ENGINEERS
AUSTRALIA

Energy Transition and Risk Forum

Overview

The economy is going through an energy transition and so are other major economies around the world. What does this mean for Victoria?

Following the Victorian Government policy concerning the delivery of:

1. Harvester-Electric Base-Load [Wind, Solar PV] Capacity and;
2. the secure and timely transition of the current efficient Base-Load [Fossil Fueled] capacity infrastructure economy to a Harvester-Electric Base-Load [Wind, Solar PV] capacity economy.

The established energy supply and demand required by the government policy based on the precented data:

3. 11 years of Harvester-Electric Base-Load [Wind, Solar PV] Capacity Energy production data from AEMO for SEA and;
4. 11 year of energy demand data from AEMO

Electrical engineering only forms a part of the solution response. The solution response is determined by the supply, demand scope and the risks associated. We will explore energy production and consumption scoping, and consumption risk. All else but the GRID.

This forum will not focus on solutions, it is about a clear and low risk scope of work for the technological solutions that would meet the Governments policy. In other words, the clarification of the Governments policy for the writing of a concise Code for the Harvester-Electric Base-Load [Wind, Solar PV] Capacity economy.

Topics that will be covered include:

Risk engineering first principles, complex major project development, estimating norms and risks during the transition. Operational maintenance risk during and post transition. Cost value risk and electrical infrastructure risk, duplication of asset risks, construction, and dead asset risk.

Speaker Program

Speaker 1: Edmund Martin

Edmund Martin, an internationally experienced forensic engineer, including the unprecedented failure of 500 MW power plants. Edmund has made a career qualifying engineering high risk major industrial and critical infrastructure in Australia and overseas including nuclear power station mechanical safety systems currently under construction. Edmund has lectured at Cambridge University and to Global Major Consulting Engineering firms.

Subject: First Principle Existing Infrastructure Risk

Edmund will be talking on operational risk of the existing infrastructure and the transition risks associated with the current infrastructure. This information is sets a boundary condition for the Code, required to comply with the Government's Policy for a Harvester-Electric Base-Load [Wind, Solar PV] Capacity economy.

Speaker 1: Jonathan Sarah

Jonathon Sarah, an experienced complex major project development professional and a complex major project engineering and construction professional. Jonathon technically qualified a 1,300MW complex in the VREAS1 and successfully supported the qualification of a wind farm in VREAS2. Jonathon has qualified blue chip contractors for major infrastructure panels on the eastern seaboard. Jonathon has been working exclusively for his Family company since 2013, a company that was established in 1964. In 1969, the company moved into engineering and construction of technically challenging circular economy plant fabrication and construction and air quality engineering and construction. Including engineering the dust collection systems first installed on every Australian Steel Mill, that were only recently replaced. The company also negotiated for the free installation of the dust collection system on the Victorian battery lead acid manufacturing plant, in exchange for the lead recovered. The company engineered the complex fine metal (swarf used, beverage cans) surface hydrocarbon pyrolysis and metal recovery plants and delivered the plants for the circularisation of metal industry in Victoria. In recent year the company has focused on start up development and new production plant and the technically challenging aspects of the renewable energy economy in keeping with the last 44 years of engineering practice. With a particular focus on engineering first principles and first principles engineering risk.

Subject 1: First Principles Scope Risk

A first principles review of: the past 11 years of Harvester-Electric Base-Load [Wind, Solar PV] Capacity supply data, and the past 11 years energy of demand data. AEMO being Australia's principle energy data collection agency. Seasonally adjusting the 11 years of energy measurement data and uplifting the energy measurement data to reflect the Government Policy and filtering for time frames relevant to the supply mechanisms and economy demand and then adapting for the longer-term time frame (100 years plus) real, repeated regular event risks to

the Harvester-Electric Base-Load [Wind, Solar PV] Capacity economy. This information **forms** the Code, required to comply with Government's Policy. It is technology neutral. The code is written in joules and seconds. Words maybe used to describe shapes produced by images in the Code. The code includes no industry terminologies. Technology and terminologies used (generated) to comply with the Code, that is Structural, Mechanical and Electrical. The scopes of work for the Structural, Mechanical and Electrical infrastructure are developed from the Code.

Subject 2: Currently Under Construction

A review of the current infrastructure schedule and the projected energy supply and current world energy markets and risks.

Speaker 3: Regina Dua

Raphael Dua is one of the worlds leading and respected projects planning professionals. Raf is now in his 80's. he was on the Polaris Missile project at the birth of project planning profession. Raf sat on the ISO committee in Sweden that recently wrote the first projects planning standard for Europe, that we can assume will be adopted by Australia, he wrote the planning software that is used by Boeing to produce the Dreamliner, one of the most complex planning activities in the world. Raf's company supplied the 50 man planning team that delivered the Collins Class submarines. Raf planning experience include power stations, hospitals, prisons, airports, roads and major infrastructure. Raf lectures international. Raf is a world leading expert on schedule risk and Australia's leading forensic scheduler.

Subject: Schedule Risk

Raf will be talking of the current schedule risk based on the current infrastructure schedule and the Subject 1. Code requirements. The risk of gap, the risk of operational and or schedule based economic failure (TBC).