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# Eskom Power Pool - IT Systems

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# Eskom Power Pool - IT Systems

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- Options available
- Initial Fundamental decisions
- Current systems
- Benefit of approach used
- Lessons learnt
- What I would have done differently
- Conclusion

## EPP - IT Systems Options available

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- Develop in-house
  - Build expertise in own company
  - Cheaper
  - Faster
- Off-the-shelf
  - No such thing! Always some “customisation” to be done
  - Expensive due to “foreign currency”
  - Could be slow

# EPP - IT Systems

## Initial Fundamental decisions

- Re-use to keep costs down and aid speed of implementation.
- Develop in-house to build expertise and utilise existing business knowledge, both within IT department and Tx and Gx departments.

### What this meant:

- Remain on ORACLE relational database running on Unix servers with SqlWindows front-end.
- Use Eskom's Private network.
- Prototyping

## EPP - IT Systems - Current

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- Bid and Offer
- Load Forecast
- System status
- System constraints
- Scheduling
- Settlements
- Publish contracts and settlements
- Participant queries

# EPP - IT Systems - Current:

## **Bid and Offer**

### Participants use:

- 1) Internet based User interface developed in-house by EPP.

(POWI: Oracle 9 database running on Unix server with PHP Web pages.)

- 2) Send data from participant's own system and load into Themis database.

(FTP CSV files from Participant's domain to EPP communication server, Pearl/XML uploads into Oracle 9 database.)

# EPP - IT Systems - Current:

## Load Forecast

### System Operator use:

- 1) In-house developed spreadsheets.  
(PC based Microsoft Excel and Microsoft Access.)
- 2) Purchased daily weather information  
(Text files via e-mail loaded into Oracle and Access.)

### EPP obtain Load Forecast:

FTP CSV files from SO domain to EPP communication server, Pearl/XML uploads into Oracle 9 database (Themis).

# EPP - IT Systems - Current:

## System Status & System Constraints

### System Operator use:

1) Info system out-sourced to large IT house.

(Phoenix: Oracle 9 database running on Unix server and PC/Server based Centura user interface.)

2) Purchased Energy Management system.

Supported and enhanced in-house.

(Encor: Real-time energy management system. In process of implementing new EMS - TEMSE.)

### EPP obtain System Status & Constraints:

FTP CSV files from SO domain to EPP communication server, Pearl/XML uploads into Oracle 9 database (Themis).

# EPP - IT Systems - Current: **Scheduling**

## Power Exchange use:

### 1) Purchased Optimisation tool.

(Couger: PC based Fortran Optimisation engine with Microsoft Access database.)

## EPP obtain schedules:

FTP CSV files from PC system to EPP communication server, Pearl/XML uploads into Oracle 9 database (Themis).

# EPP - IT Systems - Current:

## Settlements

### Power Exchange use:

1) Purchased Calculation System - supported and enhanced in-house.

(Very little left of the purchased tool!)

(Themis: PI/Sql calculation programs writing to Oracle 9 database running on Unix server with PC based Delphi user interface.)

# EPP - IT Systems - Current: **Publish data & Queries**

## Power Exchange use:

1) Internet based User interface developed in-house by EPP.

(POWI: Oracle 9 database running on Unix server with PHP Web pages.)

2) Ftp CSV files from Themis to participant's own system.

(Pearl/XML downloads from Oracle 9 database to CSV files on EPP communication server and then FTP to Participant's domain.)

# EPP - IT Systems

## **Benefits of approach used**

- Now have solid skills base within company.
- Initial cost was kept low, when EPP proved it's worth, confidence from Management to provide funding for purpose-built systems.
- Rapid development approach, even when EPP matured, enabled Power Exchange to remain in touch with changes needed in EPP and enabled immediate response.

# EPP - IT Systems

## Lessons learnt - 1

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- Choose solid foundation.
  - Your data store must be solid and be able to handle any new technologic advances in both the hardware as well as the user interface arena.
  - We started with ORACLE RDBMS and it has served us well through many changes and challenges.

# EPP - IT Systems

## Lessons learnt - 2

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- Define your security and communication protocols.
  - Your users are different and should be able to utilise different interfaces.
  - Some need PC based, some need Internet based and some need to “do their own thing”.
  - If protocols are clearly defined, participants may use their own discretion on what tools to use.

## EPP - IT Systems

### Lessons learnt - 3

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- Be prepared to change your User Interface software, whilst keeping old functionality which still works.
  - Originally we were tied into one specific tool and it soon became too slow and costly to keep up to our demands.
  - We started developing new functionality in newer tools, while retaining the old functionality to run out its life-cycle.
  - Do not go for the “Big Bang - Change All” approach.

## EPP - IT Systems

### Lessons learnt - 4

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- Do not stall implementation until some persuasive IT House developed the PERFECT system!
  - There is no such thing as the PERFECT system and if you wait for it, somebody else will start with a prototype and take away your customers.
  - Be prepared to start small. Enhance as you learn. Change things if they do not work for you.

## EPP - IT Systems

### Lessons learnt - 5

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- The only other person as serious about your deliverables as you are, is someone who has the SAME deliverables as you!
  - Out-sourced system support and system development can only work if the KPI's which drive you, also drive them.
  - If their bonus is not affected by your business results, you will always have service delivery problems.

# Eskom Power Pool - IT Systems

## What would I have done differently? -1

- The user interface tool used by Tx at the inception of the Pool was not the correct tool to use for our Pool systems.
- It was not widely known, knowledgeable resources were not freely available, development time was slow. We were at the mercy of a few experts and had nowhere else to turn.
- We should have recognised this at the start and decided on a different tool for the newly developed functionality.

# Eskom Power Pool - IT Systems

## **What would I have done differently? -2**

- Our Settlement system was bought “off-the-shelf” and needed some “small” modifications to customise it for our use.
- This turned into a 3 year development project and in hind-sight it is clear that there was no “off-the-shelf” answer for our settlements.
- If your market is different from another existing market, chances are that their tool will not work for you and making it work will be a lot of work!
- The Scheduling tool was integrated with minimal effort because it is based on accepted optimising methodologies and it worked effectively in several markets.

# Eskom Power Pool - IT Systems

## Conclusion

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- It is ground-breaking work to start a Power Pool from scratch.
- Being involved in the development and implementation of a Power Pool is an experience few people in this world will face.
- Use the opportunity to learn the most, give your best and enjoy the ride.

# Eskom Power Pool - IT Systems

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Thank you for listening.

Any further Questions?