - May be necessary for consistency with risk operator has assumed



Concluding Remarks

- **Conducting the historical evaluation and determining the revenue requirements are the most conflicting and delicate stages between the regulator and the regulated firm**
- **Companies find during the price review many opportunities for improvement**
 - **Though they may not inform the regulator**
- **Regulators should insist on coherent and complete plans**
 - **Compare, contrast, benchmark**
 - **Regulator's role is one challenging and testing enterprise judgments and assertions, not managing the firm**
- **Place burden of proof on the regulated firm**
 - **If cannot substantiate its case then use benchmarks etc**
 - **Care that this doesn't slip into regulator determining the answer**
- **Reward good behavior. Try to design methods for monitoring output rather than real expenditure**



Thank You